Manokotak Comprehensive Plan

October 2005

Developed by the Manokotak Planning Team, Manokotak Natives Limited,
City of Manokotak, Manokotak Village Council, and the residents of Manokotak

With assistance from Agnew::Beck Consulting, LLC
and the Bristol Bay Economic Development Corporation
as part of the Bristol Bay Community Planning Project

FINAL

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ACKNOWLEDGEMENTS

The Manokotak Community Comprehensive Plan is the result of a team effort from the Manokotak Planning Team, Manokotak Natives Limited, City of Manokotak, Manokotak Village Council, and the residents of Manokotak. This plan is the direct result of their contributions of time and knowledge of their community, and their desire for a healthy future.

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Three planning team workshops and one community workshop were held to gather public input for this plan. At the community workshop, in May 2005, 47 adult residents attended.

Local and regional merchants donated door prizes for the workshops. We thank Bristol Bay Air, Manokotak Natives, Ltd; Manuquutaq Store, the City of Manokotak and Manokotak Village Council for their generous contributions.

Photos were provided by Agnew::Beck Consulting, LLC and the youth of Manokotak. Maps were compiled by Bristol Bay Native Association and the State of Alaska Department of Commerce, Community and Economic Development (DCCED) as part of the Community Profiles Mapping Project. Annotations to these maps were created by Agnew::Beck, based on community input.

Funding for the preparation of this plan was provided by Bristol Bay Economic Development Corporation (BBEDC) as part of the Bristol Bay Community Planning Project. Additional funding was provided by the U.S. Department of Agriculture (USDA), Rural Development Agency. Regional partners in the project are the Bristol Bay Economic Development Corporation, Bristol Bay Native Association, the Bristol Bay Housing Authority, Bristol Bay Native Corporation and the Bristol Bay Area Health Corporation. Consulting partners include the Foraker Group, Agnew::Beck Consulting, LLC, Northern Economics, Inc, and Sheila Selkregg and Associates. Village and regional background information for this plan was compiled by Northern Economics, Inc. Agnew::Beck provided meeting facilitation, planning assistance and assistance with publication.

RESOLUTIONS FROM GOVERNING BODIES

[City of Manokotak will insert resolutions from governing bodies, once plan is completed and approved.]

INTRODUCTION & SUMMARY OF GOALS

"We can use planning to unify our goals for community."

Process to Prepare Manokotak's Comprehensive Plan

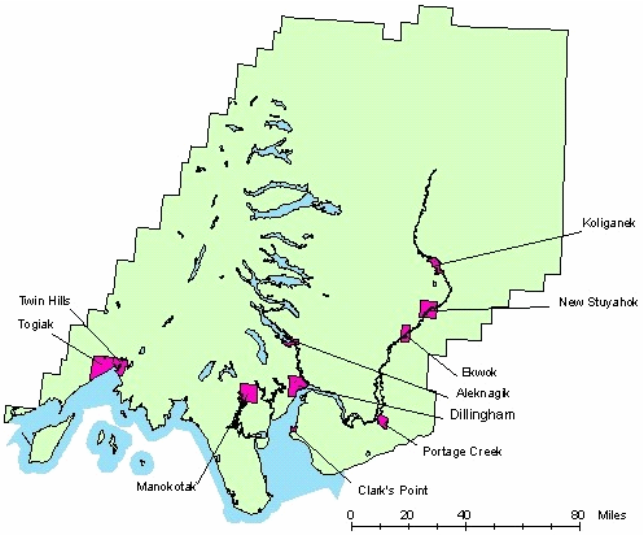
The Manokotak Comprehensive Plan, 2005, builds on multiple previous plans completed by the community. Most directly, this plan draws from the Manokotak Community Plan, completed by a local planning team lead by Bonnie Ayojiak, 2001 to 2003.Other relevant plans consulted during this planning process included Manokotak's Airport Plan, Long Range Transportation Plan, Clinic Plan, and utilities plans. A bibliography is included in Appendix A of this document.

The following table summarizes the process to prepare this Comprehensive Plan.

Date	Activity
January 20, 2005	Manokotak Planning Team Introduction Workshop
February 11, 2005	Manokotak Planning Team Workshop
March 9, 2005	Manokotak Planning Team Workshop
April 7, 2005	Manokotak Planning Team Workshop
May 12, 2005	Manokotak Community Planning Workshop
September 15, 2005	Manokotak Planning Team Review Session
October 30, 2005	Completion of Comprehensive Plan document

Project Area

Figure 1. Location of Manokotak, Alaska



Source: Alaska Department of Labor And Workforce Development, Research and Analysis and US Census Bureau, 2000 Tigerline files.

Purpose of Plan

Villages, regional organizations and statewide entities all recognize the need for communities to clearly state their goals and visions for the future. Community planning is the process of coming together to agree on a future direction, and gathering momentum to carry it forward. A united community is like a river that starts out braided and dispersed, but gains power by funneling all its separate channels into one stream. A united community, regardless of size or location, can achieve its goals through building consensus and clearly pursuing a direction that all community members support. This is the key to self-sufficiency and self-governance.

Community goals can range from constructing facilities, such as housing or a community center, to expanding infrastructure, creating jobs, protecting subsistence areas and sustaining cultural traditions. By planning ahead, villages can act on new opportunities and be prepared for challenges associated with economic and demographic changes.

Support in State Statutes

In Alaska, comprehensive plans are mandated of all organized municipalities by Title 29 of the Alaska State Statutes. While Manokotak is part of the Unorganized Borough, and therefore not covered under this mandate, a comprehensive plan is nevertheless useful to help guide community development. The key elements of the state statute are extracted below:

State Statute Sec. 29.40.030. Comprehensive plan

(a) The comprehensive plan is a compilation of policy statements, goals, standards, and maps for guiding the physical, social, and economic development, both private and public, of the first or second class borough, and may include, but is not limited to, the following:

- Statements of policies, goals, and standards;
- Land use plan;
- Community facilities plan;
- Transportation plan; and,
- Recommendations for implementing a comprehensive plan.

(b) With the recommendations of the planning commission, the assembly shall adopt by ordinance a comprehensive plan. The assembly shall, after receiving the recommendations of the planning commission, periodically undertake an overall review of the comprehensive plan and update the plan as necessary.

Requirements of Funding Organizations

In addition to Alaska State Statutes, funding agencies have become increasingly interested in community planning and many are now requiring that some type of community plan be in place in order to fund infrastructure and economic development projects. For example, the United States Department of Commerce Economic Development Administration (EDA) requires a unique planning process and document called a Comprehensive Economic Development Strategy (CEDS) to qualify for assistance under its economic adjustment, planning, and public works programs.

In addition, beginning with the Federal Fiscal Year 2005 funding cycle, the Denali Commission, which partners with other state and federal agencies and nonprofit agencies, will require a community to have a comprehensive community plan identifying community priority projects prior to funding considerations. This plan is intended to meet the criteria of both the Denali Commission and the EDA, and fulfill the planning requirement for those funding sources.

Planning Efforts in Bristol Bay

Bristol Bay regional organizations have recently increased their capacity to assist villages with completing community plans. The Bristol Bay Economic Development Corporation (BBEDC) has developed a grant program to assist member villages with planning efforts.

Bristol Bay Native Association (BBNA) developed a Community Development Inventory and a *Community and Economic Development Planning Guidebook* to assist village planning efforts, through a grant from the US Department of Commerce, Economic Development Administration. The Southwest Alaska Municipal Conference (SWAMC) has developed a web-based inventory of community development priorities and planning efforts.

In addition, both BBNA and SWAMC have completed regional plans that complement this village plan, which are available through the State of Alaska website:

- BBNA Comprehensive Economic Development Strategy, 2004 at: http:// www.dced.state.ak.us/ dca/oedp/pubs/SWAMC_CEDS03.pdf
- Southwest Alaska Municipal Conference (SWAMC) Economic Development Strategy, 2003 - 2008, updated 2004 at http://www.dced.state.ak.us/dca/ oedp/pubs/SWAMC_CEDS03.pdf

Summary of Goals and Priority Actions:

LAND USE, HOUSING & ENVIRONMENT:

Land Use:

1. Identify areas for specific uses and future growth.
2. Identify subsistence areas, open spaces, and other lands to be reserved from development.

Housing:

3. Increase amount of land in current village site available for housing; maintain as main village site.
4. Increase village's capacity to construct and maintain housing stock.
5. Upgrade older housing in main village.
6. Set standards for new housing.
7. Maintain and improve connections between main village site and new housing developments at Manokotak Heights.

Environment:

8. Implement strategies to protect air, water quality and clean environment.

COMMUNITY WELLNESS, CULTURE & EDUCATION:

Community Wellness:

1. Improve enforcement of rules set by the community.
2. Improve response to emergencies.
3. Promote wellness for entire village community by increasing effectiveness of social service providers and working together as a team.
4. Improve primary and behavioral health care for all residents.

Culture:

5. Gather as a community.
6. Offer more cultural activities to teach subsistence and seasonal skills; pass on traditional knowledge to youth.

Education:

7. Increase youth opportunities.
8. Improve communication between school and community.
9. Implement adult education programs.
10. Ensure that young children have a safe, nurturing learning environment.
11. Incorporate traditional culture and skills into school curriculum.

PUBLIC FACILITIES & TRANSPORTATION:

Transportation:

1. Update Manokotak's Long-Range Transportation Plan to examine and prioritize community needs.
2. Improve road maintenance.
3. Construct new dock facilities.
4. Construct new airport.
5. Maintain trail system.

Public Services & Facilities

6. Minimize cost of infrastructure.
7. Increase ability of City, Corporation to pay for public services, capital improvements and infrastructure.
8. Improve existing and future services and facilities.
9. Secure additional heavy equipment.

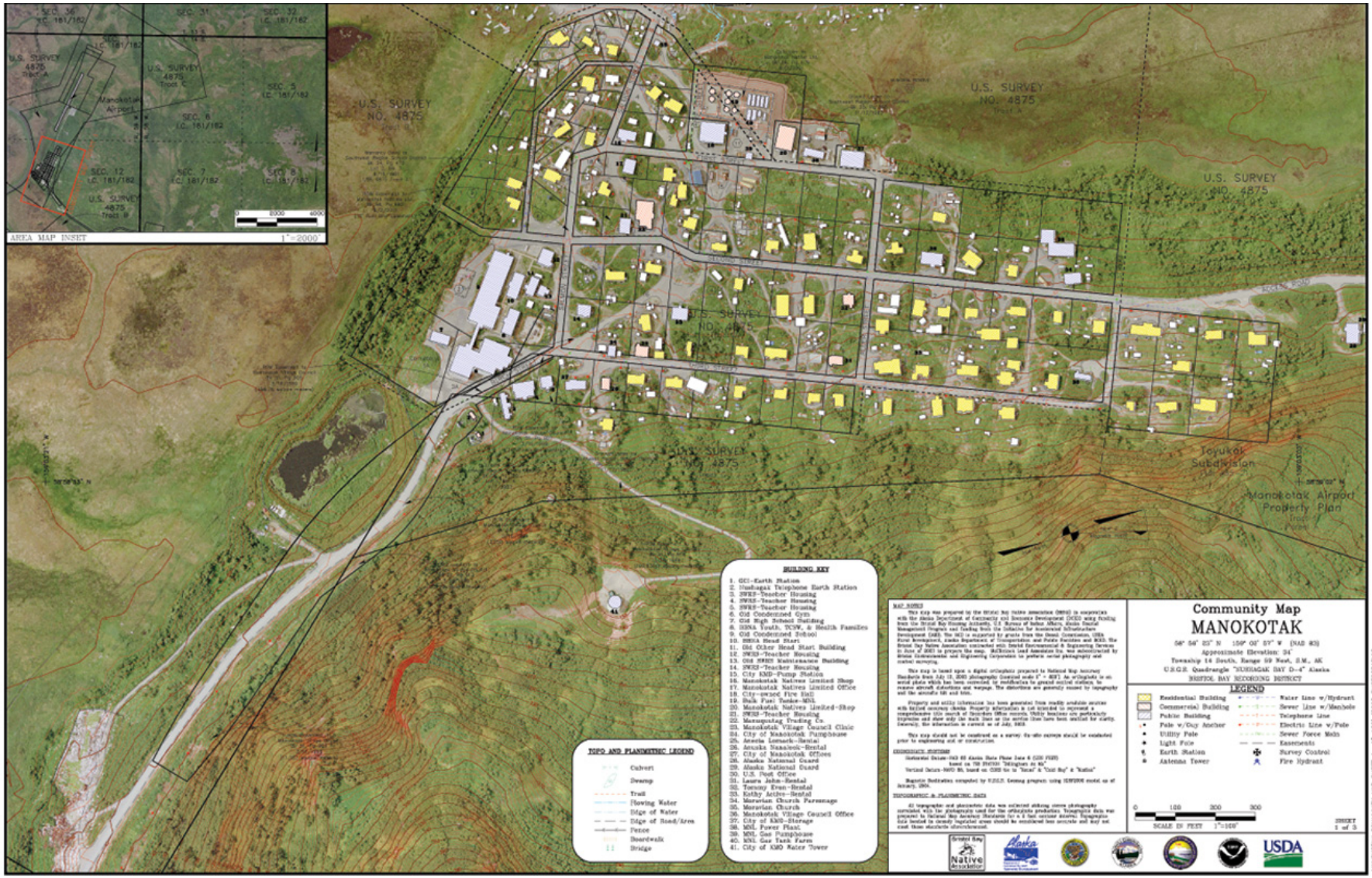
ECONOMY:

1. Create more local jobs.
2. Support existing businesses and start new local businesses.
3. Increase wealth of village residents and retain wealth within the community to help pay for community services and infrastructure.
4. Diversify economic base and reduce dependence on government assistance.

LEADERSHIP:

1. Increase communication between leadership organizations.
2. Increase communication between leaders and residents and provide good role models.

Figure 2. Manokotak Community Map – Main Village

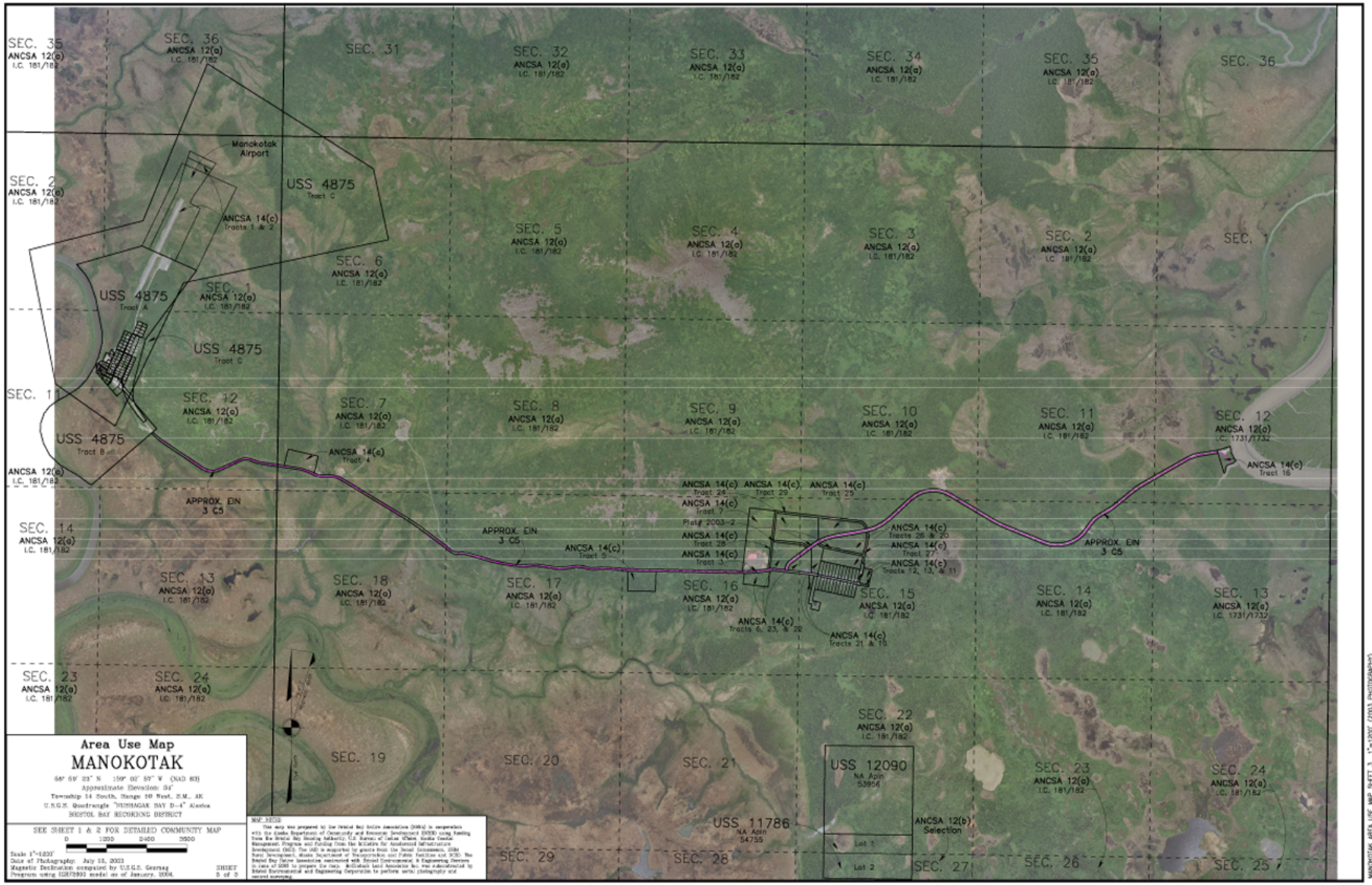


Source: DCCED Community Maps

Figure 3. Manokotak Community Map – Manokotak Heights

Source: DCCED Community Maps

Figure 4. Manokotak Area Map



Source: DCCED Community Maps

VISION & VALUES

Vision Statement

We are a cross-culturally active community of approximately 430 people focused on becoming self-radiant and self-determined using traditional and conventional ways. We want better communication and unity among our members. We want to provide culturally-based jobs in education, health and safety that meet our needs for community development.

Values

- Working together
- Cross-cultural, multi-culture
- Healthy environment, land, water, air – for humans, subsistence and the land itself

Community Priorities

- Better roads and maintenance
- Make entities work together
- Safe and fear free environment for children and elders
- Build self-esteem, sense of pride
- Invest in child care for our young children
- More educated people in community
- Better jobs to attract youth to stay
- Very good workers – increase compensation to provide for families
- Reasonable cost of living, travel expenses
- Well-trained workforce
- Utilize elders – keep our culture for us
- Strong relationships/role models between youth and elders
- Wellness for self, self-respect, respect for culture and community
- Better infrastructure – built and maintained to good standards
- Follow and enforce community policies and rules
- Leaders are good role models

VILLAGE BACKGROUND

Introduction

Village Location and Population Size

This community profile draws heavily from secondary and primary sources, U.S. Census Bureau, Census 2000, the Alaska Community Database maintained by the Department of Commerce, Community, and Economic Development, Division of Community Advocacy, and a publication from the Alaska Department of Fish and Game, Division of Subsistence, *Wild Resource Harvests and Uses by Residents of Manokotak, Togiak, and Twin Hills, 1999/2000* by Philippa Coiley-Kenner, Theodore M. Krieg, Molly B. Chythlook, and Gretchen Jennings, Technical Paper Number 275, April 2003. Local Elders provided information on village history and culture. Planning team members provided information on local environmental issues, and corrected secondary sources where necessary.

Village Description

Manokotak is a Yup'ik Eskimo village with a fishing, trapping, and subsistence lifestyle. Located 25 miles southeast of Dillingham on the Igushik River, it lies approximately 350 miles southwest of Anchorage, Alaska's largest city. The community of Manokotak sits between the east bank of the Igushik River and a lone hill that rises to an elevation of about 850 feet. The Tuklung Hills are visible in the background to the west. The area encompasses 36.4 sq. miles of land and 0.9 sq. miles of water. The Igushik River is the outlet of the Ualik and Amanka lake system and drains into Nushagak Bay.

Manokotak is one of the newer villages in the Bristol Bay region. It became a permanent settlement in 1946-47 with consolidation of the villages of Igushik and Tuklung. Manokotak was incorporated in 1970 and the estimated population in 2004 was 405 (DCCED). People also migrated to Manokotak from Kulukak, Togiak, and Aleknagik. Most of the residents leave during the summer, traveling to fish camps in either Igushik or Ekuk. Igushik has become a summer fish camp and is located on the mouth of the Igushik River. Ninety-six residents hold commercial fishing permits for salmon and herring fisheries (DCCED). Sharing relationships exist with several area villages, especially Togiak and Twin Hills.

Access

Manokotak is accessible by air and water. Regular and charter flights are available from Dillingham. There is a State-owned 2,720-foot long by 60-foot wide lighted gravel airstrip located one mile to the north, and a 5,000 foot designated seaplane base. Lighterage services deliver cargo each summer, but must pull up to the mud beach; there are currently no docking facilities on the Igushik River. The Igushik River consists of tight, broad meandering loops; therefore, many miles of waterway must be traveled to cover a comparably short distance in air miles. A 6.5-mile road to a barge landing area on the Snake River began construction in 1998. ATVs, snowmachines, and some vehicles are used for local travel. The Manokotak Trail to Dillingham is used by snowmachines during winter to haul fuel.

Physical Setting and Habitat

Manokotak is located in a climatic transition zone. The primary influence is maritime, although the arctic climate affects the region. Cloudy skies, mild temperatures, and moderately heavy precipitation characterize the area. Annual precipitation ranges from 20 to 26 inches. Fog and high winds exist periodically through the year. The river is ice-free from June through mid-November.

The dominant vegetation type in the area is tundra with willows, and scattered clumps of cottonwoods grow along the rivers. Small patches of spruce grow in some areas. Lakes and small ponds dot the landscape.

Bristol Bay drainages are the world's most productive areas for sockeye (red salmon), but four other species of Pacific salmon also spawn in Bristol Bay drainages: Chinook, chum, pink, and Coho salmon. Marine fish in the region include herring, smelt, halibut, and flounder. A variety of freshwater fish species, particularly rainbow trout, Dolly Varden, Arctic grayling, and northern pike are common in many drainages.

Environmental Issues

The community has an active Indian General Assistance Program (IGAP) funded by the Environmental Protection Agency and managed through Bristol Bay Native Association. The IGAP program has identified the following environmental issues for Manokotak:

- Air quality is very bad in the summer and fall due to dust from the unpaved roads. This is a health hazard for village residents, particularly elders and children. The community recommends resurfacing the roads with chip-seal material to reduce maintenance costs and keep dust down.
- Noise pollution from snow machines and ATVs during evening hours is a concern. A recent curfew, enforced by the Tribal Police Officer has greatly reduced this problem.
- A recent fuel spill highlighted the need for spill prevention and readiness.
- Protecting subsistence sites in and around Manokotak used for berry picking, seal and beluga hunting, fishing, and other subsistence activities.
- Demolition, renovation and replacement of dilapidated public buildings and houses is a high priority to remove public hazard and reuse land in the village.
- Several solid waste issues are high priorities for the community. The existing landfill needs to be remediated and closed. A new landfill should be constructed to accommodate multiple types of waste (burnables, salvage yard, recyclables, hazardous waste, non-burnables). A solid Waste operator is needed to manage the landfill, collect and separate waste, and supervise burning. Fencing to prevent and safeguards against water pollution are needed at the existing and proposed landfill site. :
- The water and sewer systems in both the main village and the Manokotak Heights need to be upgraded, with exisiting lines being replaced. An additional sewage lagoon is being planned for the Manokotak Heights. Enforcing collections for billing is a high priority. Installing curb stops to ease water shut-off would increase efficiency.

Subsistence Economy

Almost all of the households in Manokotak use wild foods, and a large majority fish, hunt, or gather resources. In 1999/2000 wild resource harvest levels were estimated to be 355 pounds per person with an average of 28.8 kinds used (Coiley-Kenner *et al.*, 2003). Sockeye salmon ranked first in use. While some salmon is removed from commercial harvests for home use, this accounted for less than 15 percent of the total subsistence harvest. Sockeye salmon are generally taken at the Igushik fish camp on Nushagak Bay.

Moose and caribou are also frequently used, providing almost one third of the wild resource harvests, with most harvesting taking place in the Igushik river drainage. Previous subsistence surveys were conducted in Manokotak in 1973/74 and 1985. The 1999/2000 study concluded that while resource harvest levels vary from year to year in composition, the total harvest level has been fairly constant since the early 1970s.

In the 1999/2000 survey conducted by the Alaska Department of Fish and Game, each household was asked what percent of all meat, fish, and birds eaten in the household during the past year were taken from wild resources. Ninety percent of households were interviewed. Approximately 78 percent of Manokotak households reported getting at least half of this type of food from wild resources. According to DCCED, sharing relationships exist with several area villages, especially Togiak and Twin Hills.

Manokotak Economy & Population

Subsistence is an important part of the local economy in Manokotak, particularly because of the limited opportunities for cash employment. As in much of the Bristol Bay area, most cash employment is seasonal with little year-round employment. Commercial fishing is especially important as a source of jobs and income. Government is also an important source of jobs and income.

Income

Personal income is the income received by people from all sources—private sector and government wages, salary disbursements, other labor income, farm and non-farm self employment income, rental income of people, personal dividend income, personal interest income, and transfer payments. Personal income does not have taxes subtracted from it.

Per capita personal income is the annual total personal income of residents of an area divided by the number of residents. Per capita personal income is a measure of economic well-being.

As in many other Alaska villages, incomes vary considerably from year to year and household to household, and are generally much lower than those of urban Alaska. For example, the Manokotak median family household income from the 2000 Census was $30,357—just over half of the State median family household income of $59,036 (U.S. Census Bureau, Census 2000). According to the Coiley-Kenner *et al.* study (2003), Alaska Permanent Fund dividends accounted for approximately 15 percent of total income.

Per capita personal income is only $9,294 compared to $16,021 for the census area and $22,660 for the State (Table 1). The lower per capita is due in part to the larger household size which was 4.29 individuals in Manokotak compared to 3.20 for the census area as a whole and 2.74 for the State. Almost sixty-five percent of households have a cash income under $35,000 per year (see Table 2). Manokotak is considered a "distressed" community by the Denali Commission.

Table 1. Personal Income in 1999 for Manokotak, Dillingham Census Area, and Alaska

	Manokotak	Dillingham Census Area	Alaska
Median Household Income ($)	26,875	43,079	51,571
Median Family Household Income ($)	30,357	45,391	59,036
Per Capita Income ($)	9,294	16,021	22,660

Source: U.S. Census Bureau, Census 2000, DP-3. Values calculated by Northern Economics, Inc.

Table 2. Manokotak Income Distributions for Family Households and all Households, 1999

	Number of Family Households	Percent Family Households	Number of Households	Percent of Households
Less than $10,000	8	10	15	16.5
$10,000 to $14,999	4	5.0	6	6.6
$15,000 to $24,000	23	28.8	23	25.3
$25,000 to $34,999	15	16.5	15	16.5
$35,000 to $49,999	6	7.5	6	6.6
$50,000 to $74,999	9	11.3	11	12.1
$75,000 to $99,999	4	5.0	4	4.4
$100,000 to $149,999	11	13.8	11	12.1
150,000 and above	-	-	-	-
Total	80	100	91	100

Source: U.S. Bureau of the Census, Census 2000, DP-3. Values calculated by Northern Economics, Inc.

Poverty Rate

The poverty rate is a commonly used indicator of the level of economic need in a community. Almost every positive personal and community outcome is negatively affected by poverty. Community factors such as the status of resources like affordable housing, transportation, education and training, jobs providing a living wage, health insurance, and availability of child care determine to a large extent an area's poverty rate. Previous research has shown that poverty populations in rural communities are more likely to be long-term poor than poverty populations in urban areas.[1]

The poverty rate for families in Manokotak is almost five times the poverty rate for families in Alaska as a whole.

Table 3. Poverty Status in 1999

	Manokotak	Dillingham Census Area	Alaska
Families	32.5	18.3	6.7
With Related children under 18 Years	38.3	23.0	9.3
With Related Children under 5 Years	56.0	26.3	13.4
Individuals	35.3	21.4	9.4

Source: U.S. Census Bureau, Census 2000. Values calculated by Northern Economics, Inc.

Employment

A community's labor force provides a measure of how much employment and economic activity a community may have. Labor force is defined as the number of persons 16 years of age or older, the age at which an individual is legally able to work.

Table 4 shows the number and percent of individuals 16 years and older, individuals in this age category in the civilian labor force, and employed and unemployed individuals.

Unemployment rates do not take into account individuals who are underemployed or discouraged workers who have given up hope of finding a job and are not actively seeking employment. Approximately 62.9 percent of the population 16 years and over is in the labor force in the Dillingham Census Area (U.S. Census 2000). However, only 40.6 of individuals 16 and over in Manokotak participate in the labor force.

The seasonal nature of seafood processing employment, the traditional practice of a subsistence lifestyle, and the absence of other employment opportunities all affect labor force participation rates (Table 4).

As a result, it appears from Census data that Manokotak has a lower unemployment rate than the State of Alaska or the Dillingham Census Area, but the low unemployment rate is probably due to fact that many individuals 16 years and over are not actively looking for work because they are aware of the limited opportunities available.

Table 4. Employment Status of Population 16 Years and Over, Census 2000, Dillingham Census Area and Selected Communities

Employment Status	Alaska		Dillingham Census Area		Manokotak	
	Number	Percent	Number	Percent	Number.	Percent
Population 16 Years and Over	458,054	100	3,216	100	256	100
In Labor Force	326,596	71.3	2,007	62.4	104	40.6
Civilian Labor Force	309,485	67.6	1,995	62.0	102	39.8
Employed	281,532	61.5	1,765	54.9	88	34.4
Unemployed	27,953	6.1	230	7.2	14	5.5
Percent of Civilian Labor Force	9	-	11.5	-	13.7	-
Armed Forces	17,111	3.7	12	0.4	2	0.8
Not in Labor Force	131,458	28.7	1,209	37.6	152	59.4

Source: U.S. Census Bureau, Census 2000, SF-3. Values calculated by Northern Economics, Inc.

Table 5 shows the reported occupations of the employed civilian population 16 years and over in Manokotak. Of note is that no one reported employment in the fishing sector. We know that this does not reflect the importance of fishing in this community. This disparity is most likely due to the timing of the census, which occurs in April every ten years, and asks respondents what they did for employment the previous week. Thus, the census does not account for those involved in fishing at other times of the year, including the important summer salmon season.

Table 5. Occupation of Employed Civilian Population 16 Years and Over, Manokotak, Census 2000

Occupation	Number	Percent
Management, Professional, and Related Occupations	47	53.4
Service Occupations	12	13.6
Sales and Office Occupations	12	13.6
Farming, Fishing, and Forestry Occupations	-	-
Construction, Extraction, and Maintenance Occupations	11	12.5
Production, Transportation, and Material Moving Occupations	6	6.8

Source: U.S. Census Bureau, Census 2000, SF-3. Values calculated by Northern Economics, Inc.

Table 6 shows the percentage of four different classes of workers: private wage and salary workers, government workers, self-employed workers in their own business who are not incorporated, and unpaid family workers. The government sector is a very significant source of employment in Manokotak, accounting for almost 83 percent of workers. In contrast government workers account for 47.5 percent of employment in the Dillingham Census Area.

Table 6. Class of Worker Manokotak, 1999

Employment Class	Number	Percent
Private Wage and Salary Workers	15	17
Government Workers	73	83.0
Self-Employed Workers (Not Incorporated Business)	-	-
Unpaid Family Workers	-	-

Source: U.S. Census Bureau, Census 2000, SF-3. Values calculated by Northern Economics, Inc.

Number and Types of Small Businesses

The records below reflect current business licenses on file with the Department of Commerce, Community and Economic Development, Division of Occupation Licensing, Business Licensing Section. These licenses may not represent actual business activity.

Table 7. Current Business Licenses in Manokotak

	SIC Codes (Primary - Secondary)
Anecia Ayojiak	6244
Grummi's Daycare	6244
Lomack Bunkhouse	5311
Manuquutaq Trading Company	4451 - 4529
Minaq's Store & Marina	4529
Olga M. Dick	6244

A business and jobs survey conducted in April 2005 by the City of Manokotak reported 14 entities in Manokotak that employ local workers. Of these, seven are government organizations, five are local businesses, one is a non-profit organization and one is a subsidiary of the village corporation. These 14 organizations provide a total of 45 full-time jobs and 38 part-time jobs. Of these positions, nine full-time and one part-time are filled by non-local workers, all at the school. Local workers fill all remaining jobs in Manokotak. See Figure 5 for results of the survey.

Figure 5. Results from Business & Jobs Survey, Conducted by City of Manokotak, April 2005

	Name of Business or Organization	Business Type*	Description or Type of Business	# of Full-Time Jobs	# of Part-Time Jobs	# of Months per Year in Operation	Year Established	# of Employees When Est.	# of New Jobs During Past Two Years	# of Jobs Expected 5 Years from Now	Any Non-Locals Employed?	# of Non-Locals Employed
1	City of Manokotak	G		3	2	12		F/T P/T	F/T P/T	F/T P/T	Yes No	F/T P/T
2	Manokotak Morvian Church	NP		0	1	12		F/T P/T	F/T P/T	F/T P/T	Yes No	F/T P/T
3	Manokotak Fire/Search & Rescue/1st Responders	G		0	0	12		F/T P/T	F/T P/T	F/T P/T	Yes No	F/T P/T
4	Manokotak Village Council	G		3	2	12		F/T P/T	F/T P/T	F/T P/T	Yes No	F/T P/T
5	Bristol Bay Area Health Corporation	G		6	2	12		F/T P/T	F/T P/T	F/T P/T	Yes No	F/T P/T
6	Bristol Bay Native Association	G		2	1	12		F/T P/T	F/T P/T	F/T P/T	Yes No	F/T P/T
7	Manokotak Trading Company (MNL)	LB	General merchandise	5	3	12	early 1990's	F/T P/T	0 F/T 0 P/T	0 F/T 0 P/T	x Yes No	F/T 1 P/T
8	Lomack Bunkhouse	LB	Lodging	1	0	12	1977	1 F/T 0 P/T	0 F/T 0 P/T	1 F/T 0 P/T	Yes x No	F/T P/T
9	Manokotak Post Office	G	Postal Service	1	2	12	1960	1 F/T P/T	1 F/T 1 P/T	1 F/T 2 P/T	Yes x No	F/T P/T
10	Manokotak Nunanig School	G	Education	21	7	9		F/T P/T	2 F/T 1 P/T	2 F/T 1 P/T	x Yes No	9 F/T 0 P/T
11	Manokotak Airline Dispatchers	LB		1	1	12		F/T P/T	F/T P/T	F/T P/T	Yes No	F/T P/T
12	Manokotak Power Company	O	Supplies power to community	0	13	12	1971	0 F/T 6 P/T	0 F/T 2 P/T	0 F/T 13 P/T	Yes x No	F/T P/T
13	Van/Dispatch Service #1	LB	Dispatch/van driver	1	2	12	1978	1 F/T 1 P/T	F/T P/T	1 F/T 1 P/T	Yes x No	F/T P/T
14	Van/Dispatch Service #2	LB	Dispatch/van driver	1	2	12	1978	1 F/T 0 P/T	1 F/T 1 P/T	1 F/T 2 P/T	Yes x No	F/T P/T
	TOTALS	see below		45	38	12		4 7	4 5	6 19	0 0	9 1

Total = Average # of Months Per Year

Government Agency G = 7

Locallly-Owned Business (For Profit) LB = 2

NOT Locally-Owned Business (For Profit) NLB = 0

Non-Profit NP = 1

Other O = 0

Fisheries Participation

The number of permits held and the number of permits fished by Manokotak residents fell dramatically between 1990 and 2002 (see Table 8). Overall, permits held by residents fell from 261 permits in 1990 to 150 permits in 2002. This decline represents an overall reduction of 43 percent. The number of permits held by residents dropped the most in the "other finfish" category. This category declined from fifteen permits in 1990 to one permit in 2002. The number of individuals holding halibut permits fell by nearly 75 percent. However much of this decline took place before the rationalization of the halibut fishery in the mid-1990's into a transferable quota system.

Permit numbers have been relatively stable since rationalization and have increased in the last several years. The number of individuals holding herring permits fell by just under half. Falling stocks have negatively affected the herring fisheries for several years and openings are rare in specific areas. Resident ownership of salmon permits was the steadiest across all groups, but still fell by 18 permits. This amount represents a loss of nearly 20 percent. The salmon fishery has suffered from international competition and poor returns in some Bristol Bay fishing districts leading to a decline the number of permits held and overall participation. For example, in 1990 (just past the height of the Bristol Bay salmon fishery) the participation rate amongst permit holders was 96 percent. In 2002, the participation rate was only 64 percent.

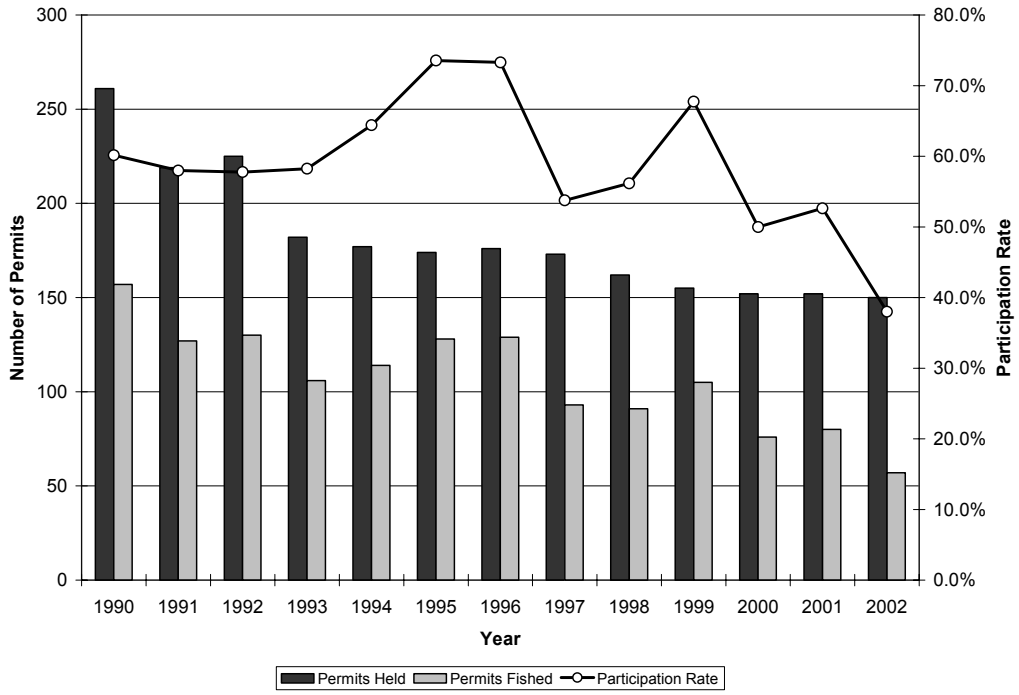
Table 8. Fishing Permits and Fishing Participation, 1990-2002, Manokotak

Species	Permits	Year												
		1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Halibut	Fished	5	0	0	0	0	0	0	0	0	1	1	0	2
	Held	22	13	12	6	4	4	3	2	4	3	3	4	6
Herring	Fished	63	42	44	20	31	44	50	17	14	32	8	5	7
	Held	131	114	121	89	87	85	90	90	81	76	75	73	68
Salmon	Fished	89	85	86	86	83	84	79	76	77	72	67	75	48
	Held	93	85	86	85	85	84	82	80	76	75	73	74	75
Other	Fished	0	0	0	0	0	0	0	0	0	0	0	0	0
	Held	15	7	6	2	1	1	1	1	1	1	1	1	1
Total	Fished	157	127	130	106	114	128	129	93	91	105	76	80	57
	Held	261	219	225	182	177	174	176	173	162	155	152	152	150

Source: Alaska Commercial Fisheries Entry Commission, 2004. Values calculated by Northern Economics, Inc.

Figure 6 shows fishing permit ownership and participation trends in Manokotak from 1990-2002. The total number of permits owned in Manokotak shows a study downward trend across the period. However, the rate of loss has slowed in recent years. Between 2000 and 2002 the community lost two permits; a rate of loss of less than one percent per year. Between 1990 and 1992 the community lost 36 permits; a rate of slightly more than five percent per year.

Figure 6. Fishing Participation and Permit Ownership in Manokotak,1990-2002



Source: Alaska Commercial Fisheries Entry Commission. Values calculated by Northern Economics, Inc.

Population

Information about population trends and characteristics helps describe the general nature of a community or area. An analysis of population trends can help determine if changes are occurring for specific groups defined by age, gender, race, or education level, thereby influencing the nature of social and economic relationships in the community. The Dillingham Census Area and its communities have some distinct demographic characteristics and trends that will be discussed in this section.

Table 9 shows the population for the Dillingham Census Area and Manokotak at 10-year intervals, 1960 through 2000, along with the estimated population for 2004 (DCCED). The population of the Dillingham Census Area is centered in the City of Dillingham, which accounts for 50 percent of the population of the designated census area. The Dillingham census area realized the largest population increase between 1990 and 2002 with a growth of 23 percent. All the communities in the census area experienced growth between 1990 and 2000, but between 2001 and 2002 five communities experienced population declines.

Table 9. Population of Manokotak and the Dillingham Census Area, 1930-2004

Community	1930	1940	1950	1960	1970	1980	1990	2000	2003	2004
Manokotak	-	-	120	149	214	294	385	399	405	405
Census Area				4,024	3,485	4,616	4,012	4,922	4,912	

Source: DCCED community profiles. http://www.census.gov/population/cencounts/ak190090.txt. Population for 2003 and 2004 from AKDOLWD Provisional Estimate. Values calculated by Northern Economics, Inc.

Age & Gender

Age distribution gives an indication of whether the population of a community is generally young or old and growing or declining. It is a predictor of future school enrollments, an indicator of what resources and programs the community may need for specific age groups, and one source of information about the available labor force, and the impacts of changes in the nature of the local economy.

Table 10 shows five cohort groups, median age, and gender for Alaska, the Dillingham Census Area, and Manokotak. The median age for the Dillingham Census Area and Manokotak is lower than the median age for the state as whole. The median age in Manokotak is very young at 21.9 years. In contrast, the median age for the State is 32.4 years while the median age of the U.S. in 2000 was 35.3.

In Manokotak, 54 percent of the population was male and 46 percent female (Census 2000).

Table 10. Total Population, Age and Gender, Alaska, Dillingham Census Area and Manokotak, 2000 Census

		Percent					Year	Percent	
Geographic Area	Total Population	Under 18	18 to 24	25 to 44	45 to 64	65 and Older	Median Age	Male	Female
Alaska	626,932	30.4	9.1	32.5	22.3	5.7	32.4	51.7	48.3
Census Area	4,922	38.1	7.7	28.9	19.5	5.7	28.9	52.2	47.8
Manokotak	399	44.4	10.8	24.8	15.0	5.0	21.9	53.9	46.1

Source: U.S. Census Bureau, Census 2000, GCT-P5. Values calculated by Northern Economics, Inc.

Race

Table 11 shows that in 2000, 70.1 percent of Dillingham Census Area residents were Alaska Native or American Indian. At the time of Census 2000, 378 individuals or 94.7 percent of Manokotak's population reported they were Alaska Native or American Indian alone or in combination with one or more other races.

Table 11. Percent of Population by Race for Selected Communities and Dillingham Census Area, Census 2000

Geographic Area	White	Alaska Native	Black	Asian	Other race	Two or More
Dillingham	35.6	52.6	0.6	1.2	0.6	9.4
Manokotak	4.8	94.7	0.3	0	0	0.3
Togiak	6.9	86.3	0.1	0	0.2	6.4
Twin Hills	5.8	84.1	0	0	0	10.1
Census Area	21.6	70.1	0.4	0.6	0.5	6.7

Source: U.S. Census Bureau, Census 2000, SF-3. Values calculated by Northern Economics, Inc.

Households

Table 12 shows the number of individuals living in households and group housing, the total number of households, average household size, total number of family households, average family size, and the number of individuals not living in a household. Both the average household size and average family size in the Dillingham census area are larger than in Alaska as a whole. The average household size in Alaska is 2.74 and the average family size is 3.28. In Manokotak the average household size is 4.29 and the average family size is 4.92.

Table 12. Households in Dillingham Census Area and Manokotak, Census 2000

	Census Area	**Manokotak**
Population in Households	4,889	399
Population in Group Quarters	33	0
Total Number of Households	1,529	93
Average Household Size	3.20	4.29
Number of Family Households	1,106	77
Average Family Size	3.84	4.92
Number of Nonfamily Households	423	16

Source: U.S. Census Bureau, Census 2000. Values calculated by Northern Economics, Inc.

Facilities, Utilities, Schools and Health Care

Water is derived from two wells, is treated and stored in a 150,000-gallon water storage tank. A piped water and sewer system, constructed in 1972, serves 68 households and the school with complete plumbing. Two homes and a duplex have individual wells. Manokotak Heights, located 4 miles to the south, is served by a well and treatment system, but water shortages have occurred. New HUD housing units were built in 2000, and additional units are planned. A feasibility study is underway to examine water, sewer and landfill improvements. Electricity is provided by Manokotak Power Company. There is one school located in the community, attended by 142 students. Local hospitals or health clinics include Manokotak Village Clinic (289-1077). Manokotak is classified as an isolated village, it is found in EMS Region 2I in the Bristol Bay Region. Emergency Services have river and air access. Emergency service is provided by volunteers and a health aide. Auxiliary health care is provided by Manokotak First Responders (289-1025).

GOALS & STRATEGIES

LAND USE, HOUSING & ENVIRONMENT

Land Use

Context

Sunset on city buildings

Manokotak's location was originally chosen, at least in part, because of the abundance of firewood in the area – firewood which could provide residents heat and fuel for steambaths. The site was also attractive because of its proximity to rivers where waterfowl, marine mammals and fish were abundant. These animals were caught for subsistence and commercial purposes. Upriver, a steady supply of spawned out red salmon and Dolly Varden provided residents with food for their dogs. The addition of school services provided by the Moravian Mission made it possible for residents to receive an education in the village.

Manokotak is the fourth most populated community in terms of population in the Dillingham Census Area. Since 1950, when the Census began in this area, the population has increased every decade. Residents anticipate continued steady growth in the community.

The current land use pattern in the village has begun to spread out over a comparatively large area. This increases the cost of maintaining and providing public services, such as water & sewer, electrical service and road maintenance. Effectively, Manokotak is managing public facilities in two locations, – at the Manokotak Heights housing and in the main village – with the financial and human resources of one village or city.

The school is located four miles south of the main village, along with a housing development of approximately 16 units, called Manokotak Heights. Additional multi-family housing units are being developed in the Manokotak Heights during the summer of 2005. This area has a separate well and sewage treatment system that will be expanded.

The proposed replacement airport location, eight miles distant from the main village, will present many challenges for Manokotak (see Public Services, Facilities & Transportation chapter for discussion). It also presents an opportunity for extending the road network to create a docking facility on the Snake River. This would eliminate approximately 30 miles of river travel that residents must currently make to access fishing grounds. With the rising cost of fuel, eliminating this distance would make many goods, services and activities more affordable.

The goals and priority actions for Land Use focus on identifying future development areas, and ensuring that public open space and important historical sites are reserved and protected as housing and other development occurs. Maintaining the main village as the public facilities and residential center of the community is an important priority, in order to keep development compact and keep the costs of providing public services to a minimum.

Land Use Goals

1. **Identify areas for specific uses and future growth.**

2. **Identify subsistence areas, open spaces, and other lands to be reserved from development.**

Challenges and Resources

CHALLENGES	RESOURCES
Lack of room for expansion in main village.	Existing airport may be available when new airport is constructed. Other land could be identified for expansion. Redeveloping portions of the main village could more effectively use existing space.
Land use pattern beginning to sprawl with new housing and facilities located at the Manokotak Heights. Leads to increased expense for road maintenance and public services.	Identify expansion areas near main village.
Subsistence areas near the village need protection.	Land use mapping & the comprehensive plan process can identify areas for protection.

Goals & Priority Actions

1. **Identify areas for specific uses and future growth.**

- Create site plan for land use in main village, including areas for public services, residential, commercial concentrations.
    - Work with BBHA to complete study of existing airport site to determine suitability for development of housing and recreation areas. Area between apron and the armory is bedrock, and may be unsuitable for extending utility lines.
    - Develop a facility plan and raise funds for the renovation of the old school in the main village. Old school gym will be torn down summer 2005. Renovate the rest of the old school as a multi-purpose facility to provide office space, childcare, youth center, senior center, and public meeting space
- Work with landowners (City of Manokotak, Manokotak Natives Limited, etc.) to determine best sites for future growth that meet diverse community needs.
- Consider issues of sprawl and techniques to control this type of growth.

2. Identify subsistence areas, open spaces, and other lands to be reserved from development. (see Figure 6, page 35).

- Designate areas for recreation within the main village, and the housing development at the Manokotak Heights.
    - These should include parks with playground equipment (swings, slides), ballfields, basketball court, picnic area, volleyball, ski runs, and a safe sledding place for children, away from road traffic.
- Develop a bike & walking trail along the road to the Manokotak Heights (paved, not for four-wheelers).
- Protect historical and cultural sites from development. Some significant sites include:
    - Along the Igushik River – Old Igushik site (EUC – refers to Great Eskimo War); Aqlillugpak, site where enemy warrior with big earrings was killed; Nunacuaq – old village site.
    - At housing at the Manokotak Heights – ancient dwelling site.
- Upgrade fence to protect three cemeteries in Manokotak. Repair and replace grave markers.
- Access information from the Traditional Ecological Knowledge (TEK) project, which uses SPAM (Internet site: http://www.ankn.uaf.edu/tek.html).
    - Use information gathered to teach youth about subsistence areas.
    - Use information to document and track population levels of important subsistence species to ensure good management of resources.

Popular berry picking and hiking area

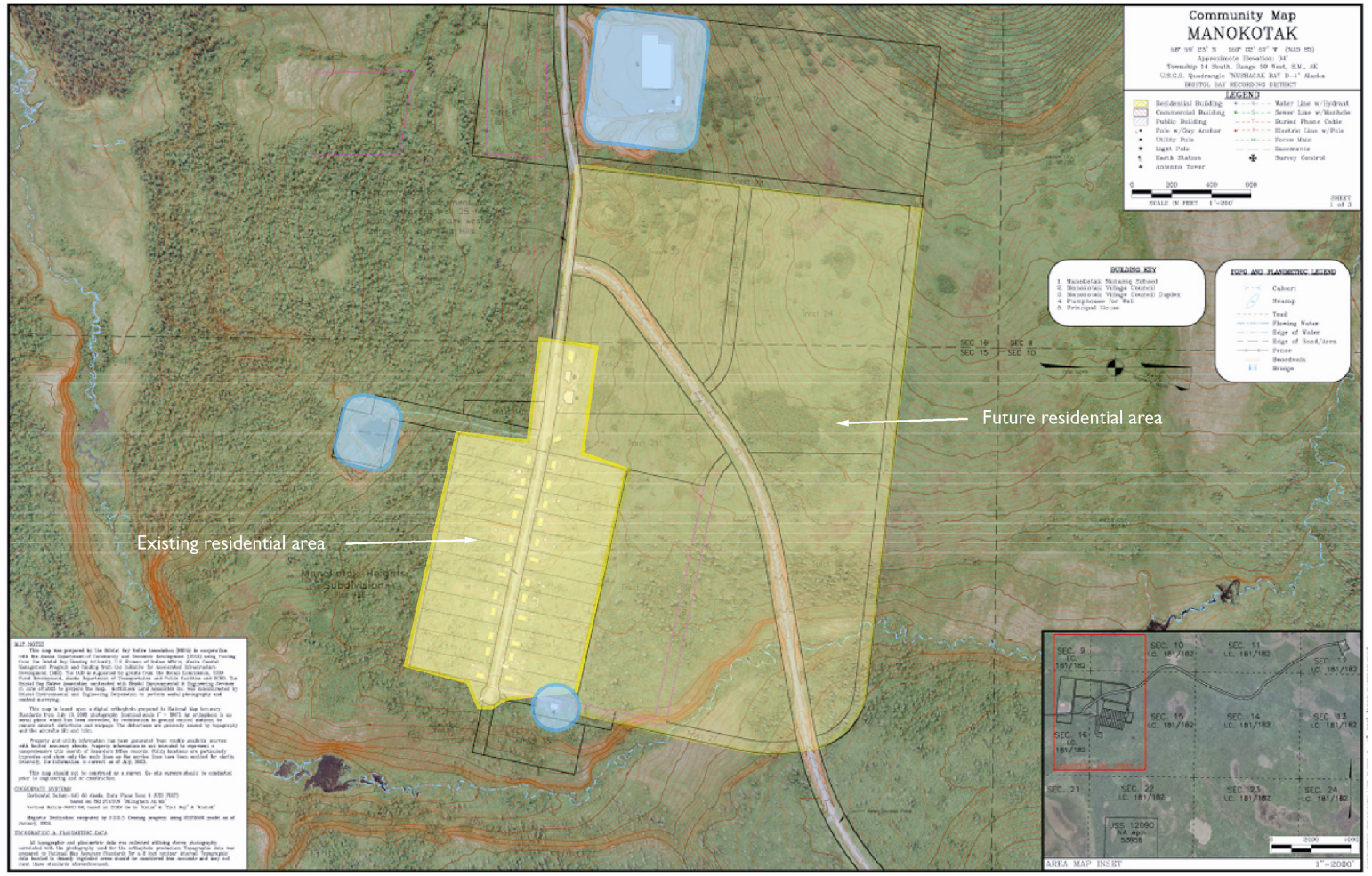
Figure 7. Manokotak Trail Easements [1]

RESERVED EASEMENTS

EIN 3	Existing access trail from Dillingham westerly to Manokotak and Twin Hills (25 foot trail).
EIN 103	A one (1) acre site on the right bank of Igushik River east of Manokotak Airport.

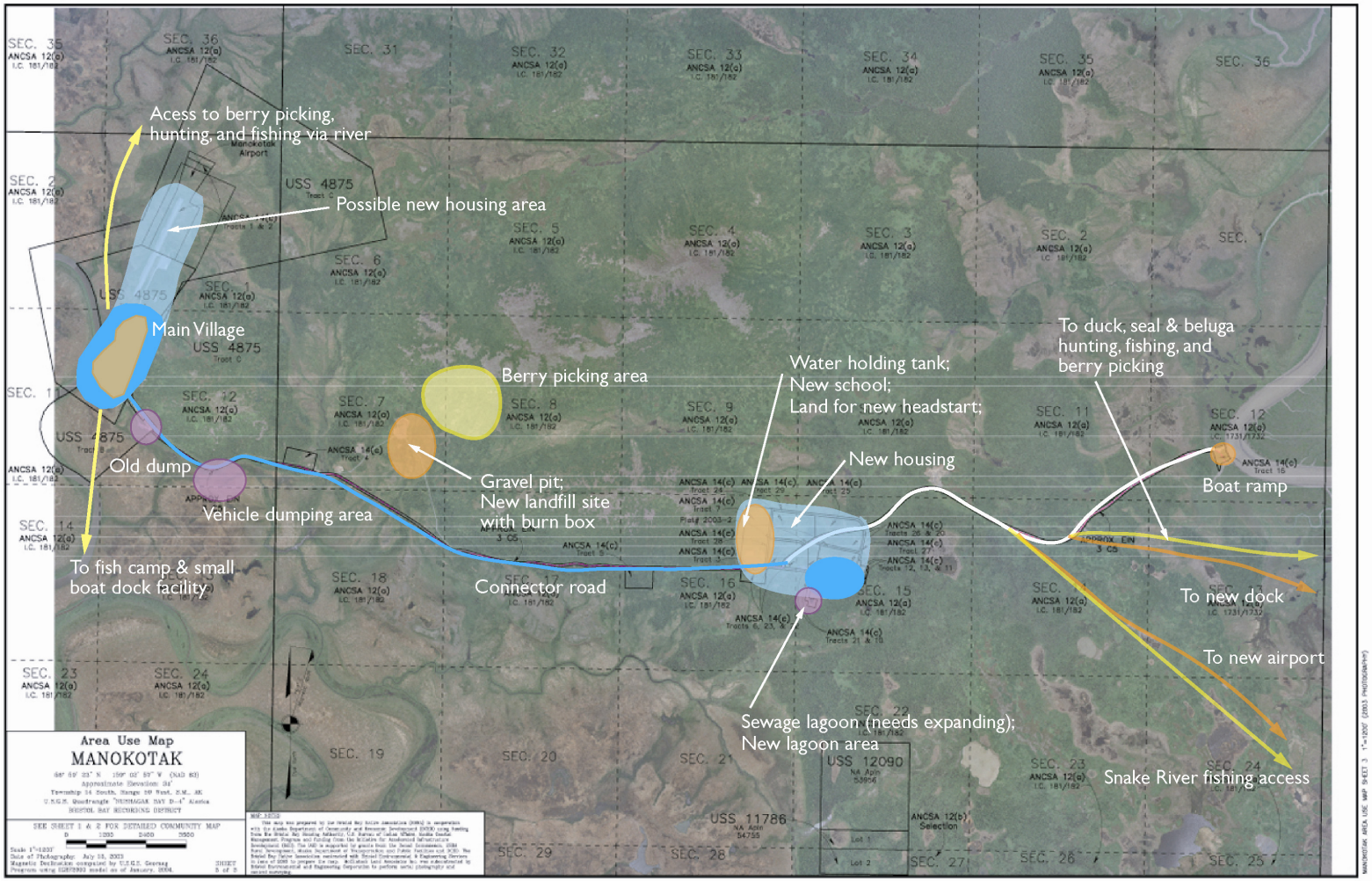
[1] *Bristol Bay Easement Atlas*, Alaska Department of Natural Resources, Division of Land and Water, 1990.

Figure 8. Manokotak Land Use Map – Main Village



Source: DCCED Community Maps with annotations by Agnew::Beck

Figure 10. Environment & Land Use Map



Environment & Land Uses

Source: DCCED Community Maps with annotations by Agnew::Beck

Housing

Context

Some of Manokotak's housing is in need of upgrades and repair.

Manokotak is rapidly filling its available buildable land. The main village is densely packed with homes, and the City frequently turns down requests for land. Without available land in the main village, residents often "subdivide" their lot to make room for other family members to build a home on it. Also, without guidelines about building setbacks, and other construction standards, the village is developing a somewhat haphazard layout, with buildings crossing lot lines and some houses built very close together, without adequate drainage. Some of the houses and public facilities in the main village are in a dilapidated state and are considered by village residents to be hazardous. This includes the old school and associated buildings and some houses.

In order to provide low-income housing for Manokotak residents, Manokotak Natives Limited made available about 100 acres of land east of the main village for new housing construction. A portion of this land was surveyed and new homes built upon it by the Bristol Bay Housing Authority. Plans for continuing to add to this housing stock are in place (see next section "Bristol Bay Housing Authority"). The remaining un-surveyed acreage is reserved for future housing needs.

While opening this area has helped to relieve some of the demand for land, it has also increased the need for more and improved infrastructure, such as roads, sewer, and water. Additionally, residents want to maintain the main village as the center of the community, rather than continuing to spread out along the road system.

To fight this sprawl and keep infrastructure costs down, Manokotak will need to find ways to free up land around the main village. Though much of the land outside the village is likely too wet to be buildable, there are several long-term planning approaches Manokotak can employ to keep their settlement pattern compact and more sustainable. If the airport is moved from the existing site, this could become a development area for residential and public open space, such as a park, ball fields, playground and sledding hill. Additionally, the main village could be redeveloped by demolishing dilapidated houses, repairing and renovating useful housing stock, and repurposing vacant public facilities. Another possible site for future development could be the land parcels along the road to Manokotak Heights owned by Manokotak Natives, Ltd. The corporation board may be interested in designating some of this land for development by shareholders.

Current density levels in the main village ranges from 4 to 6 housing units per acre. Some members of the planning team believe this level is too dense. When considering future housing development a target density level should be agreed upon that maintains compact development but provides adequate outdoor space and separation between buildings. If the lower density level of 4 units per acre were used, and reducing the gross acreage by 20% to disregard land that is physically unsuitable for development, the number of units described on the following table could be developed in areas adjacent to the main village. This estimate does not account for actual development suitability, or other considerations such as designating areas for open space, roads and trails.

Table 13. Estimated Capacity for Expansion of Manokotak's Main Village

Area	Land Available (gross acreage)	Adjusted Land Available (approximate)	No. of Homes @ 4 units/acre	No. of Homes @ 6 units/acre
Main Village	37 acres			
Airport Site A	46 acres	40 acres	160 homes	240 homes
Airport Site B	46 acres	25 acres	100 homes	150 homes

Values calculated by Agnew::Beck.

Manokotak, generally, is interested in providing several types of housing opportunities to residents: the possibility for families to build their own homes by making available both land and construction and maintenance training; making "starter homes" available to young families; guaranteeing quality housing to all residents, especially elders; and keeping their village attractive and well-maintained through building and design guidelines. Related to this goal is a concern on the part of residents that these houses be affordable.

In order to pursue development of future housing areas, village organizations will need to evaluate the capacity and desirability of possible new development areas. The following table outlines important decision points to be made in evaluating sites. Once a site is identified and density targets are determined, a site plan will be needed for the development area, and an estimated cost for the development. Issues of site control and methods for land disbursement must also be considered. Ordinances will also need to be adopted to make development guidelines binding.

Clothing out to dry in the main village.

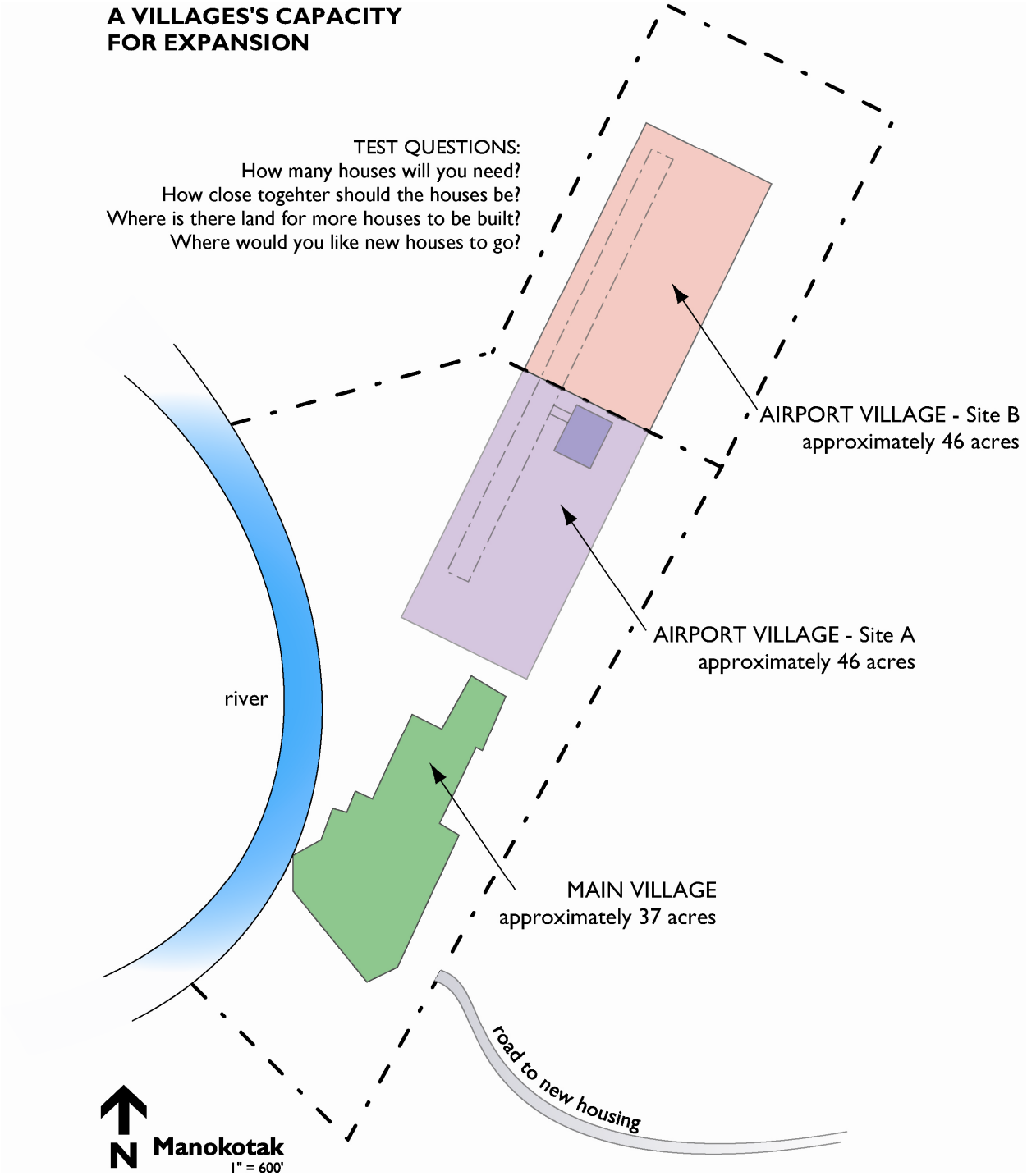

A VILLAGES'S CAPACITY
FOR EXPANSION
TEST QUESTIONS:
How many houses will you need?
How close togehter should the houses be?
Where is there land for more houses to be built?
Where would you like new houses to go?
AIRPORT VILLAGE - Site B
approximately 46 acres
AIRPORT VILLAGE - Site A
approximately 46 acres
river
MAIN VILLAGE
approximately 37 acres
road to new housing
N
Manokotak
1" = 600'

Table 14. Considerations in Estimating Capacity and Desirability of Future Development Areas

Considerations in Estimating Capacity and Desirability of Future Development Areas
Estimate amount of land with good physical capability for residential development:
▪ Start with total land area (external boundaries).
▪ Reduce to exclude areas that are physically unsuitable for development (poorly drained, too steep, etc.)
▪ Reduce to exclude areas needed for public buildings, open space, utilities, roads & trails, etc.
Evaluate capacity of water & sewer and other utilities:
▪ Is there any surplus in the existing systems?
▪ If not, what will it cost to expand, or refurbish existing system?
▪ If that is not feasible, what will it cost to build a new system?
Designate the density and quality of new housing:
▪ How many units are desired?
▪ What level of density is preferred?
▪ What level of density is most affordable?
▪ What is the goal for housing capacity in 5 years? In 10 years? (based on current shortage and likely population growth)
▪ What type(s) of housing can be built (e.g. single family, duplex, 4-plex, etc.)?
▪ What can the average family afford?
Determine the considerations that affect the quality of existing housing. What "design standards" are needed for developing new or renovated quality housing? Some examples include:
▪ To reduce noise around housing, require set backs from roads and trails and identify road & trail routes around housing.
▪ To ensure adequate space for outdoor storage and outbuildings (such as maaq'ii, fish racks, etc.), require minimum lot square footage per dwelling unit.
▪ To ensure good views, arrange housing lots to maintain views and southern exposure for each dwelling, and set a maximum height for buildings.
▪ To ensure adequate open space for play areas, reserve land adjacent to housing areas that will be developed only for public purposes.
Evaluate the status of existing housing stock and buildings to create a redevelopment plan for existing housing stock. Identify existing houses in three categories:
▪ Good – no improvements needed.
▪ Fair -- needs improvement.
▪ Poor – needs demolition and/or complete reconstruction.
Determine ordinances and action steps

Housing development in Manokotak requires an active partnership between village organizations, village residents and the regional housing authority, Bristol Bay Housing Authority. The following section describes the Housing Authority and details future BBHA developments in the village.

Bristol Bay Housing Authority

The Bristol Bay Housing Authority was created by Alaska Statute AS 18.55.955 in 1974 to administer Low Income Housing programs funded by the Department of Housing and Urban Development (HUD). The programs are governed by the terms of the Native American Housing Assistance and Self Determination Act. In 1996, Congress revamped Indian Housing Programs with the passage of the Native American Housing Assistance and Self Determination Act (NAHASDA).

The Native American Housing Assistance and Self-Determination Act of 1996 (NAHASDA) became effective on October 1, 1997. The Native American Housing Assistance and Self Determination Act of 1996 (NAHASDA) reorganized the system of housing assistance provided to Native Americans through the Department of Housing and Urban Development by eliminating several separate programs of assistance and replacing them with a block grant program. The two programs authorized for Indian tribes under NAHASDA are the Indian Housing Block Grant (IHBG) which is a formula based grant program and Title VI Loan Guarantee which provides financing guarantees to Indian tribes for private market loans to develop affordable housing. Regulations are published at 24 CFR Part 1000.

The Indian Housing Block Grant Program (IHBG) is a formula grant that provides a range of affordable housing activities on Indian reservations and Indian areas. The block grant approach to housing for Native Americans was enabled by the Native American Housing Assistance and Self Determination Act of 1996 (NAHASDA). Eligible IHBG recipients are Federally recognized Indian tribes or their tribally designated housing entity (TDHE), and a limited number of state recognized tribes who were funded under the Indian Housing Program authorized by the United States Housing Act of 1937 (USHA). With the enactment of NAHASDA, Indian tribes are no longer eligible for assistance under the USHA.

An eligible recipient must submit to HUD an Indian Housing Plan (IHP) each year to receive funding. At the end of each year, recipients must submit to HUD an Annual Performance Report (APR) reporting on their progress in meeting the goals and objectives included in their IHPs. Eligible activities include housing development, assistance to housing developed under the Indian Housing Program, housing services to eligible families and individuals, crime prevention and safety, and model activities that provide creative approaches to solving affordable housing problems.

Manokotak Village Council has chosen BBHA as their "Tribally Designated Housing Entity," as provided for in NAHASDA. BBHA passes through to the Village Council one half of the "Need" funds provided by a formula allocation under NAHASDA. BBHA maintains a "Regional Pool" with the other half of the funds from each village participating in the "Pool," and constructs new homes on an annual basis from a ranked village list.

BBHA monitors sub-recipient activity for provision of housing services and programs administered by the individual tribes who use BBHA as their Tribally Designated Housing Entity.

Under the prior 1937 Act (USHA), 24 single family homes were built in Manokotak in 1988, 3 of which have been conveyed to the homebuyers. Ultimately, all will transfer to the private ownership of the program participants.

Regionally, BBHA has participated in an IRS Section 42 Low Income Housing Tax Credit (LIHTC) housing program administered in Alaska by the Alaska Housing Finance Corporation. Recently, 3 – 4 unit (12 units) of LIHTC buildings have been approved for Manokotak, which will be constructed in the summer of 2005. The regional LIHTC inventory previously constructed includes a 24-unit (three 8 unit buildings named Forest View) apartment building in Dillingham, two 8-unit LIHTC buildings - one in King Salmon and one in South Naknek,(named Taiga View), two additional 8-unit LIHTC buildings in Dillingham, (named Muklung Manor). Additionally, 4 4-unit (16 units) LIHTC buildings in Togiak (Togiak View) are being constructed in 2005.

According to the FY05 NAHASDA funding formula, the "need" component as computed by HUD through BBHA for Manokotak is $247,788. One half of these funds stay in a regional pool for construction of homes in accordance with a ranked regional list of villages, the other half of the funds are passed through to the Manokotak Village Council. Currently these funds are being used for repayment to the BBHA regional pool for the period in which Manokotak operated its own NAHASDA program, and in reserve for housing rental subsidy for the LIHTC project.

Manokotak will be ranked during the FY09 pool funding, which may provide 4 to 5 single family units, assuming HUD funding is stable at the existing level.

There is currently no specified Elder housing in the Village. Bristol Bay Housing Authority, in cooperation with the Village Council will monitor the need and determine feasibility of such a project. Funds for such a project may be availalbe from Alaska Housing Finance Corporation's "GOAL" program, which requires Senior projects to be "Named" recipients through Alaska Legislative Appropriations, other sources may include the HUD 202 (Public Housing) funds, which require a separate 501(c) 3 be set up for this purpose.

Goals

3. **Increase amount of land in current village site available for housing; maintain as main village site.**
4. **Increase village's capacity to construct and maintain housing stock.**
5. **Upgrade older housing in village.**
6. **Set standards for new housing.**
7. **Maintain and improve connections between main village site and new housing developments at Manokotak Heights.**

Challenges and Resources

CHALLENGES	RESOURCES
Lot lines not well marked for housing resulting in confused arrangement of housing.	City ordinances & land use mapping.
Lack of suitable land in main village site.	Possible development areas at existing airport, MNL land along road to Manokotak Heights, redevelopment of derelict properties.
Lack of access to financing and knowledge for residents to develop their own homes.	BBNA, BBHA, UAF/ Bristol Bay Campus, MNL.
Lack of development standards and enforcement of existing ordinances.	City, Village Council & MNL, BBHA.

Goals & Priority Actions

3. Increase amount of land in current village site available for housing; maintain as main village site.

- Investigate land suitability for building homes on existing airstrip (if new airstrip built).
- Consider options for denser housing in current village site, such as multi-use housing.
- Check and enforce city and village ordinances to set guidelines for housing development – building setbacks from lot lines; electric lines & sewer lines. Develop new ordinances, as needed, possibly in conjunction with site planning.
- Use cul-de-sac development pattern rather than a grid (costly to maintain streets).
- Alleviate pressure to "subdivide" small lots by opening up new land, re-purposing existing housing.

4. Increase village's capacity to construct and maintain housing stock

- Create strategies to help reduce cost of construction, renovation.
- Provide training opportunities for villagers to increase their ability to build and maintain homes.
    - Make process clear for how shareholders can secure land from village corporation for building own homes.
- Develop local workforce of general contractors, plumbers, carpenters, electricians and other trades persons.

5. Upgrade older housing in main village.

- Renovate existing buildings.

- With owners' permission, demolish vacant and unusable housing to remove public hazards.
- Consider applying for an Indian Community Development Block Grant (ICDBG) to repair, demolish and upgrade existing housing.

6. Set standards for new housing.

- Create site plans for new development.
- Determine ideal densities for new housing areas.
- Make sure that a family that has lost their house to fire gets priority for new housing.
- Keep fire buffers between housing units.

7. Maintain and improve connections between main village site and new housing developments at Manokotak Heights.

- Improve quality and upkeep of road maintenance equipment to ensure road is well-maintained and open, year-round.
- Develop a 'senior shuttle' to transport elders between Manokotak Heights and the main village.
- Develop a pedestrian and bicycle path alongside the road between Manokotak Heights and the main village to improve safety.
- See also 'Public Services & Facilities, Goal 8.

Housing at Manokotak Heights

Teacher housing

Environment

Context

Manokotak has identified some priority environmental issues which must be addressed, mostly concerning solid waste disposal, water and air quality. A primary value of village residents is to protect and care for the land on which most residents depend for a significant portion of their diet.

Manokotak has an active Tribal Environmental Program funded through the US Environmental Protection Agency's Indian General Assistance Program, managed by Bristol Bay Native Association.

Manokotak's landfill, in need of clean-up and relocation.

Goals

8. Implement strategies to protect air, water quality and clean environment.

Challenges and Resources

CHALLENGES	RESOURCES
Solid waste collection and landfill pose serious environmental threats.	Active Tribal Environmental program operating through IGAP.
Dust from unimproved roads creates air pollution during spring and summer months.	BIA Roads program and State DOT/PF.
Subsistence areas near the village must be protected.	City and MNL dedicate subsistence areas, off limits to development.

Goals & Priority Actions

8. Implement strategies to protect air, water quality and clean environment.

- Clean up existing landfill.
- Locate new landfill (in progress) and acquire permit.
- Certify landfill operator, upgrade Operations & Maintenance manual for landfill.
- Educate community about separating hazardous and non-hazardous waste.
- Improve trash collection system.
- Construct new landfill with the following areas and programs:
    - A community-wide recycling program, with a distribution center for storing recyclables for transport to Anchorage (each home now has a can crusher).

    - Investigate backhauling hazardous materials and battery removal (including old appliances) by barge.
    - Designate an "Atayaaq" salvage area as part of the new landfill. Remove old equipment that is lying around the village and clean up old vehicle dumping area on Manokotak Heights Road.
    - Use burn box to minimize waste in landfill – secure permit.
- Implement Village Safe Water program.
    - Construct new well and tank system near the Manokotak Heights to serve housing, school and new low-income rental BBHA development (plan in place, upgrade to begin next summer).
    - Upgrade existing water & sewer lines in main village and the Manokotak Heights.
- Surface roads to minimize dust. (See Transportation section for priority actions.)
- Retain vegetation where possible in built areas.
- Continue to enforce curfew to minimize noise pollution.
- Find alternative sources of energy that are more sustainable and less contaminating than fuel.
    - Investigate feasibility for wind generation, hydroelectric power, nuclear power, hydrogen fuel cells, and natural gas. Investigate funding sources, such as the Denali Commission.
    - If the community develops nuclear power, ensure a safe place (bunker) in case of accident and plan for removal of nuclear waste once reactor is spent.
- Continue "Clean-Up Days".
- Request that Southwest Regional School District remove and remediate disused tank farm located at old school.

See Figure 6, Environment and Land Uses, for illustration of environmentally sensitive areas.

COMMUNITY WELLNESS, CULTURE & EDUCATION

Community Wellness

The future of Manokotak

Context

Manokotak has a number of entities, both within the village and the region, that can help achieve the following goals and priority actions to promote wellness and community values within the village. These include the Manokotak Moravian Church, Manokotak Village Council, Manokotak City Council, Manokotak Natives Limited, Manokotak Community School Committee, Manokotak Post Office, Manokotak Health Aides, and the Manokotak Tribal Police Officer and the Village Public Safety Officer (VPSO). Regional organizations that can assist in these efforts include the Bristol Bay Native Association and the Bristol Bay Area Health Corporation.

The community has developed rules and regulations to promote safety and well-being, but enforcement is sometimes lacking. While there are a number of service providers in the village, some of these positions are unfilled, and there has not been a forum for service providers to meet and to plan to work together. There has also been little connection between service providers, law enforcement, the village clinic and the governing organizations. In order to truly create wellness, Manokotak will need to form and strengthen these working relationships. A curfew to limit noise and to keep children safe has been set and is being enforced. Decreasing alcohol related assaults and accidents, domestic violence, and protecting elders and children are the top priorities for wellness in Manokotak.

Adequate facilities are needed in Manokotak to promote wellness. A new clinic with confidential space for behavioral health services is being built in 2005. A community hall is needed for village gatherings, as well as a cultural activity room for teaching traditional skills and arts and crafts.

Goals

1. **Improve enforcement of rules set by the community.**
2. **Improve response to emergencies.**
3. **Promote wellness for entire village community by increasing effectiveness of social service providers and working together as a team.**
4. **Improve primary and behavioral health care for all residents.**

Challenges and Resources

CHALLENGES	RESOURCES
Lack of funding for employing village safety officers	Tribal, City and VPSO police programs.
Some service provider positions for behavioral health and family wellness are unfilled.	
Service providers are not working together towards a shared purpose.	Village Wellness Team training through BBNA & BBAHC.
Lack of adequate facilities for early childhood programs, confidential behavioral health and community gatherings.	New health clinic, plans to renovate old school facility.

Goals & Priority Actions

1. Improve enforcement of rules set by the community.

- Enforce curfew for safety of children and community members.

2. Improve response to emergencies.

- Hire licensed EMS driver.
  - Improve communication between Health Aides and emergency responders.
  - Access to facilities and vehicle for transport.
- Teach survival skills:
  - What to do if you become disoriented, lost, caught in a storm.
  - Protecting against hypothermia – use of natural materials such as grass.
  - Checking on others in case of emergency.
  - Finding safe drinking water in wilderness.
  - Survival skills such as food for travel planning (taquaq) and other traditional techniques – traveling with a buddy, reading the weather; making shelters, use of grasses.
  - Carrying a staff or ice pick.

Community church

3. Promote wellness for entire village community by increasing effectiveness of social service providers and working together as a team.

- Create village wellness team to increase collaboration between service providers and law enforcement and ensure village needs are identified and met.

- Offer outlets and opportunities for healthy communication.
- Link wellness team to village and city councils through regular reporting and creating opportunities to work together for wellness.
- Increase access to social and supportive services for children, families and elders.

4. Improve primary and behavioral health care for all residents.

- Replace health clinic facility and provide space for behavioral health care.
- Recruit staff for unfilled village-based service provider positions.

Cultural

Context

Manokotak is a traditional Yup'ik village where most adults and many children speak Yup'ik as their first language. The school has an immersion program for grades K-3 in which Yup'ik and English are alternated during the day.

While Manokotak has many children and youth (44% of the population is under-18), there is also a significant population of Elders, who are treasured by the community and who participate and lead in village decision-making.

Residents share a potluck dinner

There is one church in the village, the Manokotak Moravian Church, which provides a gathering place and gfathering events for the community.

Subsistence is the most important aspect of village life. Many residents move to fish camp during the early summer months, at the mouth of the Igushik River. Strengthening community ties and passing on traditional knowledge to young people are the most important priorities for Manokotak residents.

Goals

5. Gather as a community.

6. Make available cultural activities to teach subsistence and seasonal activities; pass on traditional knowledge to youth.

Challenges and Resources

CHALLENGES	RESOURCES
Cultural skills not included in school curriculum.	Community School Committee, Elders.
Yup'ik language instruction not available for older students.	Community School Committee, Elders.
Lack of facilities for community gatherings.	Plans to renovate the old school.

Goals & Priority Actions

5. Gather as a community.

- Create a Community Hall for village gatherings in the multi-purpose facility planned for the renovation of the old school. [See Public Services, Facilities & Transportation section.]
    - Visitation – cultural week (November)
    - Elders games
    - Arts & Crafts
    - Organize potlucks, clean-up days, fundraisers, holiday celebrations, carnival, turkey shoot-out, cake walks, etc.

6. Make available cultural activities to teach subsistence and seasonal activities; pass on traditional knowledge to youth.

- Teach traditional arts & crafts skills such as beading, skin sewing basket making, net mending, carving and sled building.
- Teach subsistence skills for gathering native food including: butchering, skinning, storing, places for hunting (pisuryaraq); snare setting, plucking duck and waterfowl; fishing skills such as net mending and hanging, splitting fish, ice fishing; knowledge of edible plants.
- Teach young people knowledge of terrain, and to "Watch and observe carefully".
- Teach Yup'ik language classes – speaking, understanding, and story telling and writing.
- Teach Yup'ik dance at the school.

Education

Context

Manokotak Nunaniaq School

The Manokotak Nunaniaq School provides instruction for grades K-12 and had 139 students enrolled in the 2004-5 school year. The nearest university campus to Manokotak is located in Dillingham at the University of Alaska, Fairbanks, Bristol Bay Campus. This campus offers distance learning and on-site instruction for postsecondary students in a full range of academic and vocational disciplines. The Southwest Alaska Vocational and Education Center located in King Salmon offers a full array of workforce development and vocational courses, and offers student lodging for multi-day courses. Additional vocational and technical courses are available in Seward and Sitka. Additional university campuses are located in Anchorage and Fairbanks.

An important aspect of education for Manokotak residents is passing on traditional language, skills and arts to young people. While there is a Yup'ik immersion program in the school, this does not serve the upper grades. Also, traditional skills are not incorporated into the curriculum. Residents would like to see greater integration between the school curriculum and the skills and culture that

are the foundation of the village. The school is located four miles from the main village, which makes it less accessible to parents and other family members for volunteering or visiting during the school day. A volunteer bus or carpool option may help alleviate this situation.

Youth in the village commonly request more organized activities and outlets for their interests and energy. They also lack a place to hold activities and gather together after school, on weekends and in the summer, since the youth center closed. The village's Youth Program Coordinator is currently researching ways to fund and construct a basketball court. With improvements such as this, and also including space for structured youth activities in the school or in a multi-use facility, many of Manokotak youths' issues can be addressed.

The Community School Committee is a forum for bringing community and school concerns to a common table. This committee is active during the school year and can work to bring community concerns to the attention of school administrators. High turnover in teaching and administration staff results in a lack of continuity between years, where community concerns often need to be reasserted as new staff comes on board. Decreasing turnover in school staff would greatly improve community-school relations. Also, improved communication and consultation between the school and community members would help to make the committee more effective.

Adult education is also an important priority for Manokotak. The Economy section of this plan details the array of skills workers need to better participate in the workforce, both in the village and for jobs in other locations. Better connecting adults with education opportunities would increase participation in these programs. Creating a job center in Manokotak is a priority action described in the Economy section.

Goals

7. **Increase youth opportunities.**
8. **Improve communication between school and community.**
9. **Implement adult education programs.**
10. **Ensure that young children have a safe, nurturing learning environment.**
11. **Incorporate traditional culture and skills into school curriculum.**

Challenges and Resources

CHALLENGES	RESOURCES
School staff turnover.	Recruit more Native teachers.
Distance between main village and school site.	Bus or carpool for school volunteers.
Lack of traditional language and knowledge incorporated into the curriculum.	Elders, community members.

Goals & Priority Actions

7. Increase youth opportunities.

- Create a community center that will support early childhood, youth, parent, family, and Elder programs and allow for a breadth of cultural, social and educational opportunities.
- Include space in the village for youth activities and programs such as a ball court, bike trail, hiking trail, kayaking and other outdoor activities.
- Implement programs for teaching traditional arts and skills: beading, crafts, basketmaking, yo-yo making, Yup'ik language classes, survival skills education with Elders, and other cultural experiences (see also "Cultural" section below.
- Invite statewide or national youth organizations to make presentations or start a chapter in the village – such as Boys and Girls Club, Eskimo Olympics, National Wildlife Federation's Alaska Youth for Environmental Action program, etc.
- Address safety hazards that threaten children and youth; work to reclaim old sites such as playground at old school so it is safer and provides an outlet for kids to safely gather and play
- Address issues of youth self-esteem through counseling, tutoring, school-to-work, vocational and other job skills training, use of computers and Internet, college preparation. Engage youth in community decisions and invite youth to attend entity meetings. Establish leadership mentoring and grant-writing mentoring programs, so youth can fund and run their own organizations.

8. Improve communication between school and community.

- Use the Community School Group more effectively to advise the principal, teachers and school district. If needed, create a different forum for discussion, such as a Wellness Team to allow parents, families, students, teachers and school administrators to communicate clearly and regularly.
- Improve the school counseling program. There is a senior year school-to-work program, but youth and parents would like to have career counseling begin in earlier grades.
- Utilize the school after hours on behalf of the community – for example, make school's treadmill more accessible, create space for an after-school program.
- Little communication between school and community. The school has a newsletter that it issues to the community; perhaps include space for parent perspective. Utilize the newly started school newspaper – available on the Internet – as a community resource and to bring up issues and have input from youth.
- Involve youth in making decisions about their learning and education. Some ideas include using classes to have youth interview community members or "shadow" a community leader and write a story about it. Also introduce "cultural days" into the curriculum and bring Elders into the school regularly to reinforce cultural education. Use Johnson-O'Malley money to do traditional and cultural work with the school.

9. Implement adult education programs.

- Create a local resource center for adults (perhaps at the school or a multi-use facility) where they can find information on financial aid, scholarships, trainings, and continuing education. Internet access is important part of making this information available to the community. Work to increase access to and proficiency of technical understanding of Internet, computers, networking and other types of vocational training for youth and adults. School allows computer use free of charge, but this access is usually only available before or after school for limited hours; explore possibility of entities providing low-cost or free Internet access for people to look for more training or other opportunities.
- Create incentives for youth and adults to finish school, earn a GED and take advantage of more trainings opportunities by requiring that certain job positions be filled by people who have attained a specific level or type of schooling.
- Offer grant writing and administration training locally, perhaps though a one-week intensive workshop be held in the village; this reduces the cost and difficulties of attending training off-site, and would allow more residents to attend.

10. Ensure that young children have a safe, nurturing learning environment.

- Restart an on-site HeadStart program or other combined early childhood/parenting program to encourage social and behavioral development of young children. In-home care does not allow children to be around each other, to adjust to a classroom atmosphere, or learn to interact with teachers. Parents-As-Teachers and Early Learning Opportunities programs are currently operating in the community. There are enough students in the community to support a HeadStart program, but not enough were enrolled to keep the program going in past years. Pursue funding for a building and program renewal. Provide incentives to parents and families to support these programs and involve their children.
- Plan for space for a combined HeadStart/PAT/ELO and youth group/youth center/tutoring center/after-school program facility to share costs and make the operation more easily sustainable.

11. Incorporate traditional culture and skills into school curriculum.

- See Goal 6, in this section.

PUBLIC SERVICES, FACILITES & TRANSPORTATION

Transportation

Context

Manokotak's grader

Manokotak, like all Bristol Bay villages, depends heavily on several different transportation modes for access in and around the village. Residents routinely travel on land, air and water; good access to transportation is vital to Manokotak residents' way of life. Additionally, good connectivity between the main village, the school and the housing at Manokotak Heights is important for allowing residents access to essential services and for maintaining a sense of community.

The State Department of Transportation plans to replace the Manokotak airport by 2008. The existing airport is located one mile north of the main village. The proposed location for the new airport is a further four miles beyond the Manokotak Heights, a total of eight miles from the main village. Numerous concerns about the airport location have been voiced during the planning process. Issues include:

- The new clinic, to be constructed in 2006, will be located in the main village. The long distance to the proposed airport will make medical evacuations more dangerous, especially during winter months when road conditions can be hazardous, and sometimes unpassable.
- The rising cost of fuel will mean increased costs for transporting people and goods from the airport to the main village.
- During the scoping process for the airport, the majority of residents petitioned to expand the existing airport, rather than construct the new airport at a distance from the main village.
- Winter travel on the road between the airport and the main village will make transporting perishables to the grocery store more difficult.
- Difficulty maintaining the road during winter months could cut off the village from the airport.

Though Manokotak has not completed a transportation study, many of their transportation needs are clear.[2] These needs focus around four areas: (1) a new airport facility, (2) new and upgraded dock facilities, (3) new road construction to these facilities, and (4) improved road maintenance. Details concerning these goals are outlined below. Also important to Manokotak residents are summer and winter trails around their village for access to hunting and berry picking areas, and also to other communities (e.g., snowmachining to Dillingham for supplies in the wintertime). Residents generally believe that their trail system is adequate at this time, and would like to keep it maintained. The community would like to add a pedestrian and bicycling trail to connect Manokotak Heights to the main village.

[2] Manokotak has completed an airport study: *Manokotak Airport Runway Resurfacing and Extension Scoping Report*, State of Alaska Department of Transportation and Public Facilities, prepared by PDC, Inc. Consulting Engineers, March, 2004.

Goals

1. **Update Manokotak's Long-Range Transportation Plan to reexamine and re-prioritize community needs.**
2. **Improve road maintenance and minimize dust pollution.**
3. **Construct new dock facilities.**
4. **Construct new airport.**
5. **Maintain trail system.**

Challenges and Resources

CHALLENGES	RESOURCES
Unimproved roads creating dust pollution	BIA IRR program; State DOT/PF
Proposed location of new airport far from main village.	City, MNL and village council work with DOT/PF.

Goals & Priority Actions

1. **Update Manokotak's Long-Range Transportation Plan to examine and prioritize community needs. Construction projects already identified include:**

- Road to new airport.
- Extend new airport road to access Snake River.
- Road to new dock facility on Weary River.
- Road to Igukuk.
- Pedestrian and bicycle path along Manokotak Heights Road. (See Land Use, Goal 2)

2. **Improve road maintenance and minimize dust pollution.**

- Keep road from main village site to school and new housing safe, well-maintained.
- Keep village roads graded and clear.
- Purchase equipment needed for regular road maintenance (see "Public Services & Facilities" section).
- Provide regular trainings for maintenance staff and equipment operators to ensure proper use of equipment.
- Research road surfaces that will reduce dust. (See Table 15 for options of road surfacing.)
    - Send City transportation staff to training on air quality improvement.

- Send a proposal to DOT/PF and BIA Roads program to resurface roads.

3. Construct new dock facilities.

- Upgrade current access to Weary River to control erosion, improve access and safety; include increased capacity for boat storage.
- Build new small-boat dock on Igushik River, just south of current village site.
- Improve current Large-boat/barge dock facility on Igushik River for safer, easier access.
- Construct new dock on Weary River (in conjunction with new road) to decrease cost and time of transportation of supplies from Dillingham.

4. Construct new airport.

- Include construction of small warming building with public restroom.
- Locate airport as close to existing community as possible, in order to answer community concerns listed above.

5. Maintain trail system.

- Include review of trails in Long Range Transportation study.
- Maintain safe winter trail to Dillingham.
- Keep trails well-maintained.
- Locate trails around residential areas, but with set-backs from housing in order to reduce noise pollutions from all-terrain vehicles and snow machines.

Table 15. Road Surfacing Options

Road Surfacing Options				
	Description	**Where to Use**	**Advantages**	**Disadvantages**
1. Dirt Roads	Graded surface of native material	Low-volume areas, very rural roads or trails	• Inexpensive to build • Adequate for some uses • Keeps traffic down	• High dust • Prone to rutting and washout
2. Gravel Roads	Graded surface of mixed thin fines and sharp gravel	Areas that are slightly damp and have moderate traffic volume	• Easier driving surface • Can stay in good shape if well-maintained • Drains well	• More expensive than dirt • Can be dusty in dry areas • Needs to be regularly graded
3. Chip-Sealed Roads	Graded surface of mixed thin fines and sharp gravel; coated in an asphalt/oil mix & re-graveled	High traffic areas prone to frost effects; laid in warm, sunny weather	• High-quality road surface • Better than gravel • Easier to fix than asphalt • Can be laid on top of current gravel road	• More expensive • Must have several days of warm sunny weather to build
4. Hot-Fix Asphalt	Layers of heated mixed gravel and oil shot from surfacing equipment	High-volume traffic and moderate temperature areas	• Very durable surface • Easy to clear	• Costly to build and repair • Not cost-effective in areas prone to frost heaves

* Best road surfacing option is determined as a function of traffic volume, temperature, construction cost and maintenance.

For more information on road surfacing options, go to the State of Alaska Department of Transportation's website, www.dot.state.ak.us/. Or call Mike McKennan at the DOT office in Juneau, 907-465-4069.

Public Services & Facilities

Context


Manokotak's exisiting airport building with Qwim's van service at the ready.

There is a long list of capital improvements, infrastructure needs and recommended public facilities listed in Manokotak's Community Plan.[3] The City has been successful in making several of these recommended improvements – including landfill relocation, acquiring land for a new Head Start Building and securing funding to construct a new health clinic. There are still several projects and capital improvements the community would like to see take place. A combination of community support and leadership for these projects, and an increased capacity for the City, Council and Corporation to fund and maintain these projects should allow Manokotak to continue working on needed capital improvements.

Goals

5. **Minimize cost of infrastructure.**
6. **Increase ability of City, Corporation to pay for public services, capital improvements and infrastructure.**
7. **Improve existing and future services and facilities.**
8. **Secure additional heavy equipment.**

Challenges and Resources

CHALLENGES	RESOURCES
Public facilities, such as school, located at a distance from concentrated residential area	Southwest Regional School District, Manokotak Village Council, City, carpool volunteers
Older buildings and facilities need renovation or removal (old school & tank farm, landfill, post office, clinic)	City, School District, IGAP, MNL, BBAHC
Increase capacity to pay for services	Grant management, utility payments

[3] *Manokotak Community Plan*, City of Manokotak, prepared by Bonnie Ayojiak, May, 2003.






From left to right: School, post office, Manokotak City Office, teacher housing, landfill, airport building, clinic

Goals & Priority Actions

5. Minimize cost of infrastructure.

- Keep development compact.
- Maintain infrastructure regularly to minimize problems, repairs.

6. Increase ability of City, Corporation to pay for public services, capital improvements and infrastructure.

- Power company, water and sewer, and other utilities should be managed to cover all operating and maintenance costs, including system upgrades, and reserve funds.
- Maintain ability to apply for and manage grants.
- Develop strategies for the City, Village Council, and Manokotak Natives Limited to earn money from "outside" by developing business opportunities such as fuel sales, leasing office space to regional organization programs, issuing permits to use corporation lands, etc.

7. Improve existing and future services and facilities:

- Construct new health clinic.
- Renovate existing post office to add more room and storage area.
- Demolish old school (high school portion and possibly elementary school portion) and use land to construct new facilities or housing. Develop a facility plan for renovated facility to operate as a multi-purpose facility; potential tenants include youth activity center, senior center, family resource center, community center, office center, job center with vocational training, washeteria, arts and cultural activities, play area and itinerant housing.
- Construct Head Start building.
- Improve fire response time.
    - Install hydrants at housing area at the Manokotak Heights and near the new landfill.
    - Purchase and install an additional Code Red at Manokotak Heights.
- Improve EMS response. [See Community Wellness and Transportation sections.]
- Improve Internet access for all residents.
- Consider the feasibility of developing and operating a washeteria.

8. Secure additional heavy equipment.

- Acquire dump truck; snow removal equipment; new fire truck; backhoe; excavator; flatbed truck.

PUBLIC SERVICES & FACILITIES MATRIX

SERVICE	PROVIDER	CURRENT FACILITIES	ISSUES/NOTES/NEEDS
Transportation & Infrastructure			
Airport	State DOT&PF	Airstrip and storage building	New airport is slated for development in the next few years. The likely location is about 8 miles from the main village. Some Manokotak residents are concerned that the location will lead to undesirable sprawl, and impact the village negatively in several ways: ▪ Increase pattern of village sprawl ▪ Increase cost to City of road maintenance ▪ Decrease convenience to centrally-located airstrip Benefits from the new location include safer access by air and state funding for road that could eventually lead to new dock facility on Snake River.
Boat Ramp	City?	Small boat dock on Igushik River Boat launch on Weary River	▪ The bank on the Weary is eroding; a new location is desirable ▪ A new dock on the Snake River would allow for shorter distance to/from Dillingham for barges and travelers ▪ Improved boat storage on the Igushik in the main village.
Power	City		Some issues with people not paying bills on time. City is planning to start encouraging payments with shut-off policy.
Water/Sewer	City	Residents in main village on water and sewer. Residents in Manokotak Heights are currently using community well and septic systems that transfer into a sewage lagoon.	A water and sewer utility plan has been developed to convert Manokotak Heights households to their own water and sewer system.

Solid Waste	City	Landfill	▪ Landfill is over-capacity and needs cleaned up. A new site for a landfill, possibly with a burn box, has been selected near the gravel pit. ▪ There are many abandoned vehicles, spare parts, hazardous waste in the village in need of removal.
Telephone/Internet	Nushtel Telephone Cooperative	Private individuals, City office, school	Telephone and Internet services are adequate. Residents would like improved Internet access.
Fuel Facilities	City	Fuel tank facility	Current capacity is adequate. There is a new fuel facility built in 2001 that serves the main village. The school has its own facility. There is an old tank facility at the old school which needs cleaned up.
Maintenance Equipment	City	The City has some equipment, including a new grader, recently repaired. They are in need of several new pieces of equipment.	Priority capital equipment purchases: ▪ dump truck ▪ snow removal equipment ▪ new fire truck ▪ backhoe ▪ excavator ▪ flatbed truck ▪ flatbed truck
Roads	State DOT&PF, City	Village roads	State maintains road to/from airport. City maintains all other roads. Snow removal and grading is challenging given the extent of the village road system.
Trails	MNL, City, DNR	Trails throughout the village, on corporation land, to river access, hunting and fishing areas, Dillingham	
Services & Facilities			
Fire	City /State	Code Red, fire hydrants	There are several fire hydrants in the main village. There are none at the Heights at this time. Residents would like to see more hydrants in the village.
Police	State/Village Council	State Troopers and VPSO	

EMS	State/BBAHC		
Post Office	USPS contract office		The facility is older and does not have enough storage space. Could be renovated.
Community Center	–	–	Designing and constructing a multi-use facility is a high priority project for the community. Would like perhaps to include office spaces for service providers, meeting space, youth and senior activities room, art, dance and music space, possibly a small business incubator or similar job-assistance programs.
Village Council	MVC	Office building	
Youth Center	–	–	There is currently no facility in Manokotak providing youth services. Residents are interested in Boys & Girls Club. BBNA offers youth programs through onsite and itinerant providers.
Clinic	BBAHC	Health clinic	A new clinic is being built in the next year.
Senior Center	–	–	There is currently no facility in Manokotak providing senior services. Elders are cared for by family and the community.
City Offices	City	City office space	Has adequate office space, phone and Internet. Lacks adequate meeting space. Building is older and could be renovated.
Social Service Providers			The community is interested in a multi-use facility that contains service provider offices, or a Family Resource Center.
Education			
Early Childhood	BBNA	In-home Head Start program	MNL has set aside land for a new Head Start facility. There are currently no plans for constructing a facility, however. It is unclear if there would be enough enrollment to support a facility-based Head Start program in Manokotak.

K-8	SWRSD	Manokotak school	New school built in 2001. The new school is located near the Manokotak Heights neighborhood. There have been some issues with transporting children to school in the wintertime from the main village.
High School	SWRSD	Manokotak school	High school is provided in the same facility as K-8. Teacher housing needs upgraded.
College	UAF, UASE, UAA, other colleges and universities	Bristol Bay Campus in Dillingham	
Library			
Continuing Education	UAF	Bristol Bay Campus in Dillingham	Various types of job training, small business development skills and other classes are offered.

ECONOMIC DEVELOPMENT

Context

Lomack's rental unit

Manokotak residents have traditionally made a living by harvesting the resources of the land and sea surrounding the village, through gathering subsistence foods and materials, participating in the commercial fishery, and by bartering and sharing between families and communities. 65% of households in Manokotak live on annual incomes of $35,000 or less (US Census, 2000). This is low when compared to the Dillingham census area as a whole, and when compared to the state of Alaska, particularly when the high cost of living in rural Alaska is taken into account. Not included in this cash accounting are the replacement goods that residents obtain without having to purchase them, through subsistence. As the cost of fuel rises, however, subsistence is becoming more expensive. Subsistence harvesting is a demanding job, and often competes with cash employment for available hours. These costs somewhat offset the benefit of 'free' food.

The crash in world salmon prices that began in the mid to late 1990's has greatly diminished both local participation in the Bristol Bay commercial fishery, and the income generated by it. This has hit hard families in Manokotak and has, according to residents, increased reliance on government benefits.

Manokotak residents have many strategies to help fuel economic development in their community. The strategies center around developing small businesses to serve village residents; training workers to take jobs that might otherwise go to people from outside the village; using the land and resources owned by the village corporation to increase benefit to shareholders; developing tourism and Internet-based marketing to sell arts and crafts and value-added goods to buyers worldwide; and, developing value-added fish products.

In order to stimulate economic growth in the village, residents require training and access to start-up capital. Many resources are currently available through the regional organizations in Bristol Bay. In particular, the village would like to partner with Bristol Bay Economic Development Corporation to explore salmon marketing and value-added fish production. The UAF/ Bristol Bay Campus offers distance-learning classes for entrepreneurship, and is developing a Small Business Development Center, in partnership with BBNA. Manokotak would like to operate a Job Center in the village, to assist job seekers in acquiring skills and positions. Residents recognize that workers must be motivated, with a good work ethic, and may need to relocate temporarily for training and for employment.

The ultimate economic development goal for Manokotak is to increase the wealth of all residents, and to capture more of that wealth within the community. In this way, families will be better able to care for their needs, and will also be able to help support the costs of village services and facilities, making the community as a whole more self-sufficient. Manokotak residents are motivated to implement actions to create a healthier local economy.

Goals

1. **Create more local jobs.**
2. **Support existing businesses and start new local businesses.**
3. **Increase wealth of village residents and retain wealth within the community to help pay for community services and infrastructure.**
4. **Diversify economic base and reduce dependence on government assistance.**

Challenges and Resources

CHALLENGES	RESOURCES
Reliance on government assistance.	Job training and education to develop a motivated local workforce.
Lack of small business development.	UAF/ Bristol Bay Campus, BBNA.
Decreasing benefit from the commercial fishery.	Value-added processing and marketing, working with BBEDC.

Goals & Priority Actions

1. Create more local jobs.

- Conduct jobs survey to assess current and future job potential. [See results from Business & Jobs Survey, April 2005, in Appendix D and in the Economy section of the Village Background section, Figure 5.]
- Inventory skills among local workforce, for example, mechanics, heavy equipment operators, guides, etc.
- Work with City, village corporation and village council to create jobs.
- Engage local residents in job training.
- Use job sharing, flexible scheduling and other means to ensure that job schedules fit with other family obligations, subsistence needs.
- Be willing to relocate temporarily for work.

2. Support existing businesses and start new local businesses.

- Expand Manuquutaq Trading Company to include a Hardware & Lumber Company, Deli & Bakery.

- Encourage new service businesses such as a pizza place; van or bus taxi business, for transportation between village and Manokotak Heights; arts & crafts center with sales over the Internet; gas station at the Manokotak Heights (MNL operates); mini-market at the Manokotak Heights; seasonal food & goods store at Igushik fish camp; and an auto & four-wheeler, small engine repair shop (named 'Little George's Auto Repair'); a qaspeq factory; remodeling and carpentry business; child and elder care.
- Consider including a small business incubator in planned multi-purpose facility.
- Utilize local natural resources for economic development, such as developing a rock crushing and gravel operation for road maintenance and construction, operated by an individual, MNL, city or village; timber harvesting for sales for maqi'i wood; and, a potato farm.
- Develop more tourism-based business, including a park or recreation area (ski resort?).
    - Start lodges, ecotourism guiding businesses, bed & breakfasts.
    - Participate in regional cooperative marketing efforts to combine resources with other village-based businesses.
- Investigate the feasibility of a village-based fish processing plant.
    - Investigate sources for securing land, freezer, processing equipment, storage, transportation to outside, outside markets (buyers) and start-up capital.
    - Increase quality of caught salmon by using an ice machine and transporting ice to vessels. Work with BBEDC to secure ice machine.
    - Investigate the markets for Herring and melucuaq (kelp with herring roe attached), smoked salmon strips, filets
    - Working with BBEDC, market Bristol Bay salmon as 'wild Alaska salmon' – similar to the efforts of the Nushagak-Mulchatna Land Trust.
- Encourage entrepreneurship.
    - Increase access to loan financing to secure start-up capital for new businesses.
    - Find ways for small businesses to get lease affordable space to operate. Consider including a small business incubator in the new multi-purpose facility.
    - Access existing education and training for small business start-up. These often include scholarship and childcare and are available for those who want them. Work with BBNA to access training.
    - Encourage new high school graduates and adults to get trained in new skills and increase skilled workforce.
    - Use Internet to access distance learning, Bristol Bay Campus, UAS in Sitka, AVTEC in Seward, SAVEC in King Salmon.
- Establish job center and counselor in Manokotak.

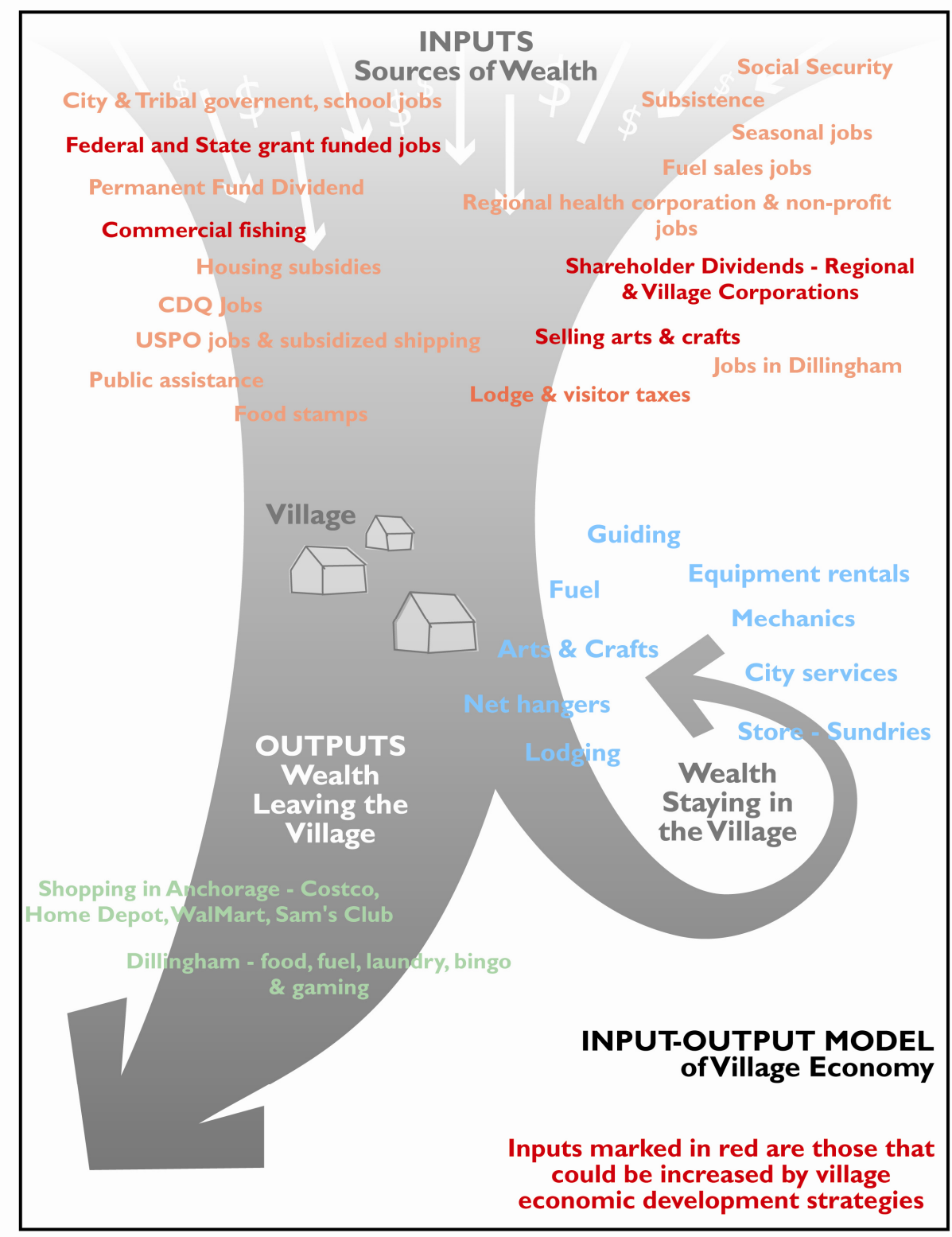
3. Increase wealth of village residents and retain wealth within the community to help pay for community services and infrastructure.

- Create more jobs and ensure a higher percentage of people in the village are working so that they can afford to pay fees and taxes to support community services.
- Use village & regional trained grant writers and rural development specialists – train more people to write and administer grants.
- Improve village capacity to manage and develop projects.

4. Diversify economic base and reduce dependence on government assistance.

- Increase licensed, skilled and motivated workforce.
- Share jobs between workers.
- Acquire more heavy equipment to lease out with trained village workers to run jobs.
- Use force account rather than traditional contracting to make sure projects employ local residents, and to retain administrative funds in the community.
    - Train village organization staff in project management, accounting, procurement and contract management.
- Continue to participate in commercial fishing but make sure people are ready and willing to work during the rest of the year.
- Come to agreement between local entities on a definition of 'local hire' and include that definition in all project contracts, to ensure maximum local hire.
- Encourage local hires to represent the community well by committing to fulfill job requirements and terms of employment.

Figure 11. Sample Input-Output Model of Village Economy



A blank Input-Output Model is included in the appendices, see Appendix E.

LEADERSHIP

Context

Mayor Ferdinand Sharp and elder Carl L. Evon work together at one of the planning team workshops.

By engaging in community planning, first through the Manokotak Community Plan completed in 2002, and through the current Community Comprehensive Planning process, Manokotak has taken key steps towards forming a consensus among village residents and leaders about the future of the village. Planning increases local control and communicates Manokotak's values, goals, and priorities to parties throughout the state.

At the May 2005 community workshop, residents identified community planning as a way to guide the actions of leadership organizations, and an important way to bring entities together with residents to identify priority actions and to commit to working together. Preparing a plan is a first step that brings the community together to establish priorities, focus community action, and exert greater control over decisions made at state and regional levels.

The goals identified by the community seek to strengthen communication between village residents and governing organizations, and to unify village organizations so that all are working toward complementary ends. In short, the Manokotak community wants residents to be more involved in identifying priorities, and for village organizations to work together to accomplish them. Residents also want their leaders to be good role models for young people, and to be good representatives of the village, when traveling to outside trainings and conferences. Accountability is also an important concern. Measuring the degree to which organizations act on their decisions, and turn plans into real improvements for the village are priority actions identified by village residents and the Planning Team.

Manokotak is governed by the Manokotak Village Council, a federally recognized tribal government, the City of Manokotak and Manokotak Natives Ltd., the village corporation. Manokotak is a member of the Bristol Bay Native Association, the regional Native non-profit organization, the Bristol Bay Area Health Corporation, Bristol Bay Native Corporation, the regional Native for-profit organization, and Bristol Bay Economic Development Corporation. Manokotak is located in the southwest region served by the Southwest Alaska Municipal Conference (SWAMC), the regional non-profit economic development organization for Southwest Alaska. SWAMC is one of 13 Alaska Regional Development Organizations (ARDORs) whose mission is to "advance the collective interests of Southwest Alaska people, businesses, and communities."

The following describes the goals and priority actions identified by the village planning team and at the community-planning workshop in May 2005.

Goals

1. **Increase communication among leadership organizations.**

2. **Increase communication between leaders and residents and provide good role models.**

Goals & Priority Actions

1. Increase communication among leadership organizations.

- Improve communication among entities, within entities and between transitions in staff and leadership.
  - Use monthly entities' meeting to coordinate efforts.
  - Document progress to avoid duplicating what others have already planned or accomplished. Document decisions and previous actions. Make these decisions easy to reference.
  - Coordinate projects to increase effectiveness. For example, creating a new landfill that is compliant with State regulations will provide an adequate collection point for debris from school demolition.
- Develop an MOU or MOA among entities on how to operate together.
- Review and revise current policies, procedures and ordinances. Create a mechanism for ensuring that this happens at regular intervals.
  - Make available to the community city and village ordinances to increase awareness of ordinances, and to make it easier for enforcement officers to take action. Make sure everyone knows what the rules are.
- Use planning efforts to guide leaders' decisions about the community.
  - Continue community planning to keep communication going between entities and residents.
  - Follow the Comprehensive Plan Revision process, detailed at the end of this plan, to keep the plan up-to-date.

2. Increase communication between leaders and residents and provide good role models.

- Gaining positive recognition and respect from other communities and funding agencies is key to the success of the village. When anyone is traveling outside of the village on behalf of a village organization, he or she must be a good representative of the village and themselves.
  - Consider asking representatives to sign an agreement that if they do not attend the training or event for which they are traveling, they will reimburse the village organization for travel expenses.
- Request leaders do community volunteer work.

- To avoid conflict of interest and nepotism, when someone has a personal interest in a decision being made, they should excuse themselves from that decision-making process.
- Measure accountability on a regular basis.
    - Measure which decisions agreed upon at earlier meetings have been acted upon, and which have not, to ensure leadership organizations follow through on decisions.
    - Conduct quarterly review of personnel issues: recognize good work and identify areas for improvement.
    - Include monthly progress reports on projects at meetings and in minutes.
- Make Manokotak leadership motto: "To Work Together for the People."
- Start a Wellness Team (see Wellness Team Workbook).
- Create a forum for easy communication between leadership and community.

INFRASTRUCTURE SUMMARY

This section lists priority infrastructure projects by category. The following section "Implementation" gives details for the top three priority actions in each category identified in this plan.

Land Use, Housing & Environment

- Conduct site plan and suitability analysis for redevelopment and future development areas in and around main village site.
- Complete fencing and improvements at cemeteries.
- Redevelop main village – demolition, repair & replacement of existing housing stock.
- Close and clean-up existing landfill.
- Construct new landfill.
- Upgrade well and tank system at Manokotak Heights.
- Upgrade water & sewer lines in main village and Manokotak Heights.
- Install hydrants in Manokotak Heights and at new landfill.

Community Wellness, Culture & Education

- Construct new health clinic, including behavioral health facilities.
- Construct community hall, included in multi-purpose facility below.

Public Services, Facilities & Transportation

- Develop pedestrian and bicycling trail along road between main village and the Manokotak Heights.
- Resurface village roads to reduce dust.
- Demolition and clean up of old school, including disused tank farm.
- Construct multi-purpose facility.
- Develop dock facility on Weary River, with access road.
- Construct new airport.
- Construct road to new airport & Snake River access.
- Renovate & expand post office.
- Construct Head Start building.
- Acquire dump truck; snow removal equipment; new fire truck; backhoe; excavator; flatbed truck.

IMPLEMENTATION

Priority Actions in each Comprehensive Planning category are listed below. It is the community of Manokotak's intent to implement these actions as soon as possible. Manokotak's Comprehensive Plan contains more actions than those listed below.

LAND USE, HOUSING & ENVIRONMENT
LAND USE
ACTION: Create site plan for land use in main village, including areas for public services, residential, commercial concentrations.
ACTION: Work with landowners (City of Manokotak, Manokotak Natives Limited, etc.) to determine best sites for future growth that meet diverse community needs.
HOUSING
ACTION: Alleviate pressure to "subdivide" small lots by opening up new land (for example, airstrip when new airstrip is developed), re-purposing existing housing. Demolish old, vacant housing.
ACTION: Consider applying for an Indian Community Development Block Grant (ICDBG) to repair, demolish and upgrade existing housing.
ENVIRONMENT
ACTION: Clean up existing landfill.
ACTION: Construct new landfill. Start recycling/reclamation program through this process.

COMMUNITY WELLNESS, CULTURE & EDUCATION
COMMUNITY WELLNESS
ACTION: Create a Community Hall for village gatherings and other community opportunities in the multi-purpose facility planned for the renovation of the old school. Include facilities for youth activities such as a ball court.
ACTION: Create a Village Wellness Team to increase collaboration between service providers and law enforcement and ensure village needs are identified and met Link Wellness Team to village and city councils and school through regular reporting and creating opportunities to work together for wellness..
CULTURE
ACTION: Include space in multi-purpose facility for programs and events to teach traditional arts & crafts skills such as beading, skin sewing, basket making, net mending, carving, Yup'ik dance, Yup'ik language, storytelling and sled building.
ACTION: Teach young people knowledge of terrain, subsistence skills for gathering native food including: butchering, skinning, storing, hunting (pisuryaraq); snare setting, plucking duck and waterfowl; fishing skills such as net mending and hanging, splitting fish, ice fishing; knowledge of edible plants.
EDUCATION
ACTION: Create a community center that will support early childhood, youth, parent, family, and Elder programs and allow for a breadth of cultural, social and educational opportunities.
ACTION: Create an improved forum for regular two-way communication among parents, families, students, teachers and school administrators (possibly through a Village Wellness Team).
ACTION: Establish a Resource Center for adults where they can find information on financial aid, scholarships, trainings, continuing education and vocational training. Internet access is important part of making this information available to the community. Increasing proficiency of technical understanding of Internet, computers, networking, etc.
ACTION: Restart a HeadStart program or other combined early childhood/parenting program (PAT/ELO) and house in a facility, rather than home-based program (existing) to encourage social and behavioral development of young children.

PUBLIC FACILITIES & TRANSPORTATION
TRANSPORTATION
ACTION: Keep road from main village site to school and new housing safe, well-maintained.
ACTION: Keep village roads graded and clear.
ACTION: Purchase equipment needed for regular road maintenance (see "Public Services & Facilities" section).
PUBLIC SERVICES & FACILITIES
ACTION: Construct a multi-purpose facility; potential tenants include youth center, senior center, family resource center, community center, office center
ACTION: Acquire dump truck and other needed road maintenance equipment.

ECONOMIC DEVELOPMENT
JOBS
ACTION: Work with City, village corporation and village council to create certified jobs.
BUSINESSES
ACTION: Utilize local natural resources for economic development, such as developing a rock crushing and gravel operation with a rock quarry conveyor belt (similar to Togiak) for road maintenance and construction, operated by an individual, MNL, city or village; timber harvesting for sales for maqi'i wood; and, a potato farm.
ACTION: Encourage entrepreneurship, especially tourism businesses and businesses where arts and crafts can be sold, including through Internet sales. Develop more tourism-based business, including a park or recreation area.
CAPACITY
ACTION: Use village, regional grant writers and rural development specialists – train more local people to write/administer grants.
ACTION: Improve village capacity to manage and develop projects.
ACTION: Increase licensed, skilled and motivated workforce.

LEADERSHIP
ACTION: Improve communication between entities, within entities and between transitions in staff and leadership. Develop an MOU or MOA among entities on how to operate together. Review and revise current policies, procedures and ordinances. Create a mechanism for ensuring that this happens at regular intervals.

COMPREHENSIVE PLAN REVISION PROCESS

A comprehensive plan is intended to be a long-range planning document that helps to guide growth and development in the community for about 20 years. For it to be effective, it must be a "living document" that is regularly used to guide decision-making. Residents who participated in the Manokotak planning process want to see it result in real accomplishments that can be tracked over time.

The revision process for this implementing the priorities identified in this plan and updating the plan will occur at regular intervals. The revision process will always seek input from residents, and all discussions of progress on plan priorities and revisions to the plan will be publicly announced. Milestones in plan implementation and revisions include:

- A copy of the plan will be brought to each village organization meeting, including joint meetings of the entities, and will be consulted in decision-making on priority projects.
- The planning team can designate measures for gauging progress for each goal statement, for example, "three new village businesses will be started in the next three years". These measures should be used on an annual basis to assess progress and adjust strategies if needed.
- The Implementation section of this plan will be used to coordinate efforts between village organizations. Each project has a 'lead organization' identified. At each meeting, lead organizations will report on status of each priority project. Opportunities for other entities to assist with implementation will be identified during these discussions.
- On an annual basis, the Implementation section of the plan will be updated as projects are completed and new projects arise. This updating will be accomplished at an annual meeting of all village organizations, with input from the full community. The updated Implementation section will be recorded and distributed to all community organizations for use in the coming year.
- On a five-year basis, the Manokotak Community Comprehensive Plan will be reviewed by the village organizations, with full public involvement, to determine which actions have been accomplished, and which priority actions should be focused on during the following years. Over time, these revisions to the comprehensive plan will help to document the accomplishments made, and the new priorities that surface. Measurements can be taken to evaluate the plan's success and it's rate of implementation, such as:
    - Holding a 6-month or annual formal review of the plan goals and priority actions to determine which goals and actions have been accomplished, which are in progress, and which need attention, resources and development,
    - Asking the City and Village Administrators to catalog and circulate how many grants have been applied for and administered as a result of the plan and how many projects or pieces of capital equipment have been acquired,
    - Surveying to determine how many jobs and new businesses have been created since the plan was adopted, and how many people have taken advantage of education and training opportunities,

- On a semi-monthly basis, checking with service providers and similar organizations (such as the school, a Wellness Team or local youth organization) to see if they are implementing steps outlined in the plan, and if they need assistance or support from community members and entities,
- Tracking statistics on education, crime and other social issues to determine if they have improved.

- After ten or twenty years, and the completion of many of the goals and strategies of the comprehensive plan, village organizations will want to reflect upon the accomplishments of the preceding 20 years and, again, plan for the next 20 years by taking on a public participation process to gain community-wide input on the next Manokotak Community Comprehensive Plan.

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APPENDICES

Appendix A: Regional Background Information

Appendix B: Business & Technical Assistance Resources

Appendix C: Business Plan Basics

Appendix D: Business & Jobs Survey Form

Appendix E: "Input-Output Model of Village Economy" Worksheet

Appendix F: Goals and Objectives from 2002 Manokotak Community Plan

Appendix G: Excerpts from 2001 Manokotak Long-Range Transportation Planning Documents

Appendix H: Maps extracted from 2004 and 2005 Manokotak Runway Studies

Appendix I: Sample Resolution from Governing Entities Adopting Comprehensive Plan

APPENDIX A: THE BRISTOL BAY REGION

The Bristol Bay Region

Bristol Bay is a world unto itself—a stunning landscape of mountains, lakes and rivers. Within the region are five national parks and wildlife refuges, designated wilderness areas, as well as a number of state parks and state wildlife protection areas. Bristol Bay is known for its abundant fish and wildlife, including salmon, bear, moose, caribou, walrus, and whales. Recreational fishing and hunting draw many people to the region in the summer and fall.

Aleut, Alutiq, Athabascan, and Yup'ik cultures are all represented in Bristol Bay. Traditional practices, languages, crafts, languages, and subsistence lifestyles continue to be a strong part of community life. The region also continues to be influenced by Russian culture, and Russian Orthodox churches are present in many communities. Bristol Bay's rivers and streams support the world's largest red salmon run, and the commercial salmon industry has been a dominate influence on local culture and economy.

Regional Economic Conditions

For over a century, Bristol Bay and Alaska's wild salmon industry dominated world salmon markets. Beginning in the mid-1990s, reduced runs and competition from farmed salmon have combined to dramatically reduce earnings from the salmon industry. As a result, the entire Bristol Bay economy has experienced severe disruption. In three out of the last five years, the Bristol Bay area has been declared an economic disaster area. In 1997 and 1998, both the state and federal governments declared the area an economic disaster because of failed salmon returns. Then in 2001, the region was declared a State economic disaster because of not only low salmon returns but weak salmon prices. The list below summarizes the current conditions of the regional economy:

- In smaller Bristol Bay villages, there are few cash jobs, and only a handful of year round jobs with a growing demand for cash services (public services, private goods)
- Substantial reliance on government programs (social services, public works)
- Subsistence activities remain strong
- An economy in transition: from resource based (fishing, subsistence), to service based (tourism, government services). Skills needed to succeed in these two sectors are quite different.
- Lack of entrepreneurial models and experiences
- Of the jobs available in the region, relatively few are taken by local residents, due to conflicts with other activities, or lack of training. This is particularly true regarding tourism related jobs.
- With declines in traditional economic sectors, support is growing in the region to explore the area's potential for oil and gas and for mining, as well as to encourage new approaches to commercial fishing and tourism.

Regional Social Conditions

Table 1 provides a comparison between selected Bristol Bay communities and Anchorage and Alaska. Note that in each of the urban communities, the median household income is significantly higher than in Bristol Bay villages. The percentage of people below the poverty line is much higher in the villages. In addition, the percentage of the population under the age of 18 is much higher in the villages than the state as a whole. This demographic has many implications for the range and level of public services.

The list below summarizes characteristics of the region's social setting:

- Close family ties, access to subsistence resources and other dimensions of village life are strong attractions; at the same time, like all of rural Alaska, Bristol Bay communities have high levels substance abuse, suicide, accidental death, and domestic violence.
- The lack of jobs and business opportunities mean a large percentage of young people leave the region to pursue educational opportunities and find a way to support themselves and their families.
- Deep ties to the land and traditional cultural values, but weakening as generations go by.

- "Two worlds problem"—again, like all of rural Alaska—there is frequently a gap between the expectations of villages and those of the world outside. Deep cultural differences, due to a very rapid shift over the last hundred years from traditional subsistence lifestyles to a cash economy, set up divisions between generations within the village, and create challenges for community development.

Regional Resilience

A resilient community has the ability and the resources to adapt to changing circumstances. Resiliency is influenced by the natural environment, attitudes towards change, community cohesiveness, cooperative problem solving, leadership resources, available infrastructure, human resources, and economic structure and diversity.

Despite the challenges, Bristol Bay continues to be home to a resilient culture and the residence of many talented and energetic people who have great affection for their land and who have prospered in this area for generations.

Regional Population

Table 1 lists the Bristol Bay communities with their most recent population estimates, percent of part or all Alaska Native, median household income, percent of adults not working, percent of individuals in poverty, membership in regional organizations, and classification as distressed or non-distressed communities by the Denali Commission.

Dillingham is the largest community with an estimated population in July 2003 of 2,373. Only eight of the Bristol Bay communities have an estimated population of 200 residents or more. Twelve Bristol Bay communities have been classified as "distressed" according to criteria set by the Denali Commission. The percent part or all Alaska Native ranges from a low of 30.1 percent in King Salmon to a high of 96 percent in New Stuyahok. Median household incomes range from a low of $19,583 in Kokhanok to a high of $92,297 in Chignik Lagoon. According to Census 2000 the percent of individuals 16 years and older that are working ranges from a high of 73.8 percent in Egegik to a low of 28.4 in Iliamna. Across Alaska as whole, 71.3 percent of individuals 16 years or older participate in the workforce.

Population estimates for June 30, 2003 show that the population of the region is centered in the community of Dillingham, which has an estimated population of 2,373 (DCED 2004). As of June 30, 2003, the Dillingham Census Area has an estimated population of 4,912, the Bristol Bay Borough estimated population was 1,105, and Lake and Peninsula Borough's population was estimated to be 1,628. Net migration is the net effect of in-migration and out-migration on an area's population in a given time period, expressed as an increase or decrease. All three areas lost population in terms of net migration between April 1, 2000 and June 30, 2003. The Dillingham Census Area, Bristol Bay Borough, and Lake and Peninsula Borough lost 184, 205, and 213 residents, respectively.

Regional Income

Decrease in Personal per Capita Income

Per capita personal income is a measure of economic well-being. The amount of goods and services that people can afford is directly related to their personal income. At one time Bristol Bay Borough's personal per capita income was more than twice as high as the U.S. personal per capita income. However, the gap between the Bristol Bay Borough and the U.S. has closed. Furthermore, the Dillingham Census Area and the Lake and Peninsula Borough have not been able to keep pace with either the U.S. or Alaska.

In 2002, the per capita person income (PCPI) for Alaska was $32,899 (Figure 1). Alaska ranked 12th in the U.S. and was 106 percent of the PCPI national average. This compared to the Bristol Bay Borough which had a PCPI of $39,474, ranked second in the State. This PCI was 128 percent of the national average. This compared to the Dillingham Census area which had a 2002 per capita personal income of $27,323 placing it 17th in the state. Dillingham's Census Area's PCPI was 88 percent of the national average of $30,906 and reflected an increase of 1.2 percent over 2001.

In contrast, in 2002 in the Lake and Penn Borough in 2002, the PCPI was $21,783 which ranks Lake and Peninsula Borough as 25th of the 27 boroughs or census areas in Alaska. The PCPI was 70 percent of the national average and 66 percent of the state average. The 2002 PCPI reflected an increase of 2.9 percent over 2001.

Components of Personal Income

Personal income has three components: earnings; dividends, interest and rent; and transfer payments. Earnings as a component of total personal income for the State of Alaska accounted for 68.2 percent of total personal income (Table 3). In 2002 in Bristol Bay Borough, earnings

accounted for 66.4 percent of total income. In 1992, earnings in Bristol Bay Borough accounted for 81.8 percent of total earnings. Earnings in 2002 in Dillingham Census Area accounted for 69.0 of total personal earnings, while in Lake and Peninsula Borough, they accounted for only 58.3 percent. In 1992, earnings accounted for 71.8 percent.

Transfer payments are income payments by government and businesses to individuals and nonprofit institutions for which no current services are performed. Transfer payments include retirement and disability insurance benefit payments, medical benefit such as Medicare and Medicaid, income maintenance benefits, unemployment insurance benefit payments, veterans benefit payments, and federal education and training benefits. Transfer payments in 2002 accounted for approximately 16 percent of total personal income for the State of Alaska. In contrast to the state, transfer payments accounted for a greater percentage of per capita personal income for the Bristol Bay region (Bristol Bay Borough: 16.9 percent; Dillingham Census Area: 20.2 percent; Lake and Peninsula Borough: 27.8 percent).

Regional Subsistence and the Village Economy

In addition to its cultural significance, subsistence is the foundation of many village economies, because there are few opportunities in some villages to earn cash. Subsistence offsets the high cost of living in villages within the Bristol Bay region. One of the paradoxes of subsistence is

that today cash is needed to engage in a subsistence lifestyle. According to a 1999 report by the National Resource Council (NRC) on CDQ communities, a household income of at least $20,000 to $25,000 per year is needed to engage in subsistence.

The NRC report points out that the subsistence economy today runs on snow machines, motorized aluminum fishing vessels, four wheel all terrain vehicles, manufactured fishing and hunting gear, fossil fuels, camping equipment, imported cold weather clothing, and even airplanes. According to the NRC, integration of cultural traditions with modern technologies and goods is taking place in some Western Alaska communities. Changes in lifestyle including settlement patterns in the villages, improved safety, and health, the availability of technology, and the desire for other market goods that reduce the time available for subsistence activities have contributed to the increasing importance of cash for participating in subsistence lifestyle.

In order to maintain a subsistence lifestyle, numerous activities and sources of income are combined: commercial fishing and hunting, making of crafts, dividends from Native corporations and the Alaska Permanent Fund, participation in the National Guard, state construction projects, loans from government agencies and fiscal institutions, firefighting, and transfer payments from Aid to Families with Dependent Children. In many Alaska communities the Alaska Permanent Dividend Fund is the most dominant and fastest growing transfer payment. In some villages, the Permanent Fund can exceed 20 percent of the total income from all sources. However, transfer payments like the Permanent Fund or the longevity bonus are the result of public policies which can change significantly almost over night.

The goal of an economic development strategy is to bring outside dollars into a community and then to keep those dollars circulating from one person to the next, as long as possible within the community. In Village Alaska dollars move out at almost the same rate they move in. For example, many individuals in rural Alaska have no choice but to spend their Permanent Dividend checks in hub communities like Dillingham or in Anchorage. While this may be good for Dillingham and Anchorage, it is not good for the local community.

Subsistence is an important economic activity for many households. However while subsistence may provide economic benefits, the cost of living (particularly fuel and energy costs) is still a major concern in Bristol Bay communities threatening the sustainability of communities that do not have a strong cash economy. One reason that utility costs in villages are so high is because fixed maintenance and operating costs are divided among a small group of people.

As a local economy grows and becomes more developed, there may be more opportunities to produce goods and services locally. According to the EDA, economies have two major sectors:

The **traded sector**, which is that portion of the economy such as commercial fishing and processing that competes in markets beyond the immediate area. These activities pull money into the local economy and help generate income to support the **non-traded** portion of the economy like general stores, video stores, beauty salons, snow machine repair. A problem encountered over and over again in Alaska communities is that if there are not enough jobs in the traded sector bringing money into a community, jobs do not develop in the non-traded sector. This is one reason why it is so difficult for villages that rely heavily on subsistence to develop non-traded businesses and jobs.

In a study conducted by Northern Economics, Inc. evaluating the socioeconomic impacts of the CDQ program it was found that while the number of jobs may be considered a measure of

"success" of economic progress, the goal of many communities in Western Alaska may include the desire to maintain subsistence activities.

Regional Employment

Employment data are usually considered an important component of a regional or community profile and economic development planning. Employment data can provide the foundation of the economic analysis of your community or region. A community's economic activity and well-being is often a function of the number and types of jobs available.

Change in the number of jobs over time is often considered a key measure of economic performance. In Alaska communities the type and availability of subsistence is also a foundation to the local economy. In many Alaska communities, however, it is not just the number and type of jobs available that is important, but also whether or not these jobs can be shared by more than one individual and whether or not the job is structured so that workers can participate in subsistence activities.

Table 4. Personal Income for Alaska, Bristol Bay Borough, Dillingham Census Area, and Lake and Peninsula Borough, 1999

Place	Per Capita Personal Income ($)	Rank	Total Personal Income ($1,000s)	Rank	Components of Total Personal Income: Earnings (%)	Dividends, Interest, and Rent (%)	Transfer Payments (%)
Alaska	32,799	12	21,040,260	47	68.2	15.8	**16.0**
Bristol Bay	39,474	2	45,040	25	66.4	16.7	16.9
Dillingham CA	27,323	17	136042	17	69.0	10.9	20.2
Lake and Peninsula	21,783	25	34,569	26	58.3	13.9	27.8

Source: U.S. Bureau of the Census, Census 2000.

Source: Values calculated by Northern Economics, Inc.

Regional Challenges

Geographically Isolated

The communities of Bristol Bay are geographically isolated. Few roads connect the major communities within the Dillingham Census Area, Bristol Bay Borough, and Lake and Peninsula Borough. Except for roads between Dillingham and Aleknagik, King Salmon and Naknek, and a bridge and road upgrade between Nondalton, Iliamna, and Newhalen, there are no other roads connecting the communities. The small size and remoteness of most Bristol Bay villages increases the cost of living and limits opportunities for market activity.

Transportation

Transportation is provided via Anchorage by frequent small commuter aircraft flights and jet flights to Dillingham and King Salmon. Travel between the communities is similarly provided by small commuter aircraft, floatplanes, snowmachine or by boat. The primary shipping method is tug and barge or small transfer vessels. Shipping is concentrated in small port facilities at Naknek and Dillingham, and the shipping season lasts about 120 days.

Federal and State Disaster Area

The Bristol Bay salmon fishery is the world's largest wild salmon fishery, and historically it has been one of the most lucrative in terms of harvest and product value. However, in 1997 and 1998, expected runs failed to appear and, in spite of diminished supply, prices paid to harvesters fell to new lows when adjusted for inflation. Federal disaster relief funds were provided to the region in both 1997 and 1998 as ex-vessel revenues fell to less than a third of the average over the previous five years.

The severity of the Bristol Bay salmon crisis is demonstrated clearly by the decline in ex-vessel value from 1978 through 2002. Figure 4 shows that the inflation adjusted ex-vessel value has fallen from the 1980's trends of over $200 million to less than $25 million in 2002.[1]

In more recent years, harvests and revenues have improved somewhat, but prices remain at historic low levels and the prospects for improved prices, due to huge increases in farmed salmon production, are slim. Lack of economic growth, out-migration, and the decline of traditional fishing related resource employment resulted in hardships for many families in Bristol Bay communities. Remote rural communities are in a constant state of flux. Political and programmatic boundaries seldom coincide with economic boundaries. Workers, businesses, and consumers readily move across jurisdictions taking their economic impacts with them. This situation is particularly true of the Bristol Bay area where economic conditions and forces move resident and non-resident workers across political boundaries.

Decline in Local Tax Revenues

As shown in Figure 4, the landed ex-vessel value of landings has declined almost 90 percent. Since some boroughs earn approximately 3 percent of ex-vessel value in fish taxes, community revenues have similarly fallen. In Bristol Bay Borough, for example, budget reserves earned from fish taxes have fallen from $27 million in 1998 to just $3 million in 2001 (pers. comm., George

[1] Huskey, L., and Morehouse, T.A. Development in remote regions:What do we know? Arctic, 1992, 42, 2, 128-137:p.134.

Castenada). If this trend continues, community governments in the Bristol Bay Region may face bankruptcy in the coming years. In a Northern Economics study of the salmon disasters in 1997 and 1998, borough managers reported significant impacts related to or caused by the declines in local revenues, including declines in programs and in basic services such as public safety, emergency medical services, roads, and docks supported by the boroughs. In addition, business owners reported that demand for goods has decreased, and the viability and competitiveness of small local businesses is in question.

In addition to borough fish taxes, some Bristol Bay communities such as Chignik Bay, Pilot Point, and Egegik have a city raw fish or salmon and other seafood landing tax. Tribal governments have a somewhat more guaranteed funding stream from the United States Bureau of Indian Affairs. As local tax revenues decline, tribal entities become more important as governing entities and service providers. The role of tribal entities in local economic development is vital.

High Cost of Fuel and Energy

Local economies in rural Alaska have also been hard hit by the rising costs of fuel and electricity, and by the State of Alaska budget shortfall. All of these factors affect the health and well-being and economic survival of rural Alaska communities and residents.

Regional Opportunities

Elements of Change

In Fall 2003, Bristol Bay sponsored a planning summit focused on "Managing Change." The purpose of the collaborative planning summit was to include Bristol Bay communities in a discussion of economic forces in the region and to anticipate the benefits and impacts of regional change so communities could adapt to these changes. Several economic development opportunities in the Bristol Bay region were identified:

- Changes in the fishing economy and potential of restructuring of the Bristol Bay fishery
- Proposed development of on/offshore oil and gas
- Copper and hard rock mining
- Infrastructure development
- Sport fishing, hunting, tourism, and eco-tourism

In order for residents to respond to these changes, the summit emphasized the need for regional and local economic development plans. These plans need to address the following diversification strategies:

- Create more competitive businesses
- Diversify the economic base with local businesses that create new wealth or retain wealth in the community
- Provide work force retraining/relocation assistance
- Promote lower-cost energy

- Promote affordable, sustainable infrastructure.

Workforce Education and Training

Workforce education and training is one of the foundations of both regional and local economic development. It may be important to include a project related to workforce training in a community and economic development action plan. In light of the Bristol Bay region's distressed fishing economy, a growing number of local fishermen want to be trained for alternatives jobs. In 2001, a job training survey of Western Alaska fishers was conducted by the DCED as part of an EDA grant. The survey serves as the basis for planning and developing job training programs. There was an unexpectedly high level of interest in job training, and many respondents indicated interest in new kinds of employment, to replace or supplement current employment in commercial fishing.

The most popular training choices were construction work and mechanics. These were followed by training in computers, electrical skills, transportation, building maintenance, office administration, metal work, and accounting. Job training opportunities for displaced fishers and other residents are available through the Bristol Bay Campus of the College of Rural Alaska/University of Alaska Fairbanks.

The Bristol Bay Campus partners with the new Southwest Alaska Vocational/Technical Education Center (SAVEC) in King Salmon. This training facility, which was renovated by the Bristol Bay Housing Authority in 1998-2001, provides class offerings ranging from building construction trades to information technology. SAVEC is expected to play a major role in training area villagers for jobs in mining exploration, according to the BBNA CEDS (2004).

Restructuring of Bristol Bay Fishery

Over the last decade, a fundamental shift has occurred in the economics of the Bristol Bay salmon fishery. It no longer appears that prices paid to harvesters move up or down with changes in quantity fished to the same degree as in prior years. If the salmon industry undergoes significant changes, then it is inevitable that associated communities will also experience significant changes. If for example, the number of active participants in the salmon fishery decreases from 50 percent of the adult population of a community to 10 percent and no other jobs fill the void, then there is a significant likelihood that population will decrease as unemployed fishers leave to search out gainful employment elsewhere.

The decline in population will be felt not only as fishers leave, but will be magnified as underemployed workers in service sectors and government sectors also leave the community. These long run impacts are likely to be manifested over a period of several years and can result in dramatic changes in the continued viability of the community, particularly for those communities in more remote areas.

Alaska Natives in the region possess a wealth of knowledge and skills as fish harvesters. These traditional skills in the subsistence economy, however, may not provide the financial resources and entrepreneurship to compete on an equal footing with participants whose experience is in market based economies. An organization such as Alaska Growth Capital, a community development finance institution, can help provide access to capital for local participation in a market-based economy.

In the years to come, Alaska salmon fisheries, especially Bristol Bay fisheries, face their greatest challenge—to remain viable in a global marketplace dominated by low-cost farmed fish. The prolific increases on world markets of farmed salmon from Norway, Chile, and Canada have been well-documented, as has the downward trend in salmon prices resulting from the increase in supply.

As shown in Figure 5, when quantities fell in the mid-1980s, ex-vessel prices paid to harvesters jumped significantly. When big production increases occurred in 1989 through 1996, prices dropped to low levels. However, in 1997 when production plummeted, prices barely moved. While prices jumped in 1998, the increase was relatively small. The production decrease in 2000 and 2001 were accompanied by even lower prices. After adjusting for inflation, ex-vessel prices for Bristol Bay sockeye salmon have declined from a peak in 1989 of $2.55/pound to just $0.41 in 2001.

In the last year or two, the market has shown some renewed interest in wild salmon. However, there is no guarantee that this interest will extend to all Bristol Bay products or producers. Early reports indicate that the base price in 2004 is $0.40, with bonuses being paid for iced fish. The fishery still faces extraordinary challenges on the most basic levels.

These impacts add to concerns expressed by local fishers that the structure of the fishery (based on regulations and recent values) favors newer and more modern vessels, and therefore non-residents with greater access to capital. Further, most processing jobs associated with the short, intense sockeye season are of little benefit to the local economy. Currently most of the processing labor used in the regional fishery is done by non-Alaska residents who are provided transportation to and from the processing facility as well as room and board at the plant. When local residents do choose to work at processing facilities, they most often live and eat away from the plant. In general, the overall compensation package for residents is not enough to attract them into the processing work force—they believe they are better off free to participate in subsistence and other activities than working long hours for relatively low wages at the plant.

An additional structural challenge facing the Bristol Bay salmon fishery is Alaska's salmon allocation system, which has promoted "a race for fish." The system forces the fishing fleet into shorter seasons that target only the most profitable and highest volume species. Under this system, the successful commercial fishers and fish processors have tended to be those with the greatest financial resources, whose traditions and histories are based on market economies rather than subsistence economies.

While limited-access programs did limit the number of vessels and set nets that could participate in the salmon fisheries, more licenses have been issued than are actually necessary to harvest the available fish, even in years of abundance. Therefore, while the number of participants is limited, the race still exists, the field is still too crowded to provide all participants adequate incomes, and the winners remain those with the fastest and best vessels and equipment.

As with commercial fish harvesting, the fish processing industry requires a great deal of capital. The processor that is able to purchase and process the most fish during the short seasons is likely to generate the greatest profit. In order to process greater shares of the harvest, processors developed multiple processing facilities and use large vessels (tenders) to purchase fish on the grounds and bring them to their plants. If all other factors are equal, the processor with greater access to capital will generally be able to secure a larger portion of the processing market.

Exacerbating these conditions is the high cost of production at fish processing facilities in the Bristol Bay region, which leads many facilities to minimize the processing steps they undertake in the primary production process, and which contributes to decisions to forego processing of lower value species. Production costs in the region are relatively high compared with the production costs in Southcentral and Southeast Alaska and in the Lower 48 states. The higher production costs are caused primarily by the high cost of energy in the region and the high cost of transporting final products and production inputs, such as labor and packaging materials.

The relatively high production costs, reliance on outside labor and capital, local dependence on fishery revenue, declining projected future run size, and an expanding world supply of farmed salmon seriously threaten the continued economic viability of the Bristol Bay salmon fishery under present management structures.

Proposed Development of On/Offshore Oil and Gas

As a result of the downturn in the fishing industry, some organizations in the Bristol Bay region are supporting opening the area to oil and gas development. No wells have been drilled in the Bristol Bay area since the mid-1980s, and no oil or gas has been produced there. However, in 1995, the U.S. Geological Survey estimated that the Alaska Peninsula had a 1-in-20 chance of containing 447 million barrels of oil and 1.4 trillion cubic feet of gas.[2] Legislation was passed by the Alaska State Legislature so the State can offer Bristol Bay oil and gas leases in October 2005. According to the preliminary findings, the State of Alaska is offering an exploration license within the Bristol Bay basin for approximately 737,000 acres made up of both state-owned and Native-owned lands. The State is proposing to amend the September 1996 decision that closed "all submerged land" in and around Bristol Bay, from Ugashik Bay north to the western boundary of Kulukak Bay. The decision would be amended to allow exploration licensing within Nushagak Bay, but with the stipulation that exploratory drilling can only be carried out directionally from onshore locations.

Exploration licenses have a term of 10 years and can range from 10,000 to 500,000 acres.

Pebble Copper

Large scale mining can have significant economic, social and environmental impacts at the regional and local level, according to case studies by the World Bank. At a local level, a mine has the potential to benefit the local population through creating direct and indirect employment, skills transfer, enhancing the capacity of health and education services, improved infrastructure, and small and medium business opportunities. In January 2004, Northern Dynasty Minerals Ltd. announced that the Pebble gold-copper minerals deposit near Lake Illiamna has estimated gold resources of 26.5 million ounces and an estimated copper resource of 16.5 billion pounds.[3] Northern Dynasty has a 100 percent interest in the Pebble resource lands.[4] These new estimates make Pebble the largest gold resource in North American and the second largest copper deposit.

It is estimated that the project will require 1,200 to 2,000 workers during construction and 600 to 1,000 in production. Although the project is on state lands, BBNC owns mineral lands near the upcoming development site. Past exploration work by Tech Cominco and Northern Dynasty

2 Cathy Brown. March 17, 2004. "Bristol Bay Oil, Gas Leasing Measure Clears Legislature." Juneau Empire.

3 Bradner, Tim. "Pebble Now State's Biggest Gold Mine." Alaska Journal of Commerce. February 2, 2004.

4 Liles, Patricia. "Mining News: Activity Kicks Up Another Notch at Pebble." Petroleum News. May 9, 2004.

has sparked a claim staking rush in the area. According to Petroleum News, geologists believe that Pebble is just one resource in a much large porphyry system. As a result, over 500 square miles of land has been staked in the area around the Pebble resource.[5] The community of Iliamna is located about 15 miles south of the project. Iliamna has an airport with two paved runways, 4,800-foot and 5,080- foot.

The State of Alaska Department of Transportation and Public Facilities (DOT&DP) has a contract with Peratrovich, Nottingham and Drage (PN&D), an Anchorage engineering consulting firm, to survey possible road routes and port sites for a potential road from the Pebble deposit to Cook Inlet. PN&D is also taking into the potential energy needs of the mine in its transportation analysis which could require between 100 megawatts and 150 megawatts of power.

The ore will either be trucked to the port or transported through a slurry pipeline. According to an article in Canadian Mining News, Northern Dynasty has committed $15 to $20 million this year for the collection of engineering and environmental data for completion of a Bankable Feasibility Study as well as submission of a federal Environmental Impact Study.[6]

Infrastructure Development

One of the pillars of economic development is improvements to infrastructure. Infrastructure includes transportation improvements—road construction, trails, port and harbor development, boat storage and dock facilities, airport improvements—sewer and water system upgrades, and power system improvements.

Infrastructure development projects present opportunities for regional collaboration on funding strategies and local employment opportunities. Villages can contract to do their own new road construction and train and use their own residents for operation and maintenance of village utilities.

In a July 2004 inventory of community development priorities for Bristol Bay communities, completed by Bristol Bay Native Association, airport and road upgrades and construction ranked highest in the transportation category. Airport projects called for new runway or upgrade and/or resurfacing of existing runways, construction of crosswind runways, and/or relighting existing runways. Some villages reported new road construction and upgrades to existing roads.

Port and harbor improvements ranked second with projects ranging from new dock construction, existing harbor dredging and seaplane dock construction. Heavy equipment purchase needs included snow removal equipment, cats, graders, and fuel trucks. Water and sewer projects are the most common type of community utility projects, with 18 of 31 villages currently planning some form of water or sewer initiative. Water and sewer project needs included redeveloping existing wells, installation of water and sewer service lines, water treatment improvements, lagoon containment improvements and expansion, water source studies, evaluation and testing of existing resource, and sanitation feasibility studies. Power generation is also a priority including alternative energy production.

5 Ibid

6 Bradner, Tim. "Massive Mine Gains Momentum." Canadian Mining News, April 13, 2004.

Sport Fishing, Hunting, Tourism and Eco-tourism

Tourism offers Bristol Bay a growing avenue for economic development. The region has abundant tourism resources, spectacular landscapes, a fascinating and complex history, three distinct Native cultural traditions, volcanoes, unspoiled wilderness, and a diverse set of State and National Parks and Refuges. In addition to 7,500 residents, Bristol Bay is home to abundant wildlife—225,000,000 salmon, 25,000 walrus and 10,000 brown bears plus fresh water seals, beluga whales, ospreys, eagles and many other species.

The challenge for Bristol Bay has been the fact that few local residents and local communities have been the beneficiaries of tourism growth. This is beginning to change. Village corporations have begun to lease land for fishing and hunting camps and lodges. In villages like Togiak, the community is working with a local lodge to offer village tours, which has increased craft sales. Several enterprising individuals have begun tourism businesses, including B&B's, a flight service, and a Dillingham-based saltwater sport fishing charter service. The Nushagak cooperative river management program, carried out by the Nushagak river villages, is a great success, creating local jobs, revenue to the corporations and helping to reduce conflicts between sport fishing, subsistence, and local life.

Several exciting new initiatives are now underway to continue the expansion of local benefits from tourism. One is a plan for better cooperative marketing and tours. If villages and village tourism businesses cooperate in packaging and marketing their products, the regional tourist market expands and provides additional jobs and income. Bristol Bay Native Corporation is helping with this tourism initiative, working through the Bristol Bay Visitors Council (BBVC). Partners include BBVC members such as Bristol Bay Native Association, as well as two local Chambers of Commerce, villages, tourism businesses and the Nushagak-Mulchatna Land Trust. Outcomes include a "branding program" to promote tourism as well as local arts and crafts and commercial fish, and plans to develop tour packages linked to local, village based and businesses.

Another set of ongoing tourism-based projects are two cultural and visitor centers. One is planned in Dillingham. This project—to be called the Harvey Samuelson Community Center—is being developed in partnership with the Choggiung Corporation, the Curyung Tribe, the City of Dillingham, and the Boys and Girls Club. It will include a visitor information center, the Sam Fox museum, an arts and crafts store, community meeting space, and in a separate wing, a youth center. The facility will serve as both a destination and a gateway to activities in surrounding villages, and will give visitors new reasons to spend time and money in Bristol Bay.

The second facility, at the Iliamna airport, is being developed by the Nilavena Tribal Consortium in partnership with the National Park Service and BBVC. This 2,500 square-foot facility will include space for visitor information, cultural and natural history displays, and distance learning center and community meeting space. According to ADF&G figures, the Mulchatna River and Lower Talarik Creek support more than 3,000 and 1,000 angler days per year. Many of these days are high-value days associated with non-resident tourism. The Mulchatna caribou herd is renowned for its productivity and the number of "trophy" class animals. Hunting pressure has nearly tripled in the past decade from 1,400 hunters annually to more than 4,000 hunters annually in some years.

■ APPENDIX B: BUSINESS FUNDING & TECHNICAL ASSISTANCE RESOURCES

TECHNICAL ASSISTANCE						
ORGANIZATION	**SERVICE**	**CONTACT**	**ADDRESS**	**TELEPHONE**	**FAX**	**E-MAIL**
Alaska Minority Business Development Center www.tananachiefs.org	Business counseling. Nominal hourly fee based on sliding scale.	Lloyd Allen, Program Director Tanana Chiefs Conference, Inc.	122 First Avenue Suite 600 Fairbanks, AK 99701-4897	907-452-8251 ext. 3277 OR 800-478-6822 ext. 3277	907-459-3957	lallen@tananachiefs.org
Alaska Rural Development Council http://ardc.alaska.edu	Technical assistance in working with regulatory agencies; Community Forums	Chuck Akers, Executive Director	UAA 3211 Providence Drive, ADM #279 Anchorage, AK 99508	907-786-4660	907-786-4662	ancja@uaa.alaska.edu
Alaska Small Business Development Center (Statewide Office)	Business counseling, Business training seminars, Library Resources	Bill Bear, Rural Director *Rural Outreach*	430 W. 7th Avenue Suite 110 Anchorage, AK 99501	907-274-7232 OR 800-478-7232	907-274-9524	anwsb1@uaa.alaska.edu
Alaska Village Initiatives www.akvillage.com		Thomas Harris, President CEO	1577 C Street, Suite 304 Anchorage, AK 99501	907-274-5400 OR 800-478-2332	907-263-9971	avi@akvillage.com
Anchorage Convention and Visitors Bureau www.anchorage.net			524 W. 4th Avenue Anchorage, Alaska 99501	907-276-4118	907-278-5559	info@anchorage.net
Bureau of Indian Affairs - Indian Reservation Roads Program www.doi.gov/bureau-indian-affairs.html		Art High	P.O. Box 25520 Juneau, AK 99802	907-586-7386	907-586-7357	
Bristol Bay Economic Development Corporation (BBEDC)			PO Box 1464 Dillingham, Alaska 99576	907-842 4370 or 800-478 4370	907-842 4336	

ORGANIZATION	SERVICE	CONTACT	ADDRESS	TELEPHONE	FAX	E-MAIL
First Alaskans Institute www.firstalaskans.org	Capacity-building of Alaska Native peoples and their communities; policy and leadership development; education	Jason Metrokin	606 E Street, Suite 200 Anchorage, Alaska 99501	907-677-1700	907-677-1780	info@firstalaskans.org
Natural Resource Conservation and Development Service www.ak.nrcs.usda.gov	Assistance with conservation, development and use of natural resources.	Shirley Gammon, State Conservationist	U.S. Department of Agriculture 800 W. Evergreen, Suite 100 Palmer, AK 99645	907-761-7780	907-761-7790	shirley.gammon@ak.usda.gov
Southwest Alaska Municipal Conference		Wanetta Ayers, Executive Director	3300 Arctic Blvd., Ste. 203, Anchorage, AK 99503	907-562-7380	907-562-0438	
US Small Business Administration www.sba.gov/ak/medak.html		Susan Roggenkamp, Assistant District Director	222 W. 8th Ave., Suite 67 Anchorage, AK 99513-7559	1-800-U-ASK-SBA OR 907-271-4536 OR 800-755-7034	202-481-5711	susan.roggenkamp@sba.gov

FUNDING SOURCES						
ORGANIZATION	**SERVICE**	**CONTACT**	**ADDRESS**	**TELEPHONE**	**FAX**	**E-MAIL**
Administration for Native Americans Grants www.anaalaska.org	Federal Agency: provides financial assistance to tribes and ANCSA communities for projects which will provide jobs, promote economic well-being, self-sufficiency and community health.	P.J. Bell, ANA Project Manager	Native American Management Services, Inc. Administration for Native Americans, Region III 11723 Old Glenn Hwy., Suite 201 Eagle River, AK 99577	907-694-5711 or Toll Free: 877-770- 6230	907-694-5775	director@anaalaska.org
Alaska Department of Commerce Community & Economic Development (DCED)						
DCCED Municipal & Regional Assistance Division (MRAD)		Ralph Andrew, Local Government Specialist	**Dillingham Office** PO Box 790 / Dillingham, AK 99576	907-842-5135	907-842 5140	
DCCED Div. of Community & Business Development *Office of Tourism* www.dced.state.ak.us/tourism/		Caryl McConkie, Development Specialist	P.O. Box 110809 Juneau, AK 99811	907-465-2012	907-465-3767	caryl_mcconkie@dced.state.ak.us
DCCED Div. of Community & Business Development *Development Section*		Ruth St. Amour, Development Specialist II	550 W. 7th Ave., Suite 1790 / Anchorage, AK 99501	907-269-4527	907-269-4539	Ruth_St.Amour@commerce.state.ak.us
DCCED: *Loan Assumption Programs* Assists purchasers in the assumption of a loan of various types, including small businesses.						
DCCED: *Rural Development Initiative Fund Loan Program* Small business loans to expand employment opportunities in rural Alaska. Anchorage T: 907-269-8150 Fax: 907-269-8147 Juneau T: 907-465-2510 Fax: 907-465-2103 E-mail: investments@dced.state.ak.us						

ORGANIZATION	SERVICE	CONTACT	ADDRESS	TELEPHONE	FAX	E-MAIL
DCCED: Small Business Development. A guide intended to help make your business a success. http://www.commerce.state.ak.us/dca/smallbus/home.htm						
DCCED: Developing Alaska Rural Tourism. Assists Alaska's rural regions in the development of the local visitor industry. http://www.commerce.state.ak.us/oed/dart/home.htm						
DCCED *Small Business Economic Development Southeast Alaska Revolving Loan Fund* http://www.dced.state.ak.us/dca/edrg/EDRG_BrowsePage_Template.cfm?Program_Name=Southeast+Alaska+Revolving+Loan+Fund http://www.jedc.org/rlf.htm	Makes direct loans to new and expanding business that cannot qualify for traditional bank financing	Margaret O'Neal, Director	Juneau Economic Development Council; 612 West Willoughby Avenue, Suite A Juneau, AK 99801	907-463-3662 888-393-3662	907-463-3929	moneal@jedc.org
DCCED *Mini-grant Assistance Program* www.dced.state.ak.us/cbd/grt/blockgrants.htm	Economic and/or comm. development projects, including projects using natural resources.	Jo Grove, Program Coordinator	Div. of Community & Business Dev. 209 Forty Mile Ave. Fairbanks, AK 99701-3100	907-452-4468	907-451-7251	Jo_Grove@dced.state.ak.us
Alaska Growth Capital	Provides alternative financing to Alaska businesses	Jason Evans, VP Lending	2121 Abbott Road, Suite 101 Anchorage, AK 99507	907-349-4904	907-349-4924	jevans@alaskagrowth.com
Alaska InvestNet www.alaskainvestnet.org	Confidential service which matches investors and entrepreneurs	Deborah Marshall, Director	612 W. Willoughby Ave., Suite A Juneau, AK 99801-1732	907-463-3662 OR 888 393-3662	907-463-3929	dmarshall@jedc.org

ORGANIZATION	SERVICE	CONTACT	ADDRESS	TELEPHONE	FAX	E-MAIL
The Denali Commission www.denali.gov	Provides critical utilities, infrastructure, and economic support throughout Alaska		510 L. Street Anchorage, AK 99501	907-271-1414	907-271-1415	
First Nations Development Institute www.firstnations.org	Provides economic development training, technical assistance loans and grants to tribes and ANCSA communities	Jeff Jeffers, Director of Grant Making	11917 Main Street Fredericksburg, VA 22408	540-371-5615	540-371-3505	jjeffers@firstnations.org
Rasmuson Foundation www.rasmuson.org	Invests in well-managed Alaskan-based organizations that provide a unique public service	Rosie Ricketts	301 West Northern Lights Blvd. Suite 400 Anchorage, AK 99503	907-297-2700	907-297-2770	rricketts@rasmuson.org
United States Department of Agriculture (USDA) www.rurdev.usda.gov	(see below)	Dean Stewart - USDA Rural Development	800 W. Evergreen, Suite 201 Palmer, AK 99645	907-761-7722	907-761-7793	dstewart@rdmail.rural.usda.gov
USDA: Rural Business Enterprise Grants Finance and facilitate development of small and emerging private business enterprises in rural areas.						
USDA: Rural Business Opportunity Grants Assist with costs of providing economic planning for rural communities, technical assistance for rural businesses, or training for rural entrepreneurs or economic development officials.						
USDA: Value-Added Agricultural Product Market Development Grants (VADG) http://www.reeusda.gov/smallfarm Funds feasibility studies, business plans and capital start-up for 'Value-added' businesses that add 'value' to food products by, for example, drying, canning, juicing, combining ingredients, handcrafting, and unique packaging and marketing techniques).						
Wells Fargo Bank www.wellsfargo.com	Provides small-business loans	"Native Peoples" group focuses on programs for the state's indigenous people.	512 Seward Street Dillingham, AK 99576	907 842-5284	907 842-2450	

Business Basics

Questions to Answer Before Starting a New Small Business

What makes a successful business venture?

- *Products & People*
- *Markets*
- *Price & Operations*
- *Attitude*

Use these worksheets to help assess if your business idea is feasible.

OVERVIEW

Give a short description of your business venture:

Briefly put into words the personal, village or regional resources that will contribute to your venture's success:

° Land

° People

° Financial

° Other

Business Basics

Questions to Answer Before Starting a New Small Business

A successful business involves:

- *Personal dedication*
- *A team effort*
- *Knowing your competition*

PRODUCT & PEOPLE

° What products or services will you offer?

° Who else is offering this product or service in your region or statewide? In other words, who will be your competition?

° How does the quality of your products or services compare to similar ones? In other words, what is your competitive edge?

° What seasonal constraints, if any, will restrict your venture?

° Who will create the product or provide the service?

° Will running your business be a full or part-time job?

° How many other people will you employ, either directly (for example, by hiring them as a staff person) or indirectly (for example, by purchasing a product from them for resale)?

° Who will you hire or contract with? What will be fair compensation for their work?

° How much do you expect to pay yourself?

° If you will be selling a product, who will create the product?

° How much will it cost you to purchase it from them?

Business Basics

Questions to Answer Before Starting a New Small Business

A successful business means knowing:

- *The demand for your product*
- *Your customers*
- *Your partners*
- *How to connect your product to your customer*

MARKETS

° Where will your customers come from? The local area, region, state and/or out-of-state?

° What is the demand for your product or service? What steps have you taken to figure this out?

° What kind of customer will be interested in your venture? List words that describe them.

° How will you reach these customers? List five means by which you will advertise your product or service.

° Do you have a dependable Internet connection? Will you use the Internet to either publicize or sell your product or service?

° Who will you partner with to promote your venture?

° Will you need assistance from another entity, such as a booking agent or wholesaler, with filling or taking orders?

° Is your product or service only available in your local area, or will it be transported to your customers? For example, a general store or a bed & breakfast will sell goods primarily in your local area. A value-added salmon processing factory will transport goods to your customers, wherever their location.

° If your product or service will be transported, how will you get it to your customers? Will this add a significant cost? How reliable is the transportation? How often will you have to ship?

Business Basics

Questions to Answer Before Starting a New Small Business

A successful business plan involves:

- *Pricing your product to fit your market*
- *Accurately anticipating your costs*
- *Knowing when you will break even*

PRICE & OPERATIONS

° Will you need to purchase equipment or upgrade a facility in order to start your business? If so, what will these start-up costs total? $ _____

° How will you pay for the start-up costs of your venture? Will you approach a bank or other lending entity for a loan, or use personal savings?

° What will it cost you per year or season to operate your venture? You should include all operating costs such as:

° Personnel $ _____
° Fuel $ _____
° Transportation $ _____
° Utilities $ _____
° Insurance $ _____
° Food $ _____
° Equipment $ _____
° Other $ _____
Estimate your operating costs and expenses per year or season: $ _____

° How much of your product or service will you be able to offer per year/season?

° How much will your customers be willing to pay for your product or service? $ _____
*If you are considering a business with many products, such as a general store, you can estimate prices for a handfull of items.

° Is your price comparable to your competition's prices?

° How have you arrived at the right price?

° Estimate your revenues for a year of operation: $ _____

° Will your venture break even? If not in the first year, how many years do you estimate it will take to break even?

°Subtract yearly revenues from expenses. Will your business make a profit? How much more will you need to earn annually to make a profit? $ _____

Business Basics

Questions to Answer Before Starting a New Small Business

A successful business depends on:

- *Motivation*
- *Perseverance*
- *Your attitude and passion towards the business*

ATTITUDE

° Does your venture fit with community priorities? Will others in your community welcome and support your business venture?

° How long do you imagine persevering with your venture, even if you do not turn a profit?

° What motivates your business venture? (e.g. profit, community benefits, cultural benefits, etc.)

ACTION

If, after answering these questions, you feel like your business venture is feasible, assistance with start-up financing and business planning is available. See the *Business Funding and Technical Assistance Resources* appendix for a list of resources and websites, including information on small business loan programs.

APPENDIX D: COMMUNITY BUSINESS & JOBS SURVEY FORM

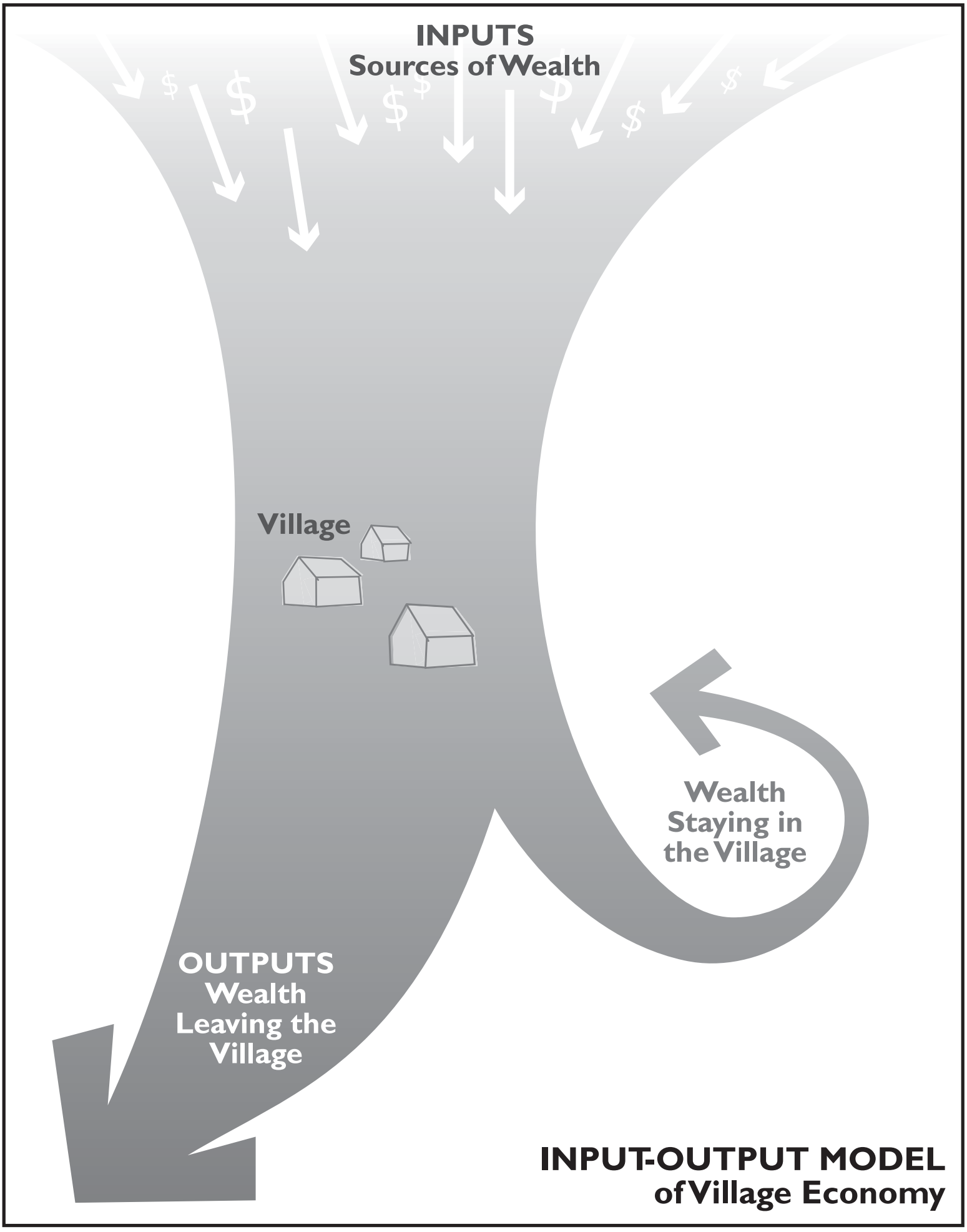
Community-Wide Businesses and Jobs Survey

	Name of Business or Organization	Business Type*	Description or Type of Business	# of Full-Time Jobs	# of Part-Time Jobs	# of Months per Year in Operation	Year Established	# of Employees When Est.	# of New Jobs During Past Two Years	# of Jobs Expected 5 Years from Now	Any Non-Locals Employed?	# of Non-Locals Employed
1								___F/T ___P/T	___F/T ___P/T	___F/T ___P/T	___Yes ___No	___F/T ___P/T
2								___F/T ___P/T	___F/T ___P/T	___F/T ___P/T	___Yes ___No	___F/T ___P/T
3								___F/T ___P/T	___F/T ___P/T	___F/T ___P/T	___Yes ___No	___F/T ___P/T
4								___F/T ___P/T	___F/T ___P/T	___F/T ___P/T	___Yes ___No	___F/T ___P/T
5								___F/T ___P/T	___F/T ___P/T	___F/T ___P/T	___Yes ___No	___F/T ___P/T
6								___F/T ___P/T	___F/T ___P/T	___F/T ___P/T	___Yes ___No	___F/T ___P/T
7								___F/T ___P/T	___F/T ___P/T	___F/T ___P/T	___Yes ___No	___F/T ___P/T
8								___F/T ___P/T	___F/T ___P/T	___F/T ___P/T	___Yes ___No	___F/T ___P/T
9								___F/T ___P/T	___F/T ___P/T	___F/T ___P/T	___Yes ___No	___F/T ___P/T
10								___F/T ___P/T	___F/T ___P/T	___F/T ___P/T	___Yes ___No	___F/T ___P/T
	TOTALS	see below		0	0	#DIV/0!		0 0	0 0	0 0	0 0	0 0

Total = Average # of Months Per Year

Government Agency	*G* =	0
Locallly-Owned Business (For Profit)	*LB* =	0
NOT Locally-Owned Business (For Profit)	*NLB* =	0
Non-Profit	*NP* =	0
Other	*O* =	0

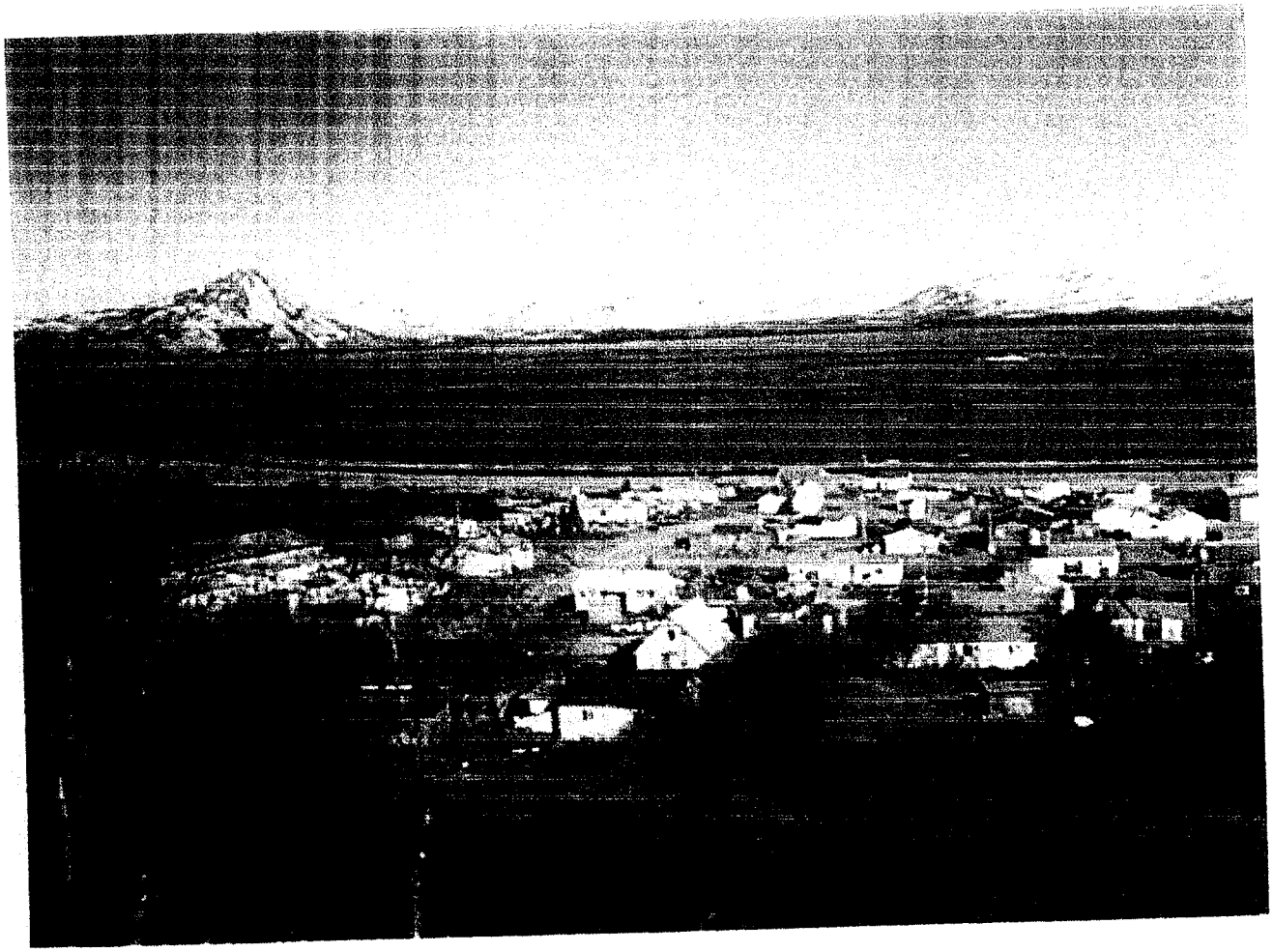
*** Type**:
G = Government Agency
LB = Locally-Owned Business (For Profit)
NLB = NOT Locally-Owned Business (For Profit)
NP = Non-Profit Organization
O = Other (describe)


INPUTS
Sources of Wealth
Village
Wealth
Staying in
the Village
OUTPUTS
Wealth
Leaving the
Village
INPUT-OUTPUT MODEL
of Village Economy

APPENDIX F

Manokotak Community Plan

January 2001-May 2002



submitted by:
Bonnie Ayojiak
Senior Project
UAF, Rural Development

Manokotak Planning
Goals & Objectives
January 26, 2002

The following entities that will be responsible for projects are as follows: Manokotak City Council (MCC), Manokotak Village Council (MVC), &, Manokotak Natives Limited (MNL)

Health & Safety:

These goals and objectives were identified at the community meeting.

Goal: Manokotak will provide a healthy environment for our community members.
The **objectives** to achieve this goal are:

1. the MCC will relocate the landfill to a new site within five years.
2. the MCC will provide trash collecting system within five years.
3. the MCC will upgrade water/sewer at the village wihtin five years.
4. the MCC will construct a water holding tank for the Heights within five years.
5. the MCC will relocate or extend the sewage lagoon at the Heights within five years.

Goal: Manokotak will provide an adequate health care facility.
The **objectives** to achieve this goal are:

1. the MVC will demolish the old and construct a new clinic within five years.
2. the MVC will construct a Cultural Care Center for the elders within ten years.

Goal: Manokotak will promote healthy place for children.
The **objectives** to achieve this goal are:

1. the MVC will construct a new head start bldg. within five years.
2. the MVC will construct a community/recreation center within five years.

Goal: Manokotak will improve the Emergency Medical Services.
The **objectives** to achieve this goal are:

1. The community will have trained responders for all emergency depts within a year. (We have met this 1st objective in the spring of 2002.)
2. The community will acquire fire equipment & a transport vehicle within five years.

Manokotak Community Meeting
Goals & Objectives
January 27-28, 2002 Day 2&3

Education:
These goals and objectives were identified at the community meeting.

Goal: Manokotak will provide education & training for the members of the community
The objectives to achieve this goal are:

1. To have the VPSO and TVPO provide fire & safety workshops for members within five years, and provide driver's education twice a year.
2. To have the Youth Opportunity program increase participation in job training & higher education opportunities by 25%.
3. To have any construction company awarded a contract provide at least one workshop on job skills to increase local hire.
4. To have GCI or Alascom provide high speed internet access, and get local access number within five years.
5. To have the traditional council provide 4 seasonal activities with elders and youth. Some of the activities will include survival/life skills for all ages.
6. To have the H.S. interview and record knowledge and wisdom of all the Elders within five years.

Social & Cultural:
Goal: To provide Native, Physical & Spirtual awareness/fitness
The objectives to achieve this goal are to be put in place within five years, are:

1. The MVC will have seasonal Native/Sobriety dance.
2. The Nunaniq School will have annual men & women basketball tournaments.
3. The community will have a camp for youth, (boys and girls club).

Goal: Manokotak will provide a gathering place for the members of the community.
Objective: The MVC will construct a Cultural Building with a park within ten years.

Housing
Goal: Manokotak will provide affordable housing for it's residents.
The objectives to achieve this goal will be through the local housing department:

1. to construct ten housing units within five years.
2. to construct 8 teacher housing units within five years.
3. to construct assisted Senior housing within ten years.
3. to construct a Safe Home & a Child Care Center within ten years.
4. to construct access ramps for disabled homes & offices within five years.

Manokotak Community Meeting
Goals & Objectives
January 28, 2002 Day 2

Transportation:
These goals and objectives were identified at the community meeting.

Goal: The MCC will improve the transportation network of the community.
1. to extend and resurface the airstrip within five years.
2. to construct a cross-wind airstrip within five years.
3. to construct road to Kulukak by 2020.
4. to set trail markers for safer sno-machine travel by 2003.
   (The markers have been staked in the winter of 2002- needs to be continued next year.)

Goal: The MCC will improve the loading at Weary River.
1. to construct a dock within five years.
2. to acquire heavy equipment within five years.
3. to construct a small river dock at KMO within ten years.

Goal: The MVC will provide safe & adequate road system.
1. MVC will widen and resurface the roads with BIA roads within five years.
2. MCC will pave, set up side rails and lights within 20 years.

Capital Improvement & Infrastructure:
These goals and objectives were identified at the community meeting.

Goal: The MCC, MNL, and MVC will work together to acquire Equipment
1. All the entities will acquire new equipment listed below:
   Excavator, snow blower, Police Vehicle, fire truck, dumptruck & bins, gravel spreader, flat-bed truck, loader and gravel crusher.

Goal: The MNL will upgrade electric power for the community.
1. to upgrade Power plant and lines within five years.

Goal: Provide new public facilities to meet the needs of the community
1. MVC will construct a new Health Clinic building by 2004.
2. MVC will construct a new Headstart building within five years.
3. MNL will re-open the garage or the repair shop within a year.
4. to construct a washeteria within ten years.
5. to construct a new Post Office building within five years.

Manokotak Planning
Goals & Objectives
January 27,2002

Economic Development:

Goal: The Community will promote business ownership by community members.
The **objectives** to achieve this goal are the following:

1. The Manokotak women will start a small scale qaspek factory within five years.
2. The Manokotak men will start maqii wood sales within five years.
3. MVC will provide training and opportunities to build / renovate homes for bed/breakfast within five years.
4. The community will start a guide service with six pack licensing within five years.
5. The MVC will construct an Arts&Crafts Cultural center within ten years.
6. The community will have a home improvement hardware & lumber store within the next ten years.
7. The communtiy members will start up a food processing plant within ten years.

Manokotak Planning

Critical Issues our community identified at the spring 2002 meeting.

Land: There is a need for land to accomodate new homes and to promote economic growth. Land is also needed for facilities such as laundromat, Post-Office, New Clinic, New Office Building, Garage & Repair shop, and etc.

Pollution: There is a need for closing the old landfill& relocating to the new site, cleaning up the oil spill below our community, removing old drums, old & used batteries, old boats & skiffs, and a general clean-up of the community.

Education & Cultural Activities: There is a need for the traditional activities to continue such as: yuraq, hunting and gathering activities, qayaq, and other native arts & crafts making.
There is also a need to keep our cultural & traditional language and activities among our community and especially our youth. Community identified these important values that must be passed on.

Transportation: The community has needs for a dock facilities at Weary River, a airport extension, equipment for the airport and road maintenance, a new road to new landfill site and to new homes at the Heights.

New source of funds: Our funding has been dwindling for the City, Manokotak Village Council and the Manokotak Natives Limited from agencies such as (Federal, State, Non-profit, Profit, Private and etc.) The critical need is that these entities must work together and support each other in securing new funds.

Facilities: Many of our facilities are in old inadequate buildings. New and improved buildings are needed for the following: Headstart, Health Clinic, Post Office, Office , and a Laundromat.

Utilities: Our power plant has been repaired after a fire in 1987 and 1998. Needed in the main village are following: replace existing power plant, and upgrade water and sewer system.The Heights will require the following: improved phone service, upgraded sewage lagoon, new water treatment plant, and a new water holding tank.

Health & Social: There is a need to have planned events to provide our community members who need a diversion from unhealthy activities such as alcohol and substance abuse.Our youth also need a gathering place for fun activities where they can grow into healthy and socially active adults.

Economy: Our community has relies on commercial fishing for the majority of their income. Due to the poor fishing seasons these past four years, the amount of money families receive has substantially been reduced. So there is a great need for alternative sources of revenue.

Manokotak Planning
Prioritized Needs
May 1, 2002

A community meeting was held on May 1st after the entities(Manokotak City Council, Manokotak Village Council, and Manokotak Natives Limited) met on April 29,2002. The main discussion was on the need for the highest priorities in the community. The need for a list to follow in the acquisition of equipments and project planning for needs of the community.

Note: (The airport and dock needs are being addressed at this time by DOT and BBEDC.)

Here are the results of the priority meeting for Manokotak, Alaska.

Highest 8 priorities for Manokotak are as following:

- **New Health Clinic**
- **New equipments**
  - **backhoe or excavator**
  - **dumptruck**
  - **snow removal equipment**
  - **flat-bed truck**
- **Water & Sewer**
  - **Landfill Relocation**
  - **Water Holding Tank @ the Heights**
  - **Water Treatment Plant @ the Heights**
  - **Water & Sewer Upgrade @ the main village**
  - **Sewage Lagoon relocation @ the Heights**
- **New Headstart**
- **New Community/Recreation /Cultural Center**
- **New Power Plant**
- **New Post Office**
- **New Office Center**

APPENDIX G

Manokotak

Long Range Transportation Plan

Prepared By

Kuskokwim Architects and Engineers, Inc.

Under Contract To

Manokotak Village Council

Respectfully Submitted
November 2001

5.0 TRANSPORTATION NEEDS

Manokotak transportation needs include a portage route from the old village to Kulukak Bay, access to the proposed landfill site located between the old village and Manokotak Heights, relocation of the winter trail to Dillingham on a more direct route, construction of local streets within existing ROW, construction of barge landing areas and/or docks, construction of an access road to a barge landing site on the Weary River, relocation of the airport closer to Manokotak Heights, construction of a crosswind runway, and various creek crossings in the vicinity of Manokotak.

Table 3 – Road Needs

Route Designation	Length (feet)	Subtotal (miles)
Portage Route to Kulukak Bay		21
Access Road to New Landfill		1.43
Winter Trail Marking Towards Dillingham		3.15
"G" Street Completion	244	0.05
First Street Completion	617	0.12
Fourth Street Construction	266	0.05
Front Street Construction	1,095	0.21
Snake River Barge Landing Access Road		4.9
	Total	30.9

5.1 Project Priorities

The residents of Manokotak identified the following projects as important priorities for the village.

1. Portage Route to Kulukak Bay
2. Access Road to New Landfill
3. Winter Trail Marking Towards Dillingham

5.2 Kulukak Bay Portage

An inland, land and water route is needed to connect a major fishing area at Kulukak Bay with the village. The route will include a tramway located at the historic portage between Kulukak Bay and Ualik Lake, a water section across Ualik Lake, down Ongoke River and across Amanka Lake, and an all weather road from Amanka Lake to the village of Manokotak on the Igushik River. This will provide for shorter, quicker and much safer movement of boats and personnel to and from the fishing grounds.

Currently, the only route is all the way around Nushagak Peninsula in the open waters of Bristol Bay then up many miles of the very winding Igushik River.

There are no existing right-of-ways in the BIA Road System Inventory. However, the Tribe is considering a resolution to provide right-of-ways to the BIA.

The terrain is flat to gently rolling and the route will follow the most level contours. The overland portion of the portage will be approximately 21 miles.

The narrow-gauge railroad track commonly used for mining will cost $615,000 per mile to build. The twenty-one miles will cost $12.9 Million. Adding 35% for indirect costs, such as administration, and 20% for contingency, the total project cost will be $20 Million.

5.3 Access Road to New Landfill

A proposed landfill will be located between the old village and Manokotak Heights. The landfill will require an access road approximately 1.4 miles in length. Funding for the new landfill will include the access road. Using $1.36 Million per mile from Appendix A as the estimated cost of construction, the 1.4-mile project will cost $1.90 Million to build. Adding 35% for indirect costs, such as administration, and 20% for contingency, the total project cost will be $2.94 Million.

5.4 Winter Trail Marking Towards Dillingham

The existing winter trail to Dillingham needs to be shortened. The proposed route will be approximately a half-mile shorter than the existing trail providing access to Weary River and Dillingham. From Appendix A, trail marking with the newer system of wooden tripods costs $2,000 per mile to construct. The 3.5 miles of trail marking to Weary River is estimated to cost $7,000 to build. Adding 35% for indirect costs, such as administration, and 20% for contingency, the total project cost will be $10,850.

5.5 Other Projects

Construct Local Streets: There are a number of local streets that residents have expressed as village needs, such as the completion of "G" Street and First Street, as well at the construction of Front Street and Fourth Street. Using $1.36 Million per mile from Appendix A as the base estimate, the 0.43-mile combined length of roads will cost $584,800 in direct construction costs. Adding 35% for indirect costs, such as administration, and 20% for contingency, the total project cost will be $906,440.

If the projects can be built with local gravel, the costs will be much less. Blasting and crushing rock for small jobs is not cost effective. An economic evaluation will be needed to see if there is enough gravel needed for the reconstruction to balance the costs for mobilizing a blasting crew and a rock crusher against the costs of imported gravel.

Snake River Barge Landing: The current barge landing area located at the end of the Manokotak Heights road is in need of an upgrade. Currently, barges beach on an unimproved area of the Weary River. A preferable alternative would be a road built to access a site located on the Snake River. A barge landing can be constructed to decrease the distance barges have to travel to deliver goods, and to keep the barges in the larger river, which stays open for a longer period than the smaller Weary River.

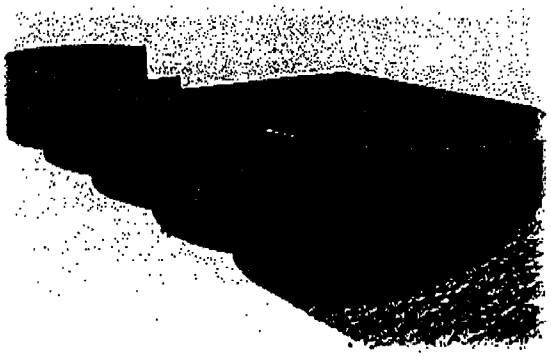
A gravel area at least 200 feet by 100 feet by 2 feet thick should be built to allow equipment turns and some storage. An estimated 1,926 cubic yards of imported gravel will be required. The total estimated project cost for improving the barge landing area is $203,000. A thicker pad would be a method to stockpile gravel that can be cut down later to maintain the landing as the Snake River erodes it.

$203,000. A thicker pad would be a method to stockpile gravel that can be cut down later to maintain the landing as the Snake River erodes it.

Another possibility for the Snake River Barge Landing may be a docking facility as illustrated below.

The facility should be constructed with sheet-metal pilings from an open-cell design. Unlike many designs that would require concrete batch plants to produce concrete, there have been many successful designs with the sheet metal pilings when built in accordance with the open-cell method.

The computer rendering and the picture of a 1,000-foot dock built in Nenana, Alaska are shown here to give an idea of the proposed structure for a proposed barge dock at the Snake River near Manokotak.



Computer Rendering of Open-Cell Design
Photo Credit: PN&D

1,000-foot Dock in Nenana, Alaska
Photo Credit: PN&D

The open-cell design has several advantages over concrete structures.

- The dock can be built with a local crew without experience in pile driving,
- Open-cell docks are about half the cost of heavy-duty pile-supported docks,
- The main ingredients are steel and gravel,
- Minimal embedment of the sheets means virtually no drilling or blasting in rock,
- Level land is created as the dock gets gravel and the gravel source is excavated,
- No rip-rap rocks that would be moved by wave action and winter ice,
- Unlike most platform-type docks, there isn't much shelter for rats and vermin, and
- Very low maintenance.

Unit costs for a proposed barge facility were developed based upon new barge docking facilities constructed in rural Alaska. Assumptions used in developing the unit costs for new facilities are as follows:

- The new dock in this example is constructed of metal sheet pilings.
- The new dock has tiebacks to strengthen the dock.
- The new dock area is filled with locally available rock.

- Local labor will be used for the construction project.
- Heavy equipment for the installation of the sheet piling is not locally available.

An open-cell design, with tail walls and 30 feet of vertical face to the mud line, can be estimated at $2,000 to $2,500 per linear foot of a 500-foot dock face. A 1,000-foot dock face would be closer to the lower figure of $2,000 per foot of dock face, or $2 Million.

Adding 35% for indirect costs such as engineering, soil testing, and administration, and an additional 20% for contingency, the total estimated barge facility costs at Manokotak would be $3.1 Million.

The working area for equipment turning and storage should be a level area 200 feet from the face of the dock.

Site surveys and hydrologic surveys of the river bottom at the proposed site will need to be conducted as part of a feasibility study to help locate the dock.

Snake River Barge Landing Access Road: Using $1.36 Million per mile from Appendix A as the base estimate, the 4.9-mile road to Snake River will cost $6.66 Million in direct construction costs. Adding 35% for indirect costs, such as administration, and 20% for contingency, the total project cost will be $10.32 Million. A narrower road with occasional pull-offs would be cheaper.

New Airport with a Crosswind Runway: Residents of Manokotak are interested in increasing safety for air travelers. The primary project to accomplish this is to relocate the airport closer to Manokotak Heights where there is room for a new airport with a crosswind runway. Topography, with nearby hills in the vicinity of the existing airport, makes construction of a crosswind runway almost impossible.

A new 3,400-foot runway and a 1,800-foot crosswind runway will have a combined construction length of 5,200 feet. Using $1,500 per linear foot of runway from cost information in Appendix A, the new airport will cost $7.8 Million to build. A new $500,000 building for the storage of snow-removal equipment will bring the direct construction costs up to $8.3 Million. Adding 35% for indirect costs, such as administration, and 20% for contingency, the total project cost will be $12.9 Million. Funding, if approved, would be from the Federal Aviation Administration.

Various Creek Crossings: To increase safety for snowmachine travelers during freeze-up and the spring thaw, residents request that ten creek-crossing locations used by snowmachines be upgraded with small bridges. From Appendix A, each of the 10 crossings, if they were less than 15 feet across, would cost $3,000 each. The direct construction costs would be $30,000 for the project. Adding 35% for indirect costs, such as administration, and 20% for contingency, the total project cost will be $46,500.

Proposed Pullout Docks: Due to the number of people who use boats for travel and fishing, there is a need for several public boat docks along the Igushik River.

These docks will consist of structural steel floats so they can be dragged up the riverbank before freeze-up to protect them from being swept downstream when the ice starts to break up. Although the village has not determined locations, a suggested design consists of two sets of floating docks at each location. Each of the two 10-foot wide docks that will extend from the shore will have a 3-foot dock extending from each side. The docks

will be anchored to prevent movement. Each set of docks will be 408 square feet for each public landing areas. Using the costs from Appendix A and assuming the village will request seven locations, the direct construction costs for 2,856 square feet of public boat docks, at $130 per square foot, is $371,280. Adding 35% for indirect costs, such as administration, and 20% for contingency, the total estimated cost of the boardwalk project would be $575,484.

A separate visit to the village would be needed to establish the quantity of the removable, floating docks.

Boardwalk Access to the Public Docks: The boardwalk along the Igushik River would be about 800 feet long and located on the west side of the older part of Manokotak as shown in Figure 3. This boardwalk should be 10 feet wide and constructed with 3-inch by 12-inch lumber.

From the boardwalk construction cost information in Appendix A, the 800 feet of the new 10-foot wide boardwalk, at $200 per linear foot, will cost $160,000. Adding 35% for indirect costs, such as administration, and 20% for contingency, the cost of the boardwalk project will be $248,000.

5.6 Exhibits

Figure 3 – shows proposed project priorities for reconstruction and construction in the local village area.

Figure 4 – shows the proposed project priorities for reconstruction and construction in the Manokotak region.

Table 4 – Summary of Proposed Project Costs

MANOKOTAK

Item Descriptions	Quantity	Units	Direct Costs	35% for Indirect Costs	20% for Contingency Costs	Estimated Project Costs
Kulukak Bay Portage	21	Miles	$12.9 million	$4.52 million	$2.58 million	$20 million
Access Road to New Landfill Route 7(A) 2/20	1.4	Miles	$1.90 million	$665,000	$380,000	$2.94 million
Winter Trail Marking Towards Dillingham	3.5	Miles	$7,000	$2,450	$1,400	$10,850
Construct Local Streets	0.43	Miles	$584,800	$204,680	$116,960	$906,440
Snake River Barge Landing	10,000	Square Feet	$130,968	$45,839	$26,194	$203,000
Snake River Barge Landing Access Road Route 7004	4.9	Miles	$6.66 million	$2.33 million	$1.33 million	$10.32 million
New Airport with a Crosswind Runway	5,200	Feet	$7.8 million	$2.73 million	$1.56 million	$12.09 million
Various Creek Crossings	10	Each	$30,000	$10,500	$6,000	$46,500
Proposed Pullout Docks	2,856	Square Feet	$371,280	$129,948	$72,256	$575,484
Boardwalk Access to the Public Docks	1600	Feet	$160,000	$56,000	$32,000	$248,000
					Estimated Costs for Projects	$ 47.3 million

APPENDIX H

MANOKOTAK AIRPORT IMPROVEMENTS

ADOT&PF Project No. 55313

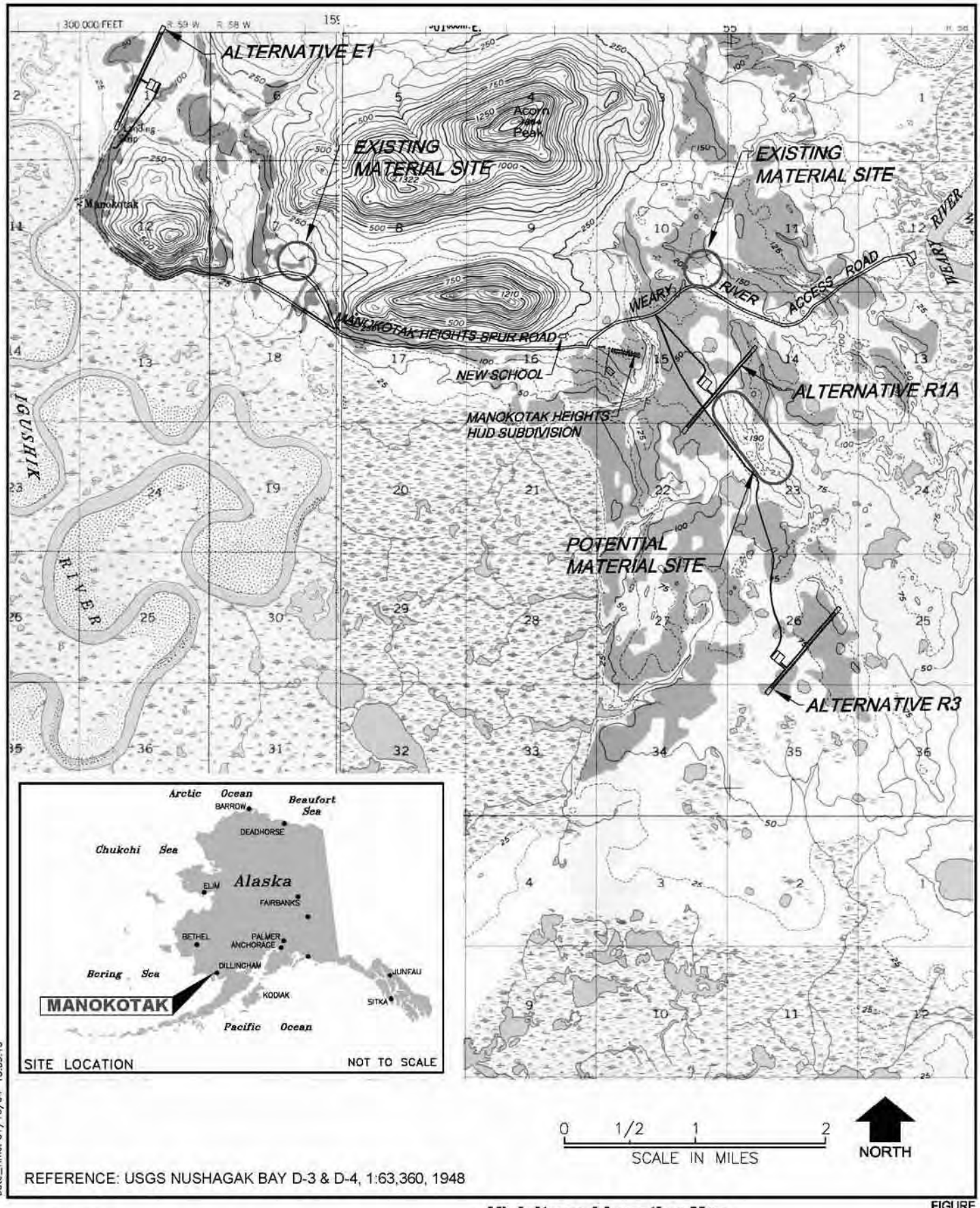
Final Phase I Preliminary Site Investigation

January 15, 2004

Prepared by:

MACTEC *Engineering and Consulting*
601 East 57th Place
Anchorage, Alaska 99518

Prepared for:
PDC Inc. Consulting Engineers and
Alaska Department of Transportation and Public Facilities



REFERENCE: USGS NUSHAGAK BAY D-3 & D-4, 1:63,360, 1948

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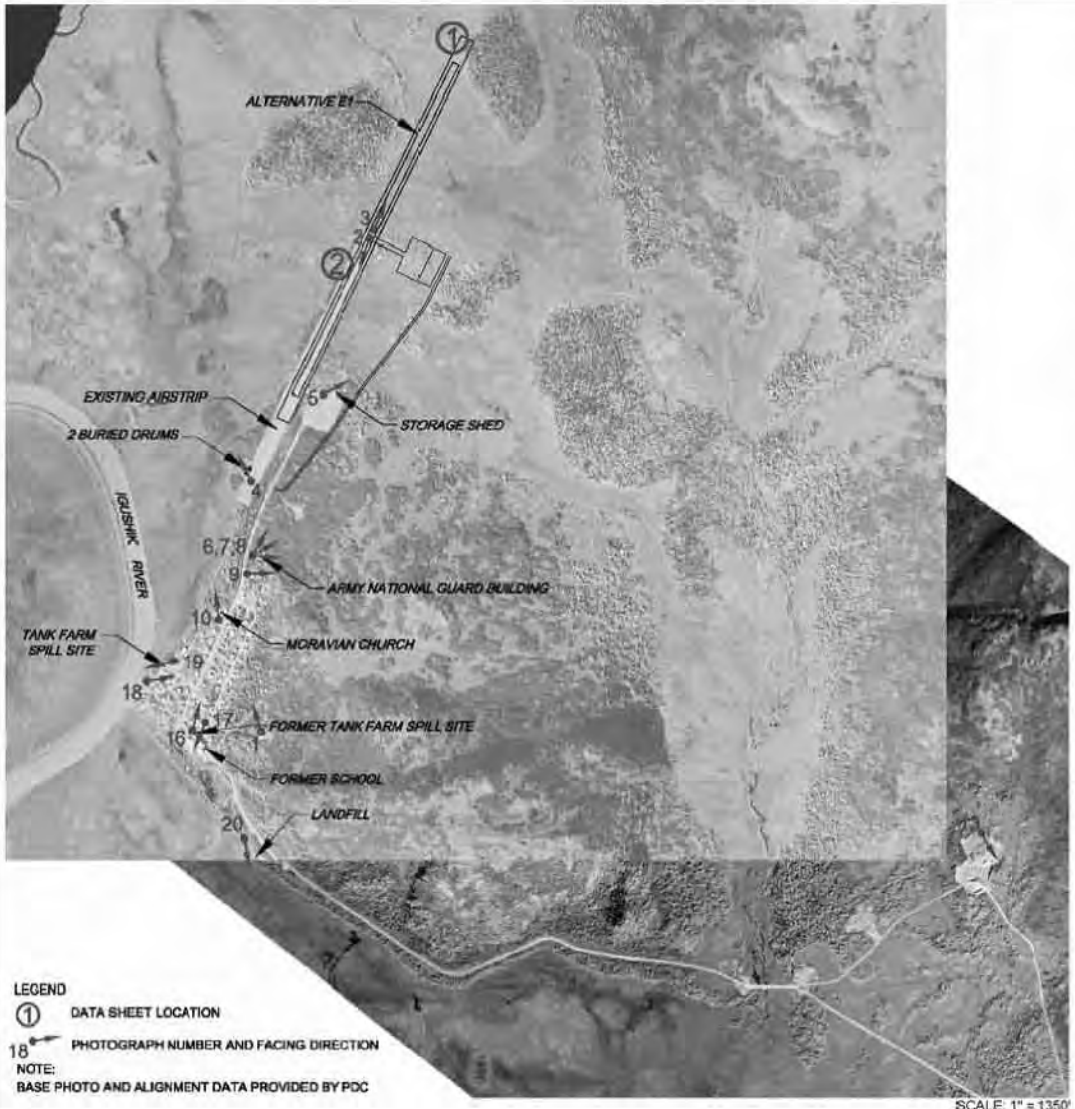
MACTEC
Engineering and Consulting, Inc.

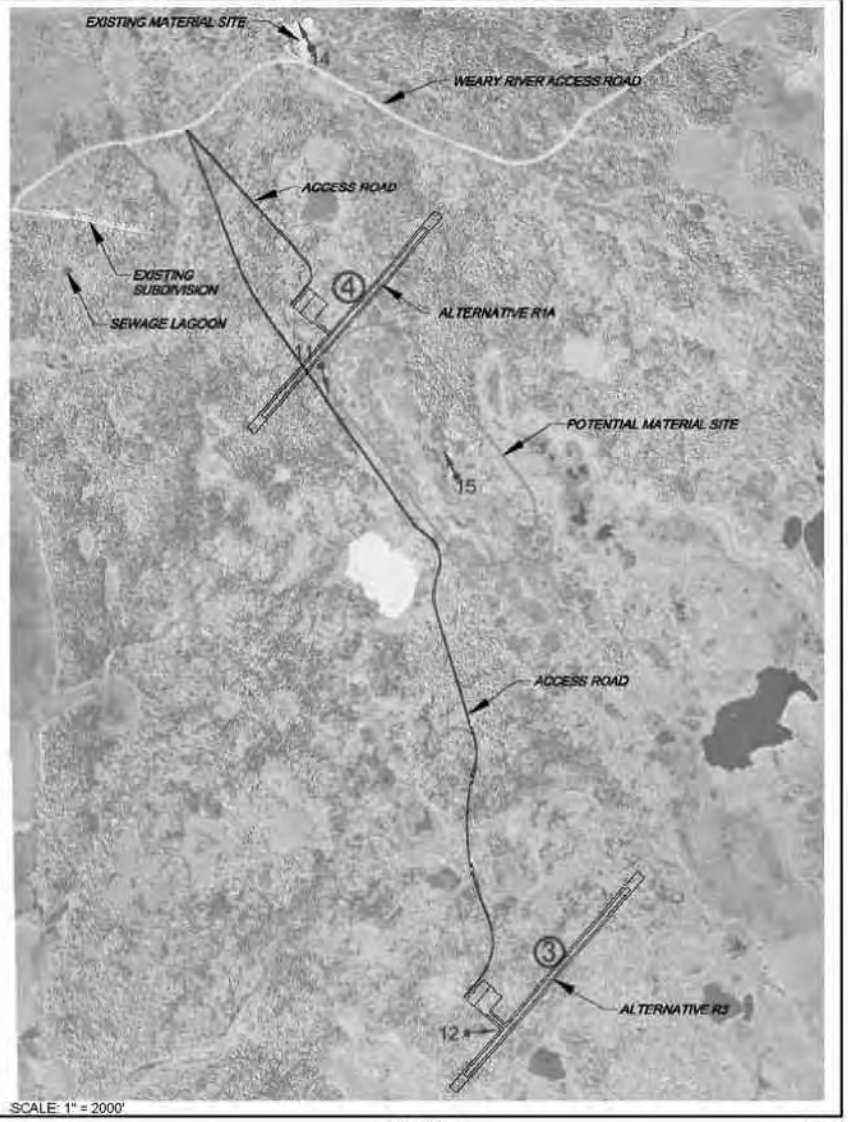
Vicinity and Location Map

Manokotak Airport Improvements
Phase I Preliminary Site Investigation
Manokotak, Alaska

FIGURE
1

DRAWN	PROJECT NUMBER	APPROVED	DATE
JP	55343		1/2004





LEGEND

① DATA SHEET LOCATION

18 PHOTOGRAPH NUMBER AND FACING DIRECTION

NOTE:
BASE PHOTO AND ALIGNMENT DATA PROVIDED BY PDC

SCALE: 1" = 1350'

SCALE: 1" = 2000'

NORTH

Site Map

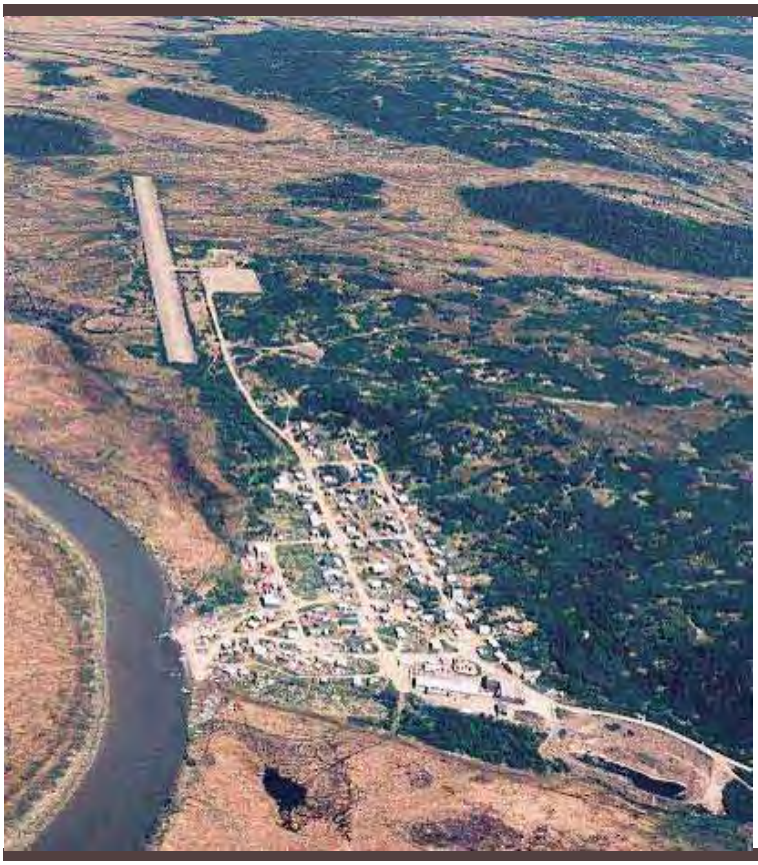
FIGURE **2**

MACTEC
Engineering and Consulting, Inc.

Manokotak Airport Improvements
Phase I Preliminary Site Investigation
Manokotak, Alaska

DRAWN	PROJECT NUMBER	APPROVED	DATE
JP	55343		1/2004

MANOKOTAK AIRPORT RELOCATION



PROJECT NO. 55313

ENVIRONMENTAL ASSESSMENT

DRAFT

July 2005

Prepared for:
Federal Aviation Administration
Airports Division – AAL 600
222 West 7th Avenue, Box 14
Anchorage, Alaska 99513

On behalf of the sponsor:
State of Alaska
Department of Transportation &
Public Facilities – Central Region
4111 Aviation Avenue
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Prepared by:
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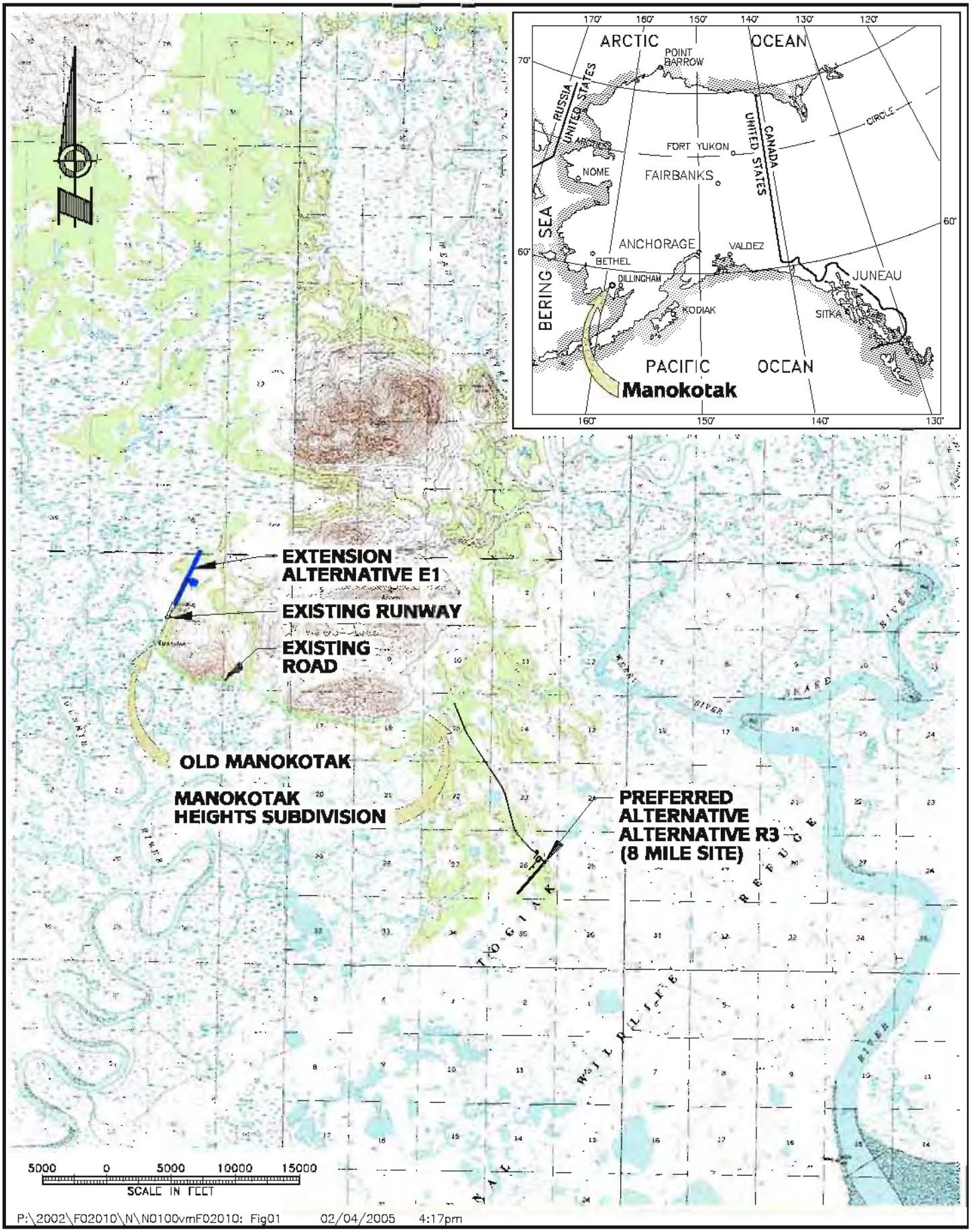

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PLANS DEVELOPED BY:
PDC, INC.

LOCATION & VICINITY MAPS
MANOKOTAK AIRPORT RELOCATION

MANOKOTAK, ALASKA

DESIGN:
DRAWN: CFP/GDS
CHECK: RLC
Feb 2005

PROJ. No. **F02010**
FIGURE **1**

2.0 PURPOSE AND NEED

The purpose of the proposed project is to provide the residents of Manokotak with a safe, reliable facility that both meets their present year-round transportation needs and has the capability to expand to meet their future needs.

The community of Manokotak uses the airport for transport of supplies and mail; for passenger travel, business, and inter-village activities; and for medevacs. Air travel is the only year-round lifeline linking Manokotak to other communities and supplying the residents with passenger service, food, supplies, and medicines. No roads connect Manokotak with other communities. A snow-machine trail to Dillingham and Twin Hills is only usable during the winter. Barge service is provided along the Igushik and Weary Rivers during the ice-free months, and local transportation is available by skiffs and snow-machines. These modes of river transportation are often unusable, especially during spring break-up and during the fall before the ice thickens sufficiently.

Improvements to the Manokotak Airport are needed to correct potential safety concerns. Existing conditions at Manokotak Airport fail to meet current FAA standards and the State of Alaska's established requirements for community airports with NPI approach capabilities (described in Section 2.1.2). These deficiencies include:

- Runway too short and too narrow
- Runway safety area too narrow
- Taxiway and taxiway safety area too narrow
- Substandard separation distance between runway and aircraft parking area
- Runway surface in poor condition
- Poor drainage, especially in spring when snow berms along the runway are melting
- Terrain penetrations
- Bulk fuel storage facility, gas station, antenna, and residences along the approach
- Crosswind problems due to runway alignment relative to the local prevailing winds
- Inadequate snow storage area, resulting in snow berms penetrating the airspace
- Lagoon and landfill too close to the south end of the runway
- Inadequate clearance of transitional surface by access road and vehicles

A short runway with poor surfacing combined with poor weather results in the inability to provide reliable service to the residents of this community. The U.S. Flight Publication (Appendix B, Alaska Supplement) notes that the runway has a soft and muddy surface during spring breakup or heavy rains and shallow ponding along the centerline after rain, and recommends that pilots visually inspect the runway prior to landing. Drainage and snow drifting problems occasionally cause partial or complete airport closures.

The need for improvement is further demonstrated when considering that the airport is vital to providing emergency services to Manokotak. Between 25 and 30 medevacs are flown each year. According to one air service provider, about half of these medevac operations occur at night in poor weather conditions. Several airplane accidents have occurred in the area; at least one resulted from turbulent winds caused by the surrounding hills. The medevac providers estimate there are at least 60 days per year with Instrument Flight Rules (IFR) weather conditions and about 35 days per year

when medevac flights cannot get into Manokotak at all. One pilot feels the 35 days could be reduced considerably by relocating the runway to the other side of the mountain (see Appendix A, Questionnaires and Telephone Log).

Relevant issues supporting the project's purpose and need were identified early in the scoping process. Methods used to identify these issues included personal telephone conversations, public and agency meetings, a community questionnaire, visits to the existing airport facility and alternative sites, and correspondence with air carriers and agencies. Appendix A provides documentation of these coordination efforts, including minutes of the public and agency meetings.

In a survey of Manokotak residents, respondents generally (20 out of 29) reported having no problems accessing the airport; most people that reported access problems experienced them during the winter. Respondents receive most of their supplies by air, although many people reported they also receive supplies by barge in the summer months. All stated they would use air transportation more frequently if available. The majority of people take more than 24 trips per year (by air) outside of Manokotak. Their concerns with traveling to and from Manokotak were primarily related to bad weather, wind, and airport safety.

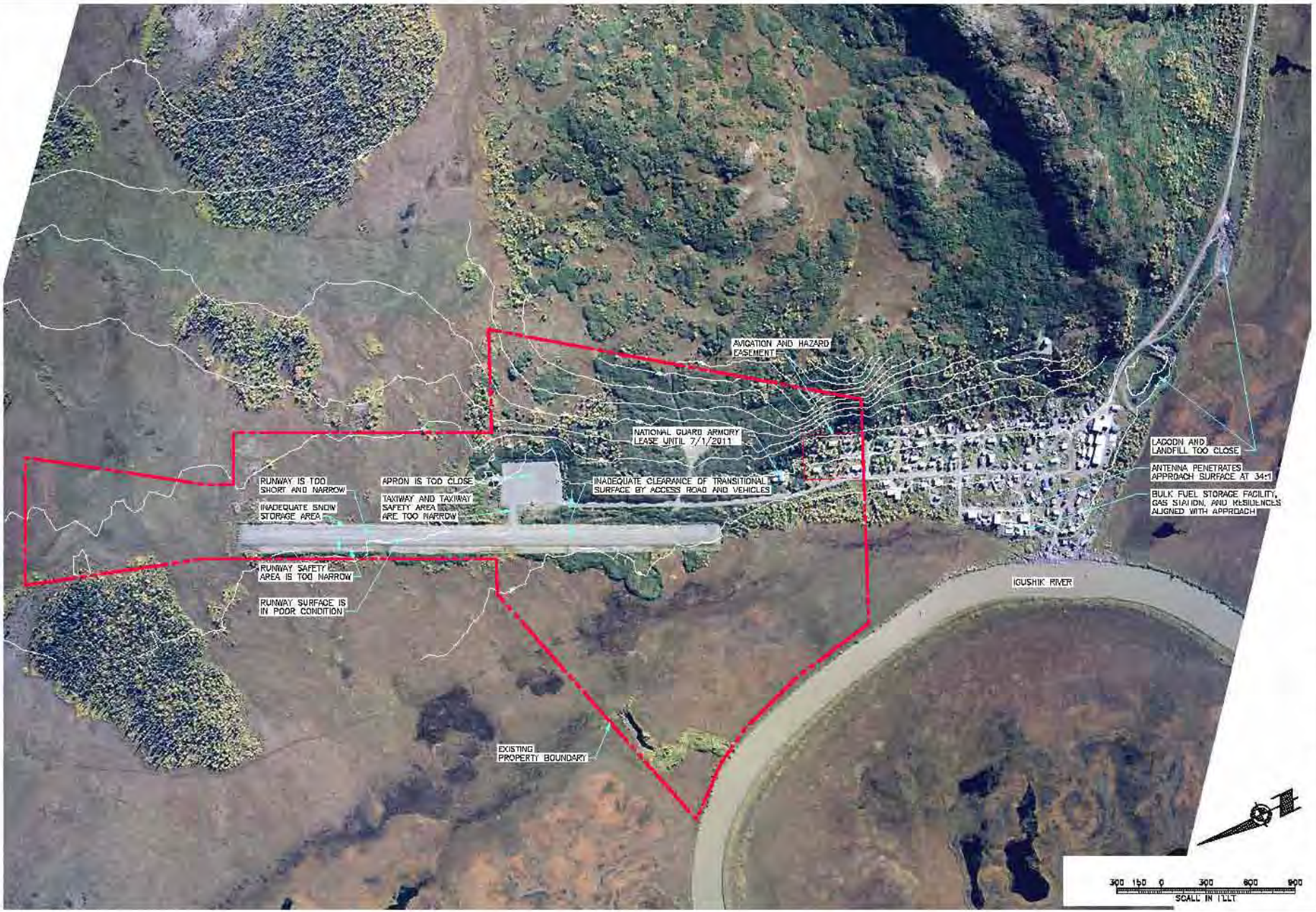
A questionnaire was sent to pilots early in the project to determine their concerns and needs. All pilots responding to a question about crosswinds considered them a problem at Manokotak. Some pilots report that the crosswinds determine their approach at Manokotak. Pilots also expressed concerns about terrain. Reported landing difficulties were associated with wind, weather, and the lack of drainage on the runway surface.

2.1 Airport Facilities

2.1.1 Existing Airport Facilities

Manokotak Airport (Figure 2) consists of a single gravel runway (2,720 feet by 60 feet; safety area 3,200 feet by 120 feet) with a 200-foot taxiway connecting the runway to a 200-foot by 400-foot aircraft parking apron. A one-bay SREB stands next to the apron. Medium Intensity Runway Lights (MIRL) mark the edges of the airport facility. Other navigational aids include a rotating beacon on top of the SREB and two windsocks, one lit and one unlit. The airport was last improved in 1986, and only routine maintenance has been completed since that time.

The runway, taxiway, and associated safety areas do not meet the standards required for a number of the aircraft currently operating at the airport, especially the medevac aircraft that provide the village's only link to advanced health care facilities in Dillingham and Anchorage. Because of the facility deficiencies and limitations imposed by the surrounding terrain, the airport does not support operations during inclement weather. The existing site is often fogged in, causing further closures. The apron separation distance and the runway protection zone meet only the lowest airport classification. The U.S. Flight Publication (Appendix B, Alaska Supplement) warns pilots that the runway surface is soft and muddy during spring breakup and heavy rains.



PLANS DEVELOPED BY:
PDC, INC.

MANOKOTAK AIRPORT RUNWAY RELOCATION
EXISTING CONDITIONS
MANOKOTAK, ALASKA

DESIGN: KBK/SRL
DRAWN: GDS
CHECK: RLC

Feb 2005
PROJ. No.
F02010
FIGURE
2

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P:\2002\F02010\N\MD30Rfig\F02010- Fig 2

Photo 1 – Existing Airport with Adjacent Hill

Constraints at the airport involve airspace penetrations and obstructions. A bulk fuel storage facility, gas station, residences, and an antenna are within the departure/approach path. This is cause for concern on landings and takeoffs. The bulk fuel farm is located approximately 1,900 feet from the edge of the existing runway and has a gas station next to it. The community has identified the runway's alignment with the bulk fuel storage facility as a concern in their Emergency Disaster Plan (see Appendix B). The bulk fuel facility is only 100 feet from the Manokotak Power Company's generators and 90 feet from the nearest residence. The antenna, located 1,900 feet out from and 100 feet to the right of the runway end, extends 65 feet above runway elevation.

The U.S. Flight Publication (Appendix B, Alaska Supplement) warns of "sharply rising terrain," referring to an 800-foot hill next to the runway which penetrates the airspace (Photo 1). These terrain obstructions result in fairly high approach minimums. The current GPS approach is 1,100 feet minimum descent altitude (MDA) and the missed approach point (MAP) is 2 miles. Besides presenting an obstruction, the proximity of the hill creates wind gusts and crosswinds on the runway. Wind is a critical component in determining the alignment of a runway because crosswinds often contribute to accidents.

The lack of adequate snow storage results in snow berms that rise above the primary surface; drainage and snow drifting problems often cause partial or complete airport closures. The airport lies crosswind to the high winter winds; this, combined with the snow coming off the adjacent hillside, makes snow drifting prevalent. These conditions require the snow to be pushed off the west side of the runway, leaving a snow berm that penetrates the airspace and narrows the landing surface. The snow removal process requires substantial time, effort, and cost to keep the runway clear and creates a potential safety concern. In addition, in the spring the berm acts as a dam, holding the meltwater on the runway surface. This saturates the runway, causing unstable conditions that lead to airport closures.

Both the village sewage lagoon and the landfill are closer than the standards established by the FAA for safety. The separation distance is a safety standard set to reduce aircraft collisions with wildlife.

There is an access road adjacent to the runway. The road does not have the required 15-foot clearance below the transitional surface. According to the Airport Layout Plan (ALP), there is between 3 feet to 9 feet of clearance; thus, vehicles traveling on the access road penetrate the transitional surface at some locations.

The short runway, deteriorated runway surface, airspace penetrations, and inadequate separation distances combine to hinder safe operations at the airport. In addition, the airport does not support NPI approach because there is no way to achieve 95% wind coverage; the mountain next to the runway is an obstruction, and the approach cannot be cleared because of the village location. Establishing an NPI approach would improve accessibility and increase safety during inclement weather.

2.1.2 Facility Requirements

The Cessna 208 Caravan has been selected as the design aircraft. The Caravan is the most demanding aircraft that frequently operates at Manokotak and its selection as the design aircraft is further supported by the *Southwest Alaska Transportation Plan* (*SAT Plan;* Parsons Brinkerhoff, 2002). The Alaska Aviation Coordination Council recommends a 3,300-foot runway for rural public airports to support all-weather approach and landing capacity.

Table 1 compares the existing facility dimensions with those required to meet the A/B-II standards. The deficiencies illustrate the extent of the facility needs.

Table 1 – Facility Deficiencies and Requirements

Feature	Existing Facility	Facility Requirements	Deficiency
Runway Length	2,720’	3,300’	580’
Runway Width	60’	75’	15’
Runway Safety Area Width	120’	150’	30’
Taxiway Width	25’	50’[1]	25’
Taxiway Safety Area Width	50’	118’[1]	68’
Aircraft Parking Area	200’ x 400’	100,000 SF[2]	None
Aviation Support Area	4 lots – 100’ x 100’	4 lots – 100’ x 100’	None
Aircraft Parking Area Separation	200’	400’	200’
Runway Lighting	MIRL	MIRL	None

[1] Taxiway and Taxiway Safety Area widths are increased to the next higher Aircraft Design Group (III) to provide more snow storage area and to allow occasional use by larger aircraft.
[2] Proposed dimensions; these features have no requirements.

2.1.3 Airport Activity Data

Historic and Current Activity

The majority of passengers, air freight, and all mail to and from Manokotak pass through Dillingham Airport (the regional hub), where passengers either stay or transfer to carriers providing service to Anchorage or other destinations. Although Manokotak is serviced by a number of daily flights, most air carriers serve Manokotak “on demand” and as a “flag stop” to and from other scheduled service destinations. Medevac flights typically originate in Dillingham, with patients being transported back to Dillingham for treatment at Kanakanak Hospital. More severe cases result in transport from Dillingham to Anchorage.

Pilots identified the following aircraft (Table 2) as those they typically fly to Manokotak.

Table 2 – Current Aircraft Fleet Mix

Aircraft	ARC Designation	Aircraft Use
Cessna 172 Piper PA28 Cherokee	A-I	General Aviation
Cessna 206 and 207 Piper PA32 Saratoga	A-I	Air Taxi & Charter
Cessna 208 Caravan	A-II	Air Taxi
Piper PA31 Navajo	B-I	Air Taxi & Medevac

For un-towered, rural airports such as Manokotak Airport, data is limited to current and past operations and enplanements, as reported by airport users.

The FAA Master Record (dated September 4, 2003) lists 1,000 air taxi operations and 200 general aviation itinerant operations for a total of 1,200 operations. However, the source of this data appears to be inaccurate. Pen Air and Bristol Bay Air, the two main carriers into Manokotak, reported a combined total of 4,100 air taxi operations for 2002. These 4,100 operations, combined with the 200 general aviation itinerant operations reported by FAA (the only available source), yield a total of 4,300 annual operations. This number was used as the basis of the aviation forecast below.

Aviation Forecast

Forecast elements were based on current aviation activity at the airport and demographic patterns (PDC, 2004). In 2022, Manokotak Airport could experience up to 5,814 annual operations. The A/B-II facility with a single 3,300-foot runway is expected to meet the forecasted demand through 2022 because:

- Manokotak's population is not expected to change substantially
- Changes in economic factors that would affect the facility requirements are not anticipated
- Flights on smaller planes would likely continue to serve on a "demand" basis

2.2 Identification of Federal Action

The Federal actions requested by ADOT&PF are approval of the ALP and participation in funding the improvements described herein.

3.0 ALTERNATIVES

Alternatives were developed through the evaluation of environmental and engineering factors. Topographic and land use constraints limited alternative development at the site of the existing airport. Expansion of the existing airport and potential relocation options were initially evaluated by reviewing U.S. Geological Survey (USGS) topographical maps, aerial photography, and community input. Relocation was considered because expansion at the existing site would present the following challenges:

- An extension of the existing runway would be expensive and could be unstable due to organic soils
- An extension would affect higher value wetlands
- Upgrade to provide for Non-Precision Instrument (NPI) approach capabilities increases obstruction by the adjacent hill
- The armory, fuel tanks, and homes would continue to obstruct the airspace
- The inadequate distance from the sewage lagoon and landfill would not be addressed
- Problems with crosswinds, snow removal, and snow storage would not be remedied
- Future expansion of the airport, if needed, would not be easily accommodated
- Land for community expansion near the original town site would remain unavailable due to conflicts with the airport use

Alternatives E1, R3, and the No-Build Alternative (Figure 3) remain for consideration in this EA. Alternative E1 would extend the existing runway in its current location, and Alternative R3 would relocate the airport southeast of the Manokotak Heights subdivision. The No-Build Alternative consists of the existing facility with no changes.

The potential environmental impacts of each alternative are discussed in Section 5, Environmental Consequences. Neither build alternative would have substantial impacts. Public comments have been received in support of both build alternatives. In general, Alternative R3 meets the community's needs and FAA safety standards. Alternative E1 would not fully address FAA safety deficiencies. The existing deficiencies and substandard conditions (as described in Section 2.1.2 above) would remain under the No-Build Alternative. Thus, Alternative R3 has been selected as the Preferred Alternative.

3.1 Alternative R3 (8-Mile Site) – Preferred Alternative

Description

Alternative R3 (Figure 4) would relocate the airport runway 2.5 miles southeast of Manokotak Heights Subdivision and 7.5 road miles from Old Manokotak. The runway would be oriented at 41 degrees, the optimum orientation for wind coverage. The apron and taxiway would be placed on the east side of the runway. The airport access road would connect with the Weary River Access Road just east of the subdivision.

Features of Alternative R3 include:

- 3,300-foot by 75-foot runway with 3,900-foot by 150-foot safety area

- 250-foot by 400-foot apron with adjacent lease lots and tie-downs on the northwest side of the runway
- A 2.7-mile access road
- Medium intensity runway and taxiway lighting system
- Segmented circle, lighted wind cone, rotating beacon, precision approach path indicators (PAPI), runway end identification lighting (REIL), and associated pads
- Pad for future installation of Automated Weather Observation System (AWOS)
- 2-bay SREB and pad
- 330 acres of land to support aviation use
- Overhead electrical line to the airport

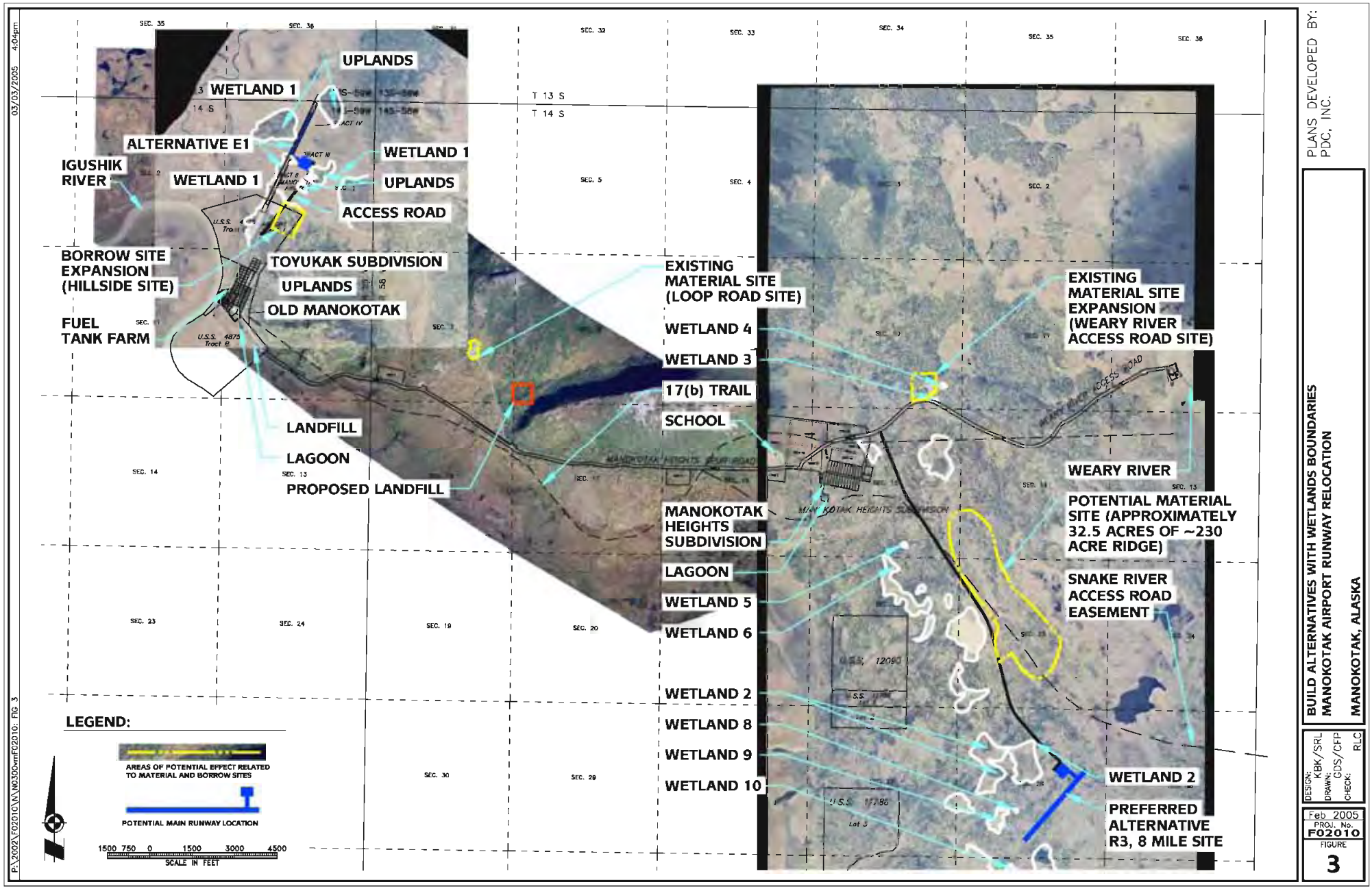
The airport facilities (runway, taxiway, apron, pads, and access road) embankment would consist of borrow material (approximately 270,000 cubic yards). The material will likely come from excavation from the development of the proposed Ridge material site. Approximately 40,000 cubic yards of surface course is likely to come from expansion of the Weary River Access Road site or from within the existing unvegetated floor of the Loop Road material site. An estimated 82,000 cubic yards of subbase material is likely to come from the Ridge or Weary River Access Road material sites. If the contractor chooses to obtain material from the Ridge site, he would be required to grade it to drain and avoid ponding due to the proximity to the proposed airport site. Although penetration of the water table is not expected, excavation below it in any material site would be backfilled with overburden or unusable excavated material to a height of 2 feet above the water table to eliminate ponding.

Approximately 330 acres of property would be required for construction of the new runway, taxiway, and apron, as well as for clearing trees from the airspace.

In addition to the features discussed above, Alternative R3 would require decommissioning of the existing airport facility, including disposal of the existing SREB. Some of the existing airport land may eventually revert to the City and the Bristol Bay Native Corporation (BBNC).

Functional Analysis and Engineering Considerations

- Meets FAA airport design standards to provide a safe facility
- Has no airspace penetrations
- Allows for development of optimal NPI approaches
- Offers 97.8% wind coverage with a 13-knot crosswind component
- Would cost approximately $10,300,000 to construct
- Has annual maintenance and operation (M&O) costs (using lane-mile analysis) estimated at $139,800, comparable to those at the existing airport
- Places the airport on soils well suited for construction
- Meets needs of community and airport users
- Provides pilot-operated lighting to increase the hours of operation
- Has no buildings located in the Runway Protection Zone (RPZ)
- Meets recommended separation standards for landfills and lagoons
- Would easily accommodate future expansion



PLANS DEVELOPED BY:
PDC, INC.

BUILD ALTERNATIVES WITH WETLANDS BOUNDARIES
MANOKOTAK AIRPORT RUNWAY RELOCATION
MANOKOTAK, ALASKA

DESIGN: KBK/SRL
DRAWN: GDS/CFP
CHECK: RLC

Feb 2005
PROJ. No. F02010
FIGURE 3

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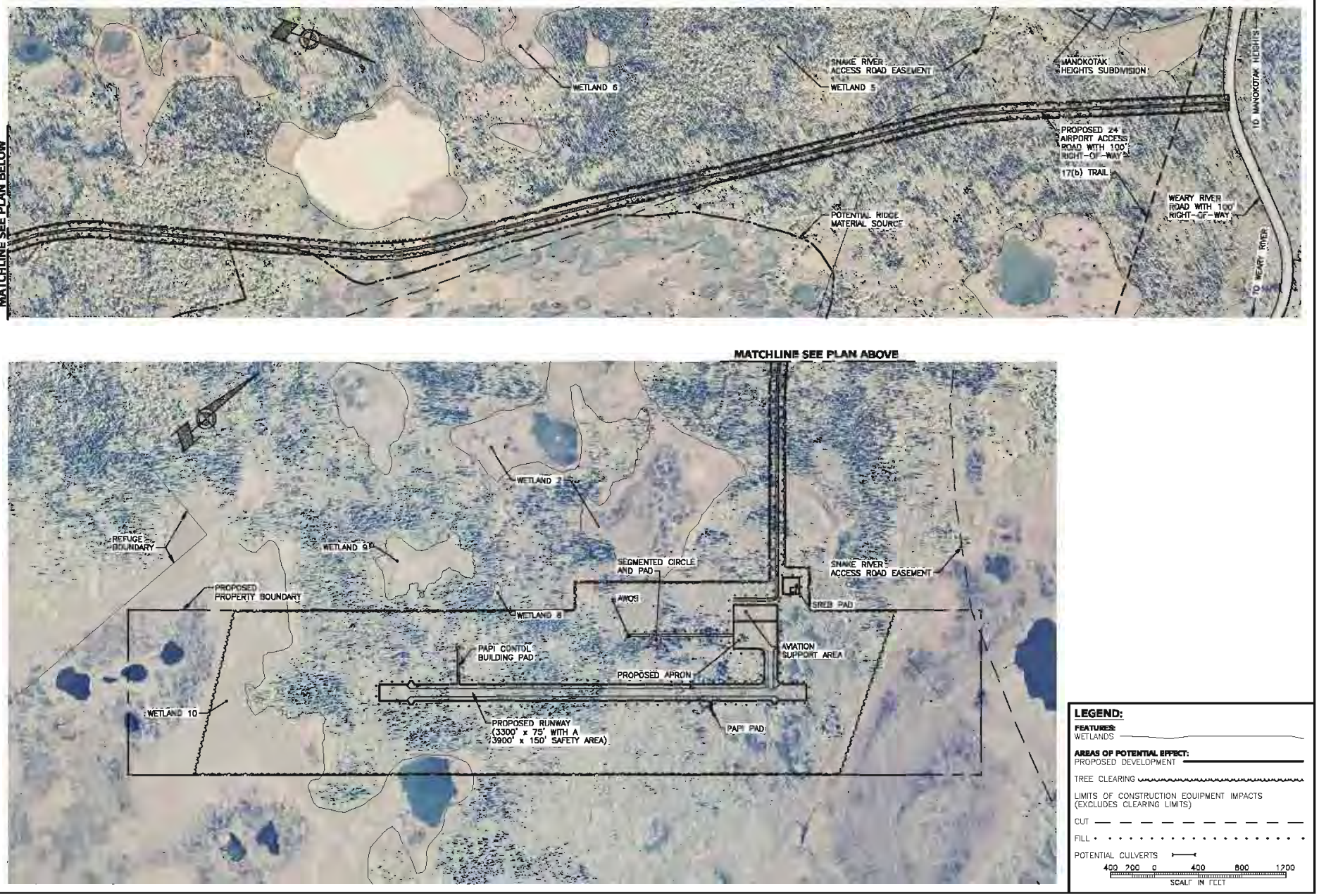
P:\2002\F02010\N\N0300vmF02010- FIG 3



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P:\2002\F02010\N\N0405VMF02010: Fig 4

PLANS DEVELOPED BY:
PDC, INC.

ALTERNATIVE R3 - AREA OF POTENTIAL EFFECT
MANOKOTAK AIRPORT RUNWAY RELOCATION
MANOKOTAK, ALASKA

DESIGN: KBK/SRL
DRAWN: GDS
CHECK: RLC

July 2005
PROJ. No.
F02010
FIGURE
4

Alternative R3 would have no airspace penetrations (see Appendix B, Airspace Drawings). This alternative is located the farthest from nearby hills, providing the best approach minimums of the alternatives considered and the greatest chance of getting in/out during IFR weather. The Bristol Bay Air Service owner, who reports the majority of the operations and enplanements for Manokotak, has indicated that Alternative R3 "would provide a much safer option to landing and taking off in bad weather." (See Appendix A, Questionnaires and Comments.)

FAA's analysis of airspace requirements for instrument approaches at R3 indicated:

- NE runway end: Straight in, 700-foot Minimum Descent Altitude (MDA)
- SW runway end: Straight in, 600-foot MDA
- For both runway ends: 1-mile visibility with the Missed Approach Point (MAP) at the threshold

The proposed runway is orientated at 41 degrees to obtain the optimum wind coverage, 97.8%. The wind data indicates the higher winds are predominantly from the northeast. In addition, the high winds in the winter months (November to March) when snow drifting is an issue generally come from the northeast and southwest. The wind data figures provided in Appendix B show that winds at R3 are less intense and from a more consistent direction than at the existing airport site.

Winter snow storage and drainage would be improved by constructing the embankment above the surrounding terrain. Aligning the runway optimally with the wind would improve plow-time and storage requirements, since the snow could be plowed off both sides of the runway. Although this relocation option would have the longest access road to maintain, the runway is aligned optimally with the wind. Since the runway would be all fill, there would be minimal snow drifting. This would also reduce plowing time and M&O costs.

The reconnaissance-level geotechnical investigation identified the subsurface soil at the Alternative R3 site to be moist silts with 3 to 6 feet of overburden. The terrain is flat, allowing for an "all fill" construction of the runway, taxiway, and apron. The geotechnical engineer recommended a minimum 4-foot fill section to be placed directly over the existing tundra. Because of the organic mat and overburden material, some initial settlement (6 inches) should be expected, but the majority of the settlement should be immediate and uniform. Because a fairly uniform embankment depth can be placed over this area, very minor differential settlement would be expected in the long term.

Changes Since Agency Scoping

Since the February 20, 2004, agency scoping letter, refined topography and geotechnical information became available. This information allowed refinement of the airport design to avoid wetland impacts. The runway, taxiway, and apron were shifted to the east, and the road alignment was adjusted. The airport property boundary was also increased to protect the airport from future incompatible land uses.

3.2 Alternative E1

Description

Alternative E1 proposes to extend the north end of the existing runway to the required runway length (Figure 5). Extension off this end is the only reasonable option at this site. The south threshold would shift 975 feet north so that the RPZ does not encompass the residential properties in Toyukak Subdivision at the south end of the runway. The runway would remain oriented at 26 degrees. Existing

residences, the bulk fuel storage facility, the gas station, and the antenna would continue to lie in the approach at the south end. The access road would be lengthened, and the apron would be relocated to the required separation distance for safety. The segmented circle and wind cone would also be relocated.

Because of the surrounding terrain, Alternative E1 cannot be aligned to achieve 95% wind coverage with a 13-knot crosswind tolerance; 93% is the best that could be achieved through realignment. Widening the runway to 100 feet (ARC B-III), which would give pilots more room to maneuver when landing in a crosswind, would increase the crosswind tolerance to 16 knots, thus improving the overall wind coverage to 97.5%.

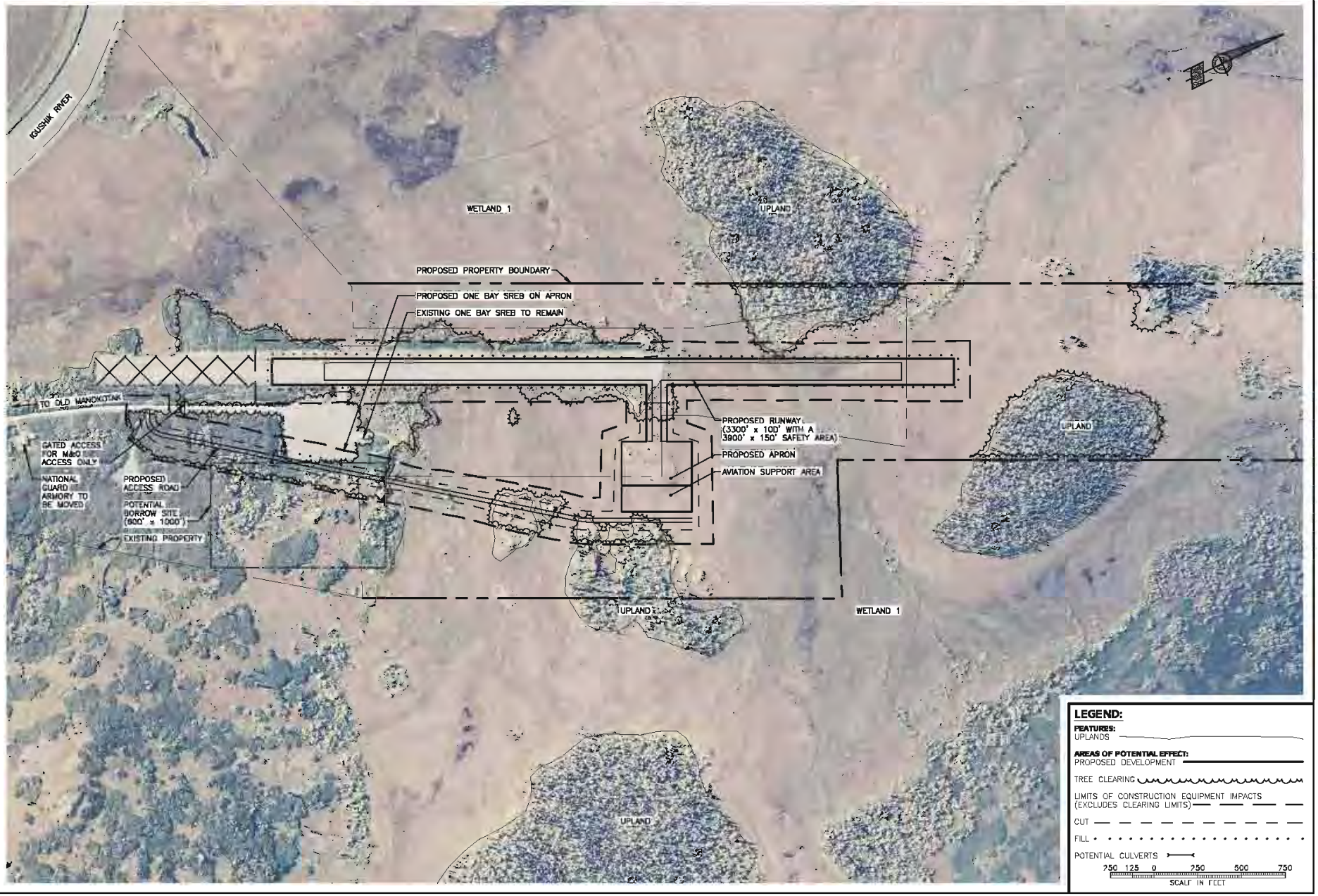
Alternative E1 would expand the existing airport to include:

- Runway lengthened 580 feet and widened 40 feet to provide a 3,300-foot by 100-foot runway with a 3,900-foot by 150-foot safety area
- Apron (250 feet by 400 feet) and taxiway relocated to meet separation requirements
- Access road extended 3,300 feet to new apron
- PAPI, REIL, and AWOS pads constructed for future FAA installation
- Additional 1-bay SREB
- Approximately 63 additional acres of airport property

Functional Analysis and Engineering Considerations

- Meets FAA airport dimensional design standards but has airspace obstructions
- Allows NPI approaches (with very limited approach minimums):
  - No viable straight in approach
  - MDA of 1,060 feet
  - Visibility of 1.25 statute miles for Category A aircraft and 1.5 statute miles for Category B aircraft
  - MAP at 1 mile west
- Offers 97.5% wind coverage (16-knot crosswind component), meeting FAA crosswind requirements
- Would cost approximately $8,510,000 to construct
- Has annual M&O costs (using lane-mile analysis) estimated at $104,600, comparable to those at the existing airport
- Requires substantial material to surcharge because of poor subsurface conditions
- May not be as stable in the long term
- Provides pilot-operated lighting to increase the hours of operation
- Requires relocation of a building to clear the RPZ
- Remains too close to lagoon and current landfill
- Retains bulk fuel storage facility, gas station, and residences in line with approach

As previously noted, the existing airport site has terrain limitations. The initial airspace drawing shows minor penetrations of the approach and transitional surfaces and substantial airspace penetrations (approximately 3,000 acres) of the horizontal and conical surfaces (Appendix B, Airspace Drawings). FAA completed an analysis of the effects of these airspace obstructions on developing an instrument approach. The analysis indicates that due to terrain, only a very limited NPI approach can be achieved (as listed above).



PLANS DEVELOPED BY:
PDC, INC.

ALTERNATIVE E1 - AREA OF POTENTIAL EFFECT
MANOKOTAK AIRPORT RUNWAY RELOCATION

MANOKOTAK, ALASKA

DESIGN: KBK/SRL
DRAWN: GDS
CHECK: RLC

Feb 2005
PROJ. No.
F02010
FIGURE
5

04/27/2005 3:42pm
P:\2002\F02010\N\N0405WMF02010: FIG 5

For day-to-day operations, this may only pose inconveniences such as late mail or delays in passenger travel. However, in the case of a medical emergency these high approach minimums could mean life or death. Either the plane cannot get in to reach the patient, or the pilot takes risks, flying beyond the limits of the approach minimums to reach and evacuate the patient. Local pilots report up to 60 days per year of weather requiring instrument procedures and 25-30 annual medical emergencies.

The runway would be oriented at 26 degrees. This is 25 degrees off from optimum, so wind coverage at this alternative is only 93.6% for the 13-knot crosswind component. Crosswinds at this site are strong and variable and cause difficulties with landing and snow drifting. At locations where provision of a crosswind runway is impractical due to severe terrain, FAA guidance allows for increasing the operational tolerance to crosswinds by upgrading the airport layout to the next higher airport reference code. Increasing the runway width from 75 to 100 feet allows a 16-knot crosswind component to be used, improving the coverage from 93.6% (at 13 knots) to 97.5% at the orientation of 26 degrees. In general, the winds at E1 were found to be more intense and more variable than at R3. (See Appendix B, Wind Data Figures.)

Initially, in preparing the cost analysis, it was thought that the shorter access road would make the maintenance costs at Alternative E1 less expensive than R3. However, this alternative lies crosswind (25 degrees) to the high winter winds; combined with the snow coming off the adjacent hillside, this makes snow drifting more prevalent. These conditions would require the snow to be pushed off the west side of the runway, as is done on the existing airport, leaving a snow berm that penetrates the airspace and narrows the landing surface. The snow removal process requires substantially more effort to keep the runway clear. Thus, the M&O cost for Alternative E1 is expected to be similar to that at R3.

The reconnaissance-level geotechnical investigation identified up to 14 feet of peat off the north end of the existing runway. Because the peat would consolidate up to 60% (~6 feet), a 15-foot embankment thickness would be needed for surcharge areas and left for at least 5 months to complete the consolidation of the underlying peat. A geotextile-lined bottom would be needed for reinforcement. Some long-term consolidation would continue over time. The soil conditions increase the cost of this alternative to be comparable to that of the relocation alternative, R3.

A publicly owned National Guard Armory would be within the RPZ. FAA Advisory Circular (AC) 150/5300-13, para. 212(2)(a), prohibits places of public assembly from being within the RPZ. This building and its operations would need to be relocated as part of this build alternative.

3.3 No-Build Alternative

Description

The No-Build Alternative (Figure 2) would result in no appreciable improvements at the existing airport. Minor improvements might be made through expenditure of M&O funds, but reconstruction would not occur. Selection of this alternative would result in zero expenditure of federal funds.

Functional Analysis and Engineering Considerations

The primary disadvantages of the No-Build Alternative are the continuation of the deficiencies described in Section 2, Purpose and Need. The restriction on the types of aircraft that can operate at Manokotak Airport and the safety concerns would remain because of:

- Failure to meet FAA or State minimum standards for airports in rural Alaska
- Substandard runway dimensions and apron separation distance
- Substandard taxiway dimensions
- Penetrations of the airspace by terrain, snow berms, access roads and vehicles, National Guard Armory building, and an antenna
- Airspace penetrations would remain, limiting GPS approach to 1,100-foot MDA and 2-mile MAP
- No construction cost
- Potential increase in M&O costs as facility deteriorates
- Crosswinds affecting day-to-day operations
- Wind coverage of 88% with a 10.5-knot crosswind tolerance
- Poor drainage affecting runway surface conditions
- Lagoon and landfill too close to the runway
- Bulk fuel storage facility, gas station, and residences on the southern approach

3.4 Eliminated Alternatives

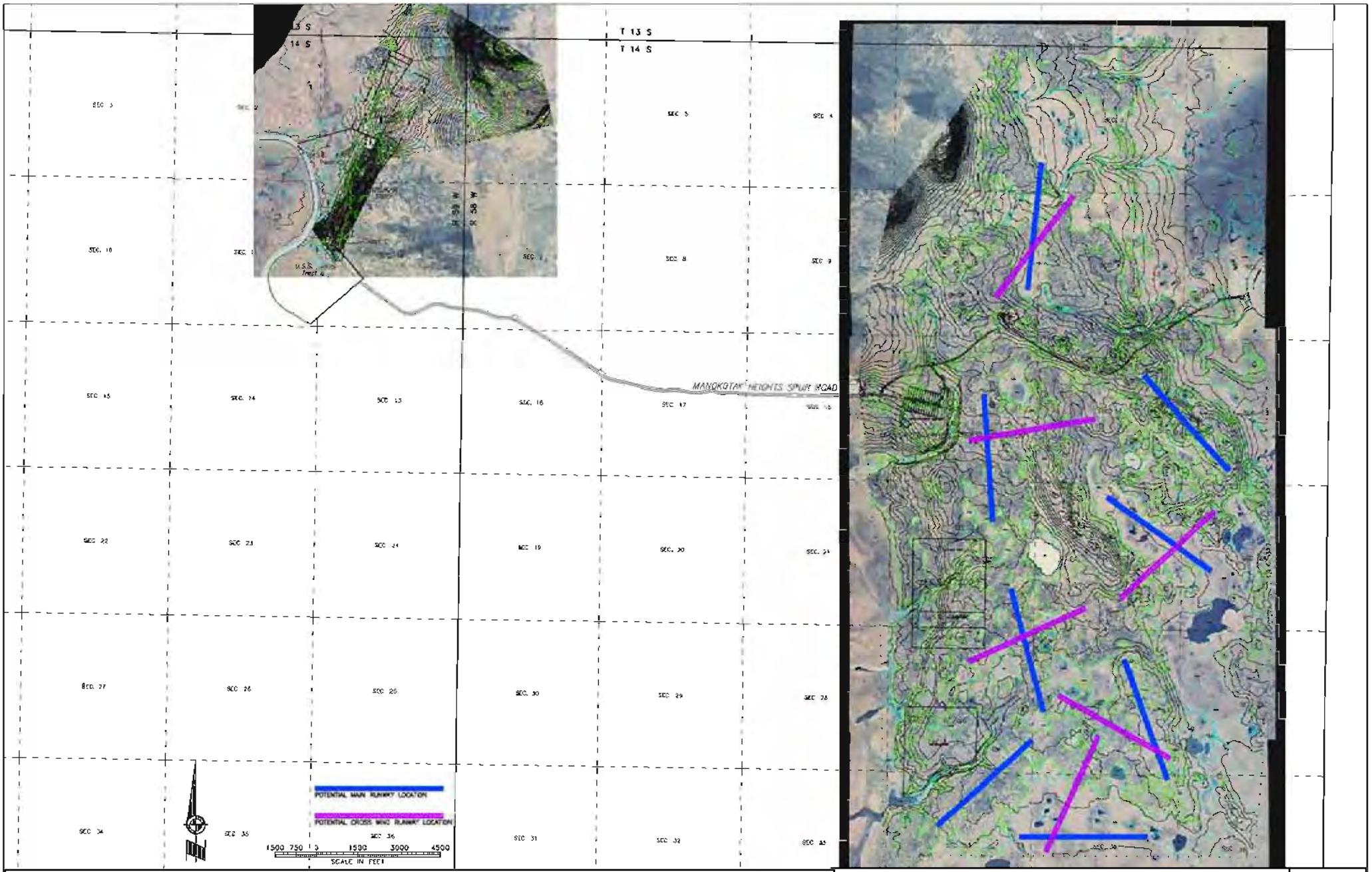
During the preliminary stages of development, eight concept alternatives for relocation were identified (Figure 6). Expanding the existing airport was considered to be a viable alternative. However, removing all of the obstructions was not considered viable due to cost and impact to the community. An initial evaluation was completed, and options with less desirable conditions were dropped. Upon receiving three-quarter-year wind data, the remaining alternatives (Figure 7) were refined and reviewed in greater detail. A full discussion of alternative development and the elimination process is presented in Appendix C. Following is the summary for each eliminated alternative, in the order of elimination.

Alternative E2 was considered not substantially better than E1. The only gain was an additional 3% to wind coverage. E2 involved more wetlands, reused less of the existing site, and required more construction over poor ground, causing higher cost and a less stable facility.

Alternative R2 was eliminated because it offered only 92% wind coverage; required acquisition of land in Native Allotment US 12090; impacted more wetlands; and allowed only limited apron expansion without still greater wetlands impacts.

Alternative R1 was eliminated because it was oriented crosswind to the winter winds.

Alternative R1A (5-Mile Site) was analyzed along with Alternatives E1, R3, and the No-Build and eliminated during selection of an engineering preferred alternative (PDC, 2004). Thus, this alternative went through significantly more detailed analysis than the previous eliminated alternatives. Alternative R1A proposed a runway located 5.3 miles from Old Manokotak along the road and east of Manokotak Heights. Airport access would have come off the Weary River Road, approximately 2/3 mile east of the intersection with the road to Manokotak Heights. The apron would have been placed on the west side of the runway, nearest to the direction of access to reduce the potential for runway crossings. The key reasons for eliminating Alternative R1A were its proximity to the lagoon at Manokotak Heights Subdivision and the lack of community support.



EIGHT PRELIMINARY RELOCATION ALTERNATIVES
MANOKOTAK AIRPORT RELOCATION
MANOKOTAK, ALASKA

FIGURE
6

APPENDIX I: SAMPLE RESOLUTION

MANOKOTAK VILLAGE COUNCIL
P.O.BOX 169
MANOKOTAK, AK 99628

RESOLUTION # _____

Title: Comprehensive Community Plan

Whereas: the Manokotak Village Council (MVC) is the governing body for the residents of Manokotak and is fully authorized to act on behalf of its village residents; and

Whereas: the MVC has a ___ member board of elected officials empowered to act for and on behalf of its members in adopting resolutions; and

Whereas: this resolution shall give notice that MVC approves and supports the Manokotak Comprehensive Community Plan for the residents of Manokotak.

NOW THEREFORE BE IT RESOLVED that the MVC hereby recognizes that the community residents provided the information in the plan concerning the plan's goals, actions and implementation; and

BE IT FURTHER RESOLVED that the MVC adopts the comprehensive plan and is committed to work with others in the community and region for the betterment of the residents of Manokotak and commits to report back to the community on the progress of implementing the comprehensive plan and commits to a one year review meeting with residents of Manokotak to review the progress and updates of the Comprehensive Community Plan for the residents of Manokotak; and

BE IT FURTHER RESOLVED that by the Village Council's President's signature, this resolution was duly considered and adopted at the MVC quarterly meeting on _____ ___, 2005 and was passed by a majority vote.

_____ _____
President, Manokotak Village Council **Date**

_____ _____
Mayor, Manokotak City Council **Date**

_____ _____
President, Manokotak Natives Ltd. **Date**

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