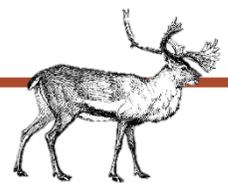




ANAKTUVUK PASS

2016 – 2036 COMPREHENSIVE PLAN



ADOPTED BY THE NSB ASSEMBLY ON SEPTEMBER 13, 2016

Photo Credits:

City View. Alaska Department of Commerce, Community and Economic Development; Division of Community and Regional Affairs' Community Photo Library.

From right to left

Church. Alaska Department of Commerce, Community and Economic Development, Division of Community and Regional Affairs, Community Photo Library; *Elders Collage.* UMIAQ photo library; *Mountains.* UMIAQ photo library.

Anaktuvuk Pass Comprehensive Plan

Adopted by the North Slope Borough on September 13, 2016

North Slope Borough Assembly Ordinance #75-06-67
North Slope Borough Planning Commission Resolution #2016-10
City of Anaktuvuk Pass Resolution #2016-01
Naqragmiut Tribal Council #2016-11
Nunamiut Corporation Resolution #16-01



This page is intentionally left blank.

NORTH SLOPE BOROUGH MAYOR

Harry K. Brower, Jr.

NORTH SLOPE BOROUGH ASSEMBLY

John Hopson Jr., President (Wainwright & Atqasuk)
Vernon Edwardsen (Barrow)
Dwayne Hopson, Sr. (Nuiqsut, Kaktovik, Anaktuvuk Pass, & Deadhorse)
Herbert Kinneeveauk Jr. (Point Hope & Point Lay)
Doreen Lampe (Barrow)
Roy M. Nageak, Sr. (Barrow)
Muriel Katuk Brower (Barrow)

NORTH SLOPE BOROUGH PLANNING COMMISSION

Paul Bodfish, Sr., Chair (Atqasuk)
Lawrence Burris, (Anaktuvuk Pass)
Richard Glenn (Barrow)
Caroline Cannon (Point Hope)
Eli Nukapigak (Nuiqsut)
Nora Jane Burns (Kaktovik)
Jack Henry, Jr. (Point Lay)
Oliver Peetook (Wainwright)

COMPREHENSIVE PLANNING STAKEHOLDER COMMITTEE

Doug Whiteman (Atqasuk)
James Nageak (Anaktuvuk Pass)
Mayor Bob Harcharek (Barrow)
Steve Oomittuk (Pt. Hope)
Thomas Nukapigak (Nuiqsut)
Ida Angasan (Kaktovik)
Bill Tracey, Sr. (Point Lay)
John Hopson, Jr. (Wainwright)

ANAKTUVUK PASS CITY COUNCIL

Justus Mekiana, Jr., Mayor
Esther S. Hugo, Vice-Mayor
Susan Morry, Secretary
Lela Ahgook, Treasurer
Thomas Rulland
Homer Mekiana
Charles Hugo

NUNAMIUT CORPORATION BOARD

Larry Burris, President
Catherine Edwards, Vice President
Homer Mekiana, Treasurer
Susan Morry, Secretary
Shirley Mekiana
Riley Sikvayugak, Jr.
Mickey Paneak

NAQSRAGMIUT TRIBAL COUNCIL

Charles Hugo, President
Chris Hugo, Sr., Vice President
Alice Ahgook, Secretary
Anna Nageak, Treasurer
Vera Nay
Bass Gordon
Thomas Rulland

NORTH SLOPE BOROUGH DEPARTMENT OF PLANNING & COMMUNITY SERVICES

Gordon Brower, Director

Community Planning and Real Estate Division

Matt Dunn, Division Manager
Bob Shears, CIP Specialist

CONSULTANTS

ASRC Energy Services, Jennifer Tobey, and Robin Sanford
UMIAQ Design and Municipal Services, Erika Green, Richard Reich, and Tasha Edwards Michael

Acknowledgements

Many individuals and organizations participated in the multi-year effort to develop and revise the Anaktuvuk Pass Comprehensive Plan. The North Slope Borough Department of Planning & Community Services provided leadership for development of this plan, especially Director Gordon Brower, Community Planning Division Manager Matt Dunn, and CIP Specialist Bob Shears. WHPacific, Inc. completed initial work on the plan, including facilitation of public meetings and draft chapters in 2009 and 2010. Glenn Gray and Associates updated the draft and ASRC Energy Services and UMIAQ completed this final plan.

The community review organizations and stakeholders deserve a special thank you for their time and efforts in providing information, comments and suggestions for the Plan: The City of Anaktuvuk Pass City Council, Naqsrarmiut Tribal Council, Nunamiut Iñupiat Corporation leadership, Nunamiut School staff, North Slope Borough School District staff, hunters, Elders, church staff, and residents.

Table of Contents

Acknowledgements.....	vi
Executive Summary.....	ES-1
Taiguaqtit Isumaᅇanni Piitichuitchuat	ES-5
Chapter 1. Introduction	1
1.1 Purpose of the Comprehensive Plan	2
1.2 Basis for Comprehensive Planning	3
1.3 Public Involvement.....	4
1.4 Vision Statement.....	10
1.5 Plan Scope and Organization.....	11
1.6 Consistency with Adopted Plan Policies.....	12
Chapter 2. Community Overview	15
2.1 Local Governance	15
2.2 Setting.....	17
2.3 The People.....	23
2.4 Community History	24
2.5 Iñupiaq Values.....	24
Chapter 3. The Natural Environment.....	29
3.1 Gates of the Arctic National Park and Preserve.....	29
3.2 Geography, Soils and Geology	30
3.3 Vegetation	31
3.4 Wildlife and Wildlife Habitats.....	31
3.5 Wildlife Regulation	36
3.6 Climate and Climate Change	37
3.7 Weather Hazards.....	39
3.8 Contaminated Sites.....	41
Chapter 4. Subsistence	47
4.1 Definitions of Subsistence	48
4.2 Subsistence Area of Influence	49
4.3 Anaktuvuk Pass Subsistence Harvest	53
4.4 Subsistence Economy	55
4.5 Subsistence Vulnerabilities.....	57

Chapter 5.	Population	67
5.1	Historical Population and Population Trends	67
5.2	Births and Deaths	71
5.3	In-Migration and Out-Migration	72
5.4	Low, Moderate and High Population Growth Projections.....	73
Chapter 6.	Housing.....	75
6.1	Existing Conditions.....	75
6.2	Current and Future Housing Needs.....	81
Chapter 7.	Community Health	83
7.1	Recent Health Initiatives.....	83
7.2	Healthy Life Way	85
7.3	Healthy Environment	87
7.4	Access to Healthcare.....	88
Chapter 8.	Public Facilities and Services.....	91
8.1	Water and Sewer	92
8.2	Power Generation and Fuel Storage.....	101
8.3	Solid Waste and Recycling.....	104
8.4	Transportation	109
8.5	Gravel.....	115
8.6	Education.....	119
8.7	Other Public Facilities	120
Chapter 9.	Economy.....	125
9.1	Employment and Income.....	125
9.2	Potential Economic and Employment Influences	127
Chapter 10.	Land Use and Zoning.....	131
10.1	Land Ownership.....	131
10.1	Zoning and Land Use Regulation	132
10.2	Current Land Use.....	134
10.3	Future Land Use.....	135
Chapter 11.	Implementation and Plan Revision	143
11.1	Capital Project Planning	143
11.2	Potential Future Capital Needs.....	145

11.3 Plan Implementation 147

Chapter 12. Goals, Objectives and Implementing Strategies 149

References 163

Appendices..... 171

Appendix A: SWOT Analysis Results - November 10, 2009 173

Appendix B: Summary of Concerns and Issues Expressed by Community Leaders in 2010 175

Appendix C: Response to Public Comments 179

Appendix D: Adaptation Strategies for Climate Change Impacts..... 197

Appendix E: Resolutions of Support 207

Table of Maps

Map 1: Anaktuvuk Pass Vicinity 19

Map 2: Gates of the Arctic National Park and Preserve 21

Map 3: Anaktuvuk Pass Caribou Range 35

Map 4: Contaminated Sites..... 45

Map 5: Subsistence Area of Influence 51

Map 6: Anaktuvuk Pass Controlled Use Area within Gates of the Arctic National Park..... 61

Map 7: Water Distribution System 95

Map 8: Sewer System..... 99

Map 9: Landfill..... 107

Map 10: Local Roads 111

Map 11: Regional Transportation System 113

Map 12: Gravel Pit 117

Map 13: Existing and Proposed Snow Fences..... 123

Map 14: Area Land Use 137

Map 15: Current Village Land Use 139

Map 16: Future Village Land Use 141

Table of Tables

Table 1: Iñupiaq Values 25

Table 2: Threatened and Endangered Species within the Anaktuvuk Pass Area of Influence 36

Table 3: Contaminated Sites in the Anaktuvuk Pass Area 42

Table 4: 2010 Major Subsistence Activities Calendar 54

Table 5: Historical Population, 1950 to 2015..... 68

Table 6: 2003 and 2010 Population Characteristics 69

Table 7: Anaktuvuk Pass Age Distribution, 2003 and 2010 70

Table 8: Five, Ten and Twenty Year Population Projections..... 73

Table 9: 2000 and 2010 Housing Characteristics 77

Table 10: Five, Ten and Twenty Year Projected Housing Needs..... 82

Table 11: Estimated Future Water Usage, High Growth Rate of 1% 94

Table 12: Estimated Wastewater Generation/Treatment, High Growth Rate of 1% 98

Table 13: Existing Power Generators 101

Table 14: Estimated Future Power Usage, High Growth Rate of 1% 102

Table 15: Anaktuvuk Pass 2015 Utility Costs 104

Table 16: Estimated Future Solid Waste Disposal, High Growth Rate 1% 106

Table 17: 2003, 2010, and 2015 Employment and Income Characteristics..... 126

Table 18: Potential Capital Projects over a 5, 10 and 20-Year Period 145

Table 19: Goal 1 - Protect Subsistence Resources and Activities 151

Table 20: Goal 2 – Establish Future Land Use Designations 154

Table 21: Goal 3 – Support Additional Housing 156

Table 22: Goal 4 – Facilitate Economic Development Activities..... 157

Table 23: Goal 5 – Maintain Efficient Social Services and Public Infrastructure..... 158

Table 24: Goal 6 - Protect Historical and Cultural Resources 160

Table 25: Goal 7 – Foster Meaningful Cooperation 161

Table of Figures

Figure 1: Anaktuvuk Pass Planning Workshop, May 28, 2009 4

Figure 2: Anaktuvuk Pass Planning Workshop, May 28, 2009 5

Figure 3: Comprehensive Plan Goals 11

Figure 4: View of the Brooks Range from Anaktuvuk Pass 17

Figure 5: Summer 1949, Tulugaq Lake. Gathering with people from Killik and Chandler Lake 26

Figure 6: Simon Paneak Memorial Museum 27

Figure 7: North Slope Caribou 32

Figure 8: Easter Creek Caribou 48

Figure 9: Anaktuvuk Pass Population: 1950 to 2015 by Decade 68

Figure 10: Anaktuvuk Pass Natural Increase in Population: Births and Deaths, 2000 to 2015 71

Figure 11: Total Permanent Fund Applicants in Anaktuvuk Pass, 2000 to 2014 72

Figure 12: Incidence of Housing Overcrowding 78

Figure 13: Anaktuvuk Pass Housing Costs as Percent of Income 79

Figure 14: 2013 Community Health Forum Picture of Words 85

Figure 15: Tomatoes growing in the arctic through the Gardens in the Arctic Project 86

Figure 16: Playground at Nunamiut School 87

Figure 17: Anaktuvuk Pass Power Plant 101

Figure 18: Nunamiut School 119

Figure 19: Nunamiut School Enrollment 120

Figure 20: Anaktuvuk Pass Fire Department 121

Figure 21: Anaktuvuk Pass Employers and Number of Employees, 2010 127

This page is intentionally left blank.

List of Abbreviations

ACS	American Community Survey
ADEC	Alaska Department of Environmental Conservation
ADF&G	Alaska Department of Fish and Game
AEA	Alaska Energy Authority
AES	ASRC Energy Services
AHFC	Alaska Housing Finance Corporation
AK	Alaska
AKP	Anaktuvuk Pass
ANCSA	Alaska Native Claims Settlement Act
ANILCA	Alaska National Interest Lands Conservation Act
ANWR	Arctic National Wildlife Refuge
ASNA	Arctic Slope Native Association
ASRC	Arctic Slope Regional Corporation
ATV	All-Terrain Vehicle
BAT	Best Available Technology
BLM	Bureau of Land Management
BMP	Best Management Practice
CAH	Central Arctic Herd
CCHRC	Cold Climate Housing Research Center
CIP	Capital Improvement Plan
CMP	Cooperative Management Plan
DCCED	Alaska Department of Commerce, Community and Economic Development
DNR	Alaska Department of Natural Resources
DOT&PF	Alaska Department of Transportation and Public Facilities
Ea.	Each
F	Fahrenheit
FAA	Federal Aviation Administration
GAAR	Gates of the Arctic National Park and Preserve
Gal	Gallon(s)
GPD	gallons per day
GPDP	gallons per day per capita
GPH	gallons per hour
GPM	gallons per minute
HIA	Health Impact Assessment
HUD	U.S. Department of Housing and Urban Development
ICAS	Iñupiaq Community of the Arctic Slope
IHLC	North Slope Borough Iñupiat History, Language and Culture Department
IRA	Indian Reorganization Act
kW	Kilowatt
kWh	Kilowatt hour
LEPC	Local Emergency Planning Committee
LF	Linear feet
LLC	Limited Liability Company
MMS	Minerals Management Service
NALEMP	Native American Land Environmental Mitigation Program
NDb	Nondirectional beacon
N	North
NMFS	National Marine Fisheries Service
NPR-A	National Petroleum Reserve – Alaska
NPS	National Park Service
n.d.	No date

NSB	North Slope Borough
NSBSD	North Slope Borough School District
NSBMC	North Slope Borough Municipal Code
NSSI	North Slope Science Initiative
NW	Northwest
ORV	Off-Road Vehicle
PAR	Project Analysis Report
PARR	Project Analysis Report Request
PCE	Power Cost Equalization
PFD	Permanent Fund Dividend
Pg	Page
PS	Pump Station
R2R	Road to Resources
RELI	Residential and Employment Living Improvement
RST	Revised Statute Trail
S	South
SAC	Student Advisory Council
SWOT	Strengths, Weaknesses, Opportunities and Threats
TAPS	Trans Alaska Pipeline System
TCC	Tanana Chiefs Conference
TNHA	Tagiugmiullu Nunamiullu Housing Authority
TCH	Teshkepuk Caribou Herd
UCAN	United Caribou Association of the Nunamiut
USFWS	U.S. Fish and Wildlife Service
USS	Utilities System Specialist
UV	Ultraviolet
VIVA	Visual Iñupiaq Verbal Acquisition
WAH	Western Arctic Herd
Wi-Fi	Wireless fidelity
WG	Working Group

Executive Summary

Anaktuvuk Pass Community

Anaktuvuk Pass, Alaska is a unique rural community located along the continental divide in a valley of the Endicott Mountains of the Brooks Range. The residents of Anaktuvuk Pass, the Nunamiut, are the only inland Iñupiat and have thrived for thousands of years in the Arctic, relying on intimate knowledge of the environment and the values of sharing and cooperation. Iñupiat subsistence hunting and fishing traditions, especially of caribou, remain an integral way of life. The Anaktuvuk Pass landscape is characterized by dramatic mountain scenery with valley tundra near the Anaktuvuk and John rivers and within the federal Gates of the Arctic National Park and Preserve.

Four families, about 31 people, settled the village of Anaktuvuk Pass during the 1940s. The community has experienced overall positive sustained population growth for over 50 years, since 1960. Today, approximately 393 people call Anaktuvuk Pass home. Anaktuvuk Pass residents and community leaders strive to create the community that provides modern infrastructure while maintaining a traditional culture that has sustained the Iñupiat for thousands of years. It is one of eight communities within the North Slope Borough, a vast area that encompasses of nearly 95,000 square miles across northern Alaska that has a total population of only 8,075 residents.¹

Hunting, fishing, and gathering of food and plants are essential subsistence activities for the Nunamiut people. The traditional subsistence range covers a 54,000 square-mile area that reaches nearly to the village of Nuiqsut near the Beaufort Sea coast, the southern foothills of the Brooks Range and into the Arctic National Wildlife Refuge to the east. Protection of subsistence resources and rights and access to subsistence lands are essential to Anaktuvuk Pass residents.

Anaktuvuk Pass residents are primary Iñupiat, making up 88.9 percent of the population. There are approximately 123 homes in Anaktuvuk Pass, only 8.2 percent of which have been constructed since 2000. Many residents have cited both a housing shortage that has led to overcrowded conditions and housing condition as important issues in the community that need to be addressed. The cost of constructing new homes in Anaktuvuk Pass is cost prohibitive for most families due to the community's rural location and high transportation costs. Seventeen homes will soon receive water and sewer connections through North Slope Borough capital funding.

¹ North Slope Borough. 2015. Unpublished. Draft *North Slope Borough 2015 Economic Profile and Census Report*. Prepared by Circumpolar Research Associates Shepro, C., Maas, C. and D. Gallaway for the North Slope Borough.

The Anaktuvuk Pass Comprehensive Plan

A comprehensive plan is long-range vision and strategy for the future that assists a community in preparing for change and managing population growth, typically over a twenty year horizon. Comprehensive plans contain a vision for the future prepared with input from community residents and stakeholders. Goals and strategies implement that vision. A comprehensive plan provides direction on many physical and social issues, including land use, transportation, and housing. It is framed in broad terms and guides future implementation.

The 2005 North Slope Borough Borough-wide Comprehensive Plan contains a profile for each North Slope Borough community. This Anaktuvuk Pass Comprehensive Plan replaces the Anaktuvuk Pass community profile in the Borough-wide Comprehensive Plan.

Anaktuvuk Pass residents participated in the development of this plan through public meetings and workshops. Input was also provided by the tri-lateral, a committee comprised of members from the Nunamiut Corporation, Naqsrarmiut Tribal Council, and City of Anaktuvuk Pass. Based on community input, a vision was created for the comprehensive plan that establishes a shared set of community values and direction for the future of Anaktuvuk Pass:

Anaktuvuk Pass is a tightly knit community where residents value families, education, and a strong cultural work ethic; have strong cultural ties to the land; and pass on our traditional and community values to each generation.

Anaktuvuk Pass residents appreciate the environment as God created it. We protect that environment from future damage so all who live in and visit Anaktuvuk Pass can continue to enjoy abundant wildlife and plants, clean water and air, and unobstructed views.

Anaktuvuk Pass residents value both the importance of the traditional harvest/subsistence life ways. We strive to preserve our Iñupiaq culture while embracing new ideas that can help us create a sustainable, safe, and affordable community. Protecting healthy and abundant caribou resources and migratory routes near and through the village is of utmost importance.

Community members respect each other and understand that by working together we can solve local problems and issues for the betterment of the community as a whole. We pass on this sense of community cooperation into all decision making to ensure that orderly, well understood development occurs that honors our traditional agreement process.

Each chapter of the Anaktuvuk Pass Comprehensive Plan contains an inventory of existing conditions and a discussion of issues. Goals, objectives, and implementing strategies are included in the final chapter that seek to address concerns raised by residents and community issues

Goals were also developed to implement the vision. The analysis of current conditions that support this plan show that Anaktuvuk Pass faces significant challenges, such as a deteriorating housing stock and costly maintenance of existing infrastructure. But Anaktuvuk Pass has strong assets: a close knit community, strong sense of family and traditional Iñupiat values, substantial investment in physical infrastructure, and much more.

The Anaktuvuk Pass Comprehensive Plan has been created to guide Anaktuvuk Pass to achieve a shared community vision of our future. This plan expresses these objectives through narratives, maps, tables, goals, and policies. The following chapters are included in the Anaktuvuk Pass Comprehensive Plan: Introduction, Community Overview, Natural Environment, Subsistence, Population, Housing, Community Health, Public Facilities and Services, Economy, Land Use and Zoning, Implementation and Plan Revision and Goals, Objectives, and Implementing Strategies. To reflect current conditions, the plan should be regularly reviewed and updated.

This page is intentionally left blank.

Taiguaqtit Isumaᅇanni Piitchuitchuat

Nunaaqqiq Anaqtuuvak Pass-mi

Anaqtuuvak Pass, Alaska-mi nunaaqqiuruq allatun nunaaqqitun innitchuaq naqsraᅇagni iᅇᅇiᅇisa Endicott-gum, iᅇᅇiᅇisalu Brooks Range. Iᅇuuniaqtuat Anaqtuuvak Pass-mi Nunamiuguvlutin Iᅇupiagurut, iᅇuuniaqtuaqhutin taimaᅇa qaᅇa qiiyanaqtuami nunami, nalupqiginiᅇᅇugu iᅇuuniaᅇviktin, pautaᅇivlugik aviktuaqatigiᅇᅇiᅇᅇlu paammaaᅇiᅇᅇiᅇᅇlu. Iᅇupiat iᅇuuniaᅇusiat iqalugniaᅇusiat tuttuniaᅇusiat atuᅇᅇugich iᅇuuniatuᅇaqtut. Nunamiut nunaᅇat aliᅇᅇnaqtuanik iᅇᅇiᅇaqtuq aasii qattaᅇniᅇa qaniᅇagni Anaqtuuvavlu Kiiᅇaqsrauvlu kuᅇᅇagni iᅇuani kavamapta Gates of the Arctic National Park and Preserve nunaᅇanni.

Sisamaiguvlutin iᅇᅇiᅇich, iᅇᅇiᅇaktigivlutin 31-tun, Anaqtuuvak Pass nunaaqqiᅇuᅇᅇugu 1949-mi. Tavraasii iᅇᅇiᅇaksisiᅇiᅇᅇaᅇutin iᅇuich 1960-miᅇaᅇaan. Paᅇmapak aasii 393 iᅇuich aimaᅇviᅇiᅇutinagaat Anaqtuuvak Pass. Anaqtuuvak Pass-miut, aullariᅇiᅇᅇu isummatigigaat iᅇuuniaᅇukhutin siᅇᅇᅇaᅇnaitchuatigun iᅇuuniaᅇniᅇmi, aᅇaan sivulliimin iᅇuuniaᅇusiat atuᅇᅇugu taimmaᅇaqaᅇa atuᅇtaᅇat. Anaqtuuvak Pass nunaaqqiuruq tallimat piᅇasut nunaaqqiᅇiᅇᅇi North Slope Borough-m, aᅇitigiruaq, 95,000 square miles-tun iᅇᅇich siᅇaliᅇanni ununaᅇmun Alaska-mi aᅇaan 8,075 iᅇᅇiᅇaksiᅇiᅇaᅇutin.

Aᅇuniaᅇutin, iqalugniaᅇutin, katitchivᅇutin niᅇiksramignik naagga nauruanik nunamigni iᅇuuniaᅇaqtut Nunamiut. Taimmaᅇaqaᅇa iᅇuuniaᅇviᅇat Nunamiut aᅇiruaq, 54,000 square miles-guvluni qalliᅇaᅇataᅇugu Nuiᅇsaᅇmiut nunaᅇat, siᅇaliᅇiᅇannunaglaan Brooks Range, tatqavunaᅇmunlu Arctic National Wildlife Refuge-mun. Aasii tavra annigiraᅇigaat iᅇuuniaᅇviktin qaᅇapak qanukkii tamattuma nunam susuᅇsiupkaᅇiᅇᅇugich taimmaᅇaqaᅇa, tainnaᅇutin Nunamiunun tamanna nuna piᅇpaᅇnapiᅇaᅇuq.

Anaqtuuvak Pass-miut Iᅇupiagurut, 88.9 percent-tun iᅇᅇiᅇaktigivlutin. 123-tun iᅇᅇiᅇakpalliᅇsut iᅇᅇiᅇich Nunamiut, aᅇaan 8.2 percent-tun iᅇᅇiᅇaktigiruaq nappaᅇpaalluᅇaᅇaich 2000-miᅇqaᅇa. Nunamiut iᅇᅇiᅇaktuᅇat iᅇuich iᅇᅇiᅇiᅇuᅇniraqtut. Tavra iᅇaiᅇiᅇiᅇiᅇaᅇtutunnii iᅇᅇumi atautchimi qanukkii iᅇᅇiᅇich savallautaiᅇiᅇutin, tainnaᅇutin Nunamiut uqaavsiᅇtigiraᅇigaich kasimakamiᅇ. Iᅇuk iᅇᅇuᅇpisukkaluaᅇumi akisuᅇaiᅇiᅇaᅇhuni iᅇᅇuᅇpiᅇaitchuq. Apᅇutaiᅇiᅇuni Anaqtuuvak Pass-mun, tiᅇᅇutikuaᅇtuksrauvlutin akisuᅇkaᅇaᅇiᅇai iᅇᅇuᅇrat suᅇauttaᅇiᅇᅇu. North Slope Borough-m manikuᅇutigilugu akimiaᅇ maᅇᅇuᅇnun iᅇᅇunun pituᅇniᅇaᅇaich imiᅇallasiᅇᅇugich sulii annat, qut iᅇᅇuᅇmiᅇaᅇsiᅇᅇugich. Allatun nunaaqqiᅇuratun savaannaᅇiᅇiᅇ iᅇᅇkitchut Anaqtuuvak

Pass-mi. Savaannagviich tavrataq North Slope Borough-lu North Slope Borough School District-lu Nunamiut Corporation-lu.

Palunaiǵñiǵukǵu Anaqtuuvak Pass Sivunniǵutit

Palunaiǵñiaǵu sivunniǵutit taikuǵasugruk sivunniǵutaurut ikayuǵniaǵugich nunaaqqich sut allanǵuqata naagga iǵuǵiaksirruiniǵaqpan nunaaqqiq, sivunniǵutaurut iǵuiǵñatun ukiutun. Tainnasiq sivunniǵun iǵuich tikisaksraǵat qiniǵuǵu nunaaqqich iǵunich naagga ikayuǵniakkanich piitchuitut sivunniǵmata. Tikisaksrat qanuǵlu savaǵiniaqpatigich qiniǵugich savaagurut. Palunaiǵñiaǵu nunaaqqiq sivunniǵaqtut suǵauttat ikayuutauniaqtuat nalunaiǵugich naagga iǵuuniaǵniǵatigun sut siǵǵaqtugiranich, nunaǵatigun, apqutinisiǵun, naagga igluilǵuniǵisiǵun. Inillaktaurut atautchaǵugich ikayuutauniaqtuat sivuninanni.

2005-mi North Slope Borough-m sivunniǵutinǵi nanaaqqipayauratigun North Slope-miittuat, tavra qanuqinmagaisa nunaaqqich agliutinǵaich. Uuma Anaqtuuvak Pass-gum sivunniǵutinǵisa simmausiǵaich taipkua agliusimaruat.

Anaqtuuvak Pass-gum iǵunǵisa sivunniǵutigigaich kasimakamiǵ naagga atautchikun savaǵivlugich. Naalaǵniǵaich piǵasuiguruat kaukǵiuranich, Nunamiut Corporation-kut, Naqsraǵmiut Tribal Council-guruat, sulǵi Anaqtuuvak Pass-gum kaukǵiuranich. Atuǵugich Nunamiut uqausigikkanich, sivuniksrat anitaurut iǵuuniaǵutinǵi piqpagnaqtuat sivulliuvlugich qanuq sivuniksraǵa Anaqtuuvak Pass-gum inniaǵmagaan. Aasii uvva inna uqararut:

Anaqtuuvak Pass-gum iǵunǵi atautchimunqikhutinǵi iǵuuniaqtut, allanaqtutunnii nunaaqqipayaaniǵ piqpagiaǵugich iǵuuniaqatigiisuat, sulǵi ilitchiniǵat qutchiksuǵivlugu, aasiiptaup sunik saavaaksraqaqamiǵ atautchinmutqikhutinǵi; nunaktiǵ piqpagiaǵu; aglaantaup sut iǵuuniaǵniǵmigni siǵǵaǵnaiyautauruat atullatuvlugich; sulǵi qaaniqsinniaǵugich taipkua atuqtanich iǵuuniaqamiǵ, naagga iǵuuniaqtuni piqpagnaqtuat ilisaurrutigivlugich nutaǵaalugnun simmautauniaqtuanun.

Anaqtuuvak Pass-miut piqpagiiallakkaat nunaktiǵ, iǵuuniaǵviktǵi qanukkii nunaǵatta iǵuupkaǵaich niǵrutiaqtuam, nautchisuuruam niǵilǵatukkanǵiǵnik. Qaunagipiǵikput nunakput suksraunǵiqunǵiǵu suagguuq iǵuuniaqtuaguut naagga Anaqtuuvallaturuat qiniǵumagaat qanutun niǵrutiaqtilaǵa, nausutilaǵa, imiǵiksilaǵa, silallautaqaqtilaǵa naaggaqaa taalutaqanǵilǵugich qiniqtuagtuni avatiktiǵ.

Anaqtuuvak Pass-miut qutchiksuǵigaich ilinǵaratiǵ katitchivlutǵi iǵuuniaǵutimignik naagga anǵuniaǵutinich sivulliimiǵ atuǵugich aglaantaup siǵǵaǵnaiǵutauruat iǵuuniaǵniǵmigni atullatuvlugich. Anniǵipiǵikput

Iñupiaguvluta iñuuniagniqput aglaantauq pagmapak ikayuutauniaqtuat atuḡlugich suagguuq taikuḡasugruk iñupiaguniqput nutqanjilli. Piqpagnapiaqtuat Nunamiunun tuttut quiñilugich naagga iñugiaglugich suli igliḡniḡat Anaqtuuvak Pass-kun qaunagilugu, tamatkua qutchiksuaḡipiaḡaich.

Nunamiut ilisimapiaqtut atautchikun savaaḡiḡumisigik sigḡaḡniugutitij tavra nunaaqiqitij nakuuqsipayaagḡiaqtuaq. Atautchimik isumaqaqhuni sivunniugḡniq atuḡlugu sivunniugḡatugut suagguuq qiñiqtuat, naalaḡniruat puttusriḡit tainna isummiuqtuni ikayuutaupiaḡuuruuq atuḡlugu sivunniallasiyumaut, tuvraḡlugich sivulliimij sivunniugḡutaat nutqaqtinḡilḡirruḡ.

Avgutinijch makpiḡaam taapkunaniittuat sivunniugḡutini uqausiaqtut pagmapak savautayumiñaqsinuaruat aasii Nunamiut nalunaiḡlugich qanuq ikayuutautquratin uqausiḡivlugich. Aqulligmi avgunmi tikisaksrat, sivuniksrat suli qanuq savausiksranijch aglausimarut maliḡuaḡlugich Nunamiut savaaḡitquranijch.

Tikisaksrat savaagunjarut atuḡlugu qiñiqtanḡat paluḡaiḡñiaḡutiksrat. Qanuqitilaanijch pagmapak savaaguruksrauruaat tunulliqsimagaich sivunniugḡutinijch Nunamiut, aglaan nalunaiqsuq qanutun sigḡaḡnaḡniaqtuat savaagukpata. Iglut utuqqalinjarut aasii savatqiḡñiaqḡata akisuḡpagniaḡmiut. Tainnaitkaluaḡtillugu, Nunamiut, Anaqtuuvak Pass-mi pautaqapiaqtut ukuniḡa: atautchinmutqikhutinij, ilaḡiḡñiḡat suaḡavluni, iñuuniagḡutigivlugich Iñupiat atuḡtanijch iñuuniagniḡmigmi, suli piitchuilinjarut savaaguninaruat, allallu sut taimma.

Anaqtuuvak Pass-miut sivunniugḡutinijch savaagunjarut qanuq igliḡumij savaaguyumiñaqtuat Nunamiut savaaḡitquranijch pautagilugu taikuḡasugruk qiñiqtanḡat iñuaqsiñiaḡlugu nunaaqiqitij. Taaptuma sivunniugḡutim uqausiḡiḡaich savaaksrat uqagivlugich, nunaurat atuḡlugich, allagiiksilaḡutit, tikisaksrat, suli qanuq savaaguniaqtuat maliḡuaksranijch. Uvva inna avgutinijch taaptuma sivunniugḡutit makpiḡaanḡatta: Suutilaanijch aglausimaruat, Nunaaqqim qanuqitilaanḡagun, Nuna avataanni nunaaqqim, Sut iñuuniagḡutinijch, Iñuich iñugiaktilaanḡat, Igluqaḡtilaanijch iñuich, Iñuunniagḡutinijch, Igluqpaich savaurriruat qaunagivlugu nunaaqqiq, Qanuq maniññautauruat, Qanuq atuḡtuksrauruaat nunatigun, Savautiksranijch suli sivunniugḡutit allanḡuutiksranijch sivunniugḡutauruat, Tikisaksrat, Qanuq savaaguniaḡtilaanijch. Nalunaiqsaglugich pagmapak igliqtuat, taamna sivunniugḡun qanuq igliḡtilaanḡa savaaḡipiaḡmagaan aasii sut allanḡuqtuksraukpata savaaḡilugich.

This page is intentionally left blank



Photo Credit: UMIAQ Photo Library.

Chapter 1. Introduction

The village of Anaktuvuk Pass lies in a broad valley that straddles the continental divide. The Endicott Mountains of the Brooks Range rise dramatically from the edges of the valley and the waters of Contact Creek that bisect the village flow to the Arctic Ocean. Just outside the village, the waters drain to the Koyukuk River which flows into the Yukon River and to the Bering Sea. The 375 residents of Anaktuvuk Pass, mostly Iñupiat, are descendants of the Nunamiut, the North Slope's only inland Eskimos. Like their ancestors, the Nunamiut depend on caribou for their survival. The village of Anaktuvuk Pass is strategically located along a major caribou migration route; the Iñupiaq word *Anaktuvuk* refers to the large amount of caribou dung found in the area. Today the Nunamiut thrive in an economy based on the subsistence supplemented by wage earnings and dividends.

This chapter provides the context for the Comprehensive Plan. It begins with an overview of local governance, followed by a discussion of comprehensive planning, a review of the public involvement process and the results community workshops. It also describes the vision statement and a summary of the Plan's goals and objectives to achieve the community's vision.

This chapter begins with a discussion of the purpose of the comprehensive plan and how it will be used. It continues with an overview of the basis for comprehensive planning followed by a description of the public involvement process, the community vision, the scope of the plan and the organization of the plan,

concluding with a review of the consistency of this plan with the 2005 North Slope Borough Areawide Comprehensive Plan.

1.1 Purpose of the Comprehensive Plan

The overarching purpose of the Anaktuvuk Pass Comprehensive Plan is to improve the quality of life and achieve the community's vision for the future as expressed in Section 1.4 through general guidance for land use and related decisions within the community and its core subsistence use areas, the Anaktuvuk Pass Area of Influence as depicted in Map 4. In addition, the Plan provides useful background information about the community and identifies community assets and goals, which can be referenced when making community development or land use decisions and when applying for grant funding. Specifically, the intent of the Plan is to:

- Guide sustainable growth and development of the community;
- Characterize current strengths, weaknesses, opportunities, and threats of the community;
- Describe what the community wants for the future;
- Provide a list of anticipated capital needs over the 20 year planning horizon;
- Explain how the plan will be implemented; and
- Provide the basis for comments on development proposals, land use planning and regulation, investments in infrastructure and land use policy decisions.

This plan has a 20 year outlook, but it ideally should be reviewed every two years for potential updates and revisions with a scheduled update every five years. Future plan revisions should monitor growth, evaluate development and related programs and measure how well the plan is meeting the community's goals, objectives and implementing strategies. Regular review and revision of the plan ensures that the goals and strategies respond to changing circumstances and needs within the village and the surrounding area.

The North Slope Borough will use the Plan when considering land use proposals or actions specific to Anaktuvuk Pass, including approval of land subdivisions, changes to zoning districts, Borough permits, and capital improvement recommendations. The Borough will also use the plan to help guide the location, timing, and scale of community development and infrastructure investments. It will be used to plan for community needs based on trends and population projections and to consider the protection of important environmental and cultural resources. The Borough may also use the plan to develop mitigation measures as conditions of approval for permits.

Federal and state agencies and potential project funders are encouraged to use the plan to understand community values, needs, and priorities for investment. Many funders may only provide project financing if it is listed within or is consistent with policies of an adopted community plan.

Private landowners, developers, and Native corporations may use the plan to help guide development decisions and investment choices. Community data, maps, and policies will help these entities design projects compatible with community values and needs to meet local expectations.

Citizens can use this plan to advocate for a better future that is consistent with local needs and resources. Infrastructure and level of service planning with population trends also help citizens stretch available funding for more efficient and effective government service. A primary interest for the future development of Anaktuvuk Pass is to ensure the traditional way of life and protect fish and wildlife habitats, especially the migratory routes of caribou herds that sustain the community.

Ultimately, the plan seeks to conserve valued resources and uses and encourages development that meets the needs of the present population without compromising options for future generations.

1.2 Basis for Comprehensive Planning

Title 29 of the Alaska Statutes provides the authority for comprehensive planning in Alaska. The North Slope Borough is responsible for planning, platting, land use regulations and development of a Borough-wide comprehensive plan. Alaska Statutes state that “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:

- 1) statements of policies, goals, and standards;
- 2) a land use plan;
- 3) a community facilities plan;
- 4) a transportation plan; and
- 5) recommendations for implementation of the comprehensive plan” (Alaska Statute §29.40.030).

The NSB municipal code (NSBMC), like the Alaska State Statute, outlines the process for developing the borough-wide comprehensive plan and the contents of the plan in §2.12.170: “The Comprehensive Plan...shall be a compilation of policy statements, goals, standards and maps for guiding the physical, social and economic development, both private and public, of the Borough, and may include, but is not limited to, the following: statements of policies, goals, standards, a land use plan, a community facilities plan, a transportation plan and recommendations for plan implementation.” The NSBMC also calls for the Planning Commission to consider amendments to the comprehensive plan from time to time (§19.30.050), undertake an overall review of the plan at least once every two years (§2.12.170) and review and report to the Assembly the location, design, construction, demolition or disposition of any public building, facility, collector or arterial street, park, greenbelt, playground or other public facility based on the comprehensive plan and the capital improvements program (§19.30.050).

The NSB Department of Planning and Community Services implements land use planning and regulation for the Borough. Its goals include updating and maintaining the Borough’s Comprehensive Plan and empowerment of community-level decision-making in social, economic and development issues. The NSB Planning Department’s Community Planning and Real Estate Division oversees the update and implementation of the Borough’s Comprehensive Plan and the development, implementation and update of the village comprehensive plans. The Division also facilitates the annual capital project request process and coordinates development of the NSB Six-Year Capital Improvement Plan that outlines anticipated capital needs over the current year and the next five years.

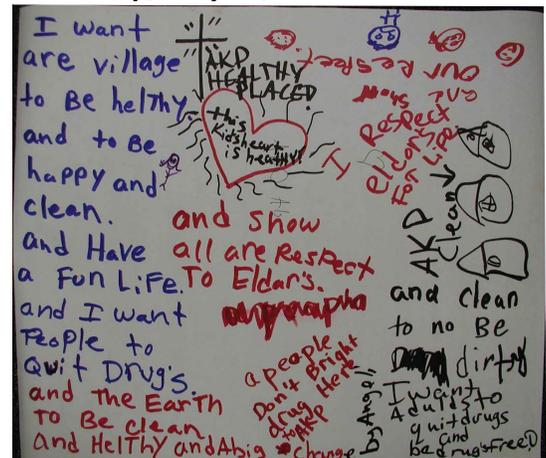
1.3 Public Involvement

It is critical in the development of the Anaktuvuk Pass Comprehensive Plan that the public have abundant, meaningful opportunities to participate and contribute. The following public participation tools were used in order to obtain input from a wide variety of viewpoints:

- Public notices
- Informational material
- Community workshops
- Facebook announcements
- Direct contact with community leaders
- Tri-lateral meetings
- Outreach to students and elders at lunch meals

This plan was developed through collaborative efforts of Anaktuvuk Pass residents, village leadership, North Slope Borough Planning and Community Services Department staff and other NSB employees that provide services in the village. Local village leadership includes the Mayor and City Council members, the Naqragmiut Tribal Council President and Council members, the President and Board members of the Nunamiut Native Corporation and the NSB Planning Commissioner and Alternate Commissioner representing Anaktuvuk Pass.

Figure 1: Anaktuvuk Pass Planning Workshop, May 28, 2009



Planning Efforts in 2009 and 2010. A Strengths, Weaknesses, Opportunities and Threats Analysis (SWOT) analysis guides a community in identifying its strengths and weaknesses as well as opportunities and threats, which assists with both strategic planning and decision-making. At the beginning of the Comprehensive Plan planning process in November 2009, 37 community members participated in a public meeting where residents shared their perceptions of Anaktuvuk Pass's strengths, weaknesses, opportunities, and threats that are abbreviated below. The complete list of strengths, weaknesses, opportunities, and threats are included in Appendix A.

Strengths: Anaktuvuk Pass's scenic location with abundant wildlife; strong traditional values; cultural museum; Gates of the Arctic National Park and Preserve (GAAR) inclusion provides some protection from outside development; low teacher turnover; and art of mask making.

Weaknesses: high transportation costs; housing overcrowding; changing caribou migration routes; lack of recreational opportunities; high unemployment; and National Park Service (NPS) subsistence limitations.

Opportunities: alternative energy sources to reduce costs; expanding local tourism; improving cell service and broadband connectivity; and teaching Iñupiaq to younger generations.

Threats: climate change; impact of nonnative hunters; a road to Umiat could bring more hunters and airboats; the impact of resource development on caribou migration; and language extinction.

In April 2010, local leaders from the Native Village and Nunamiut Corporation along with Borough Planning Department staff participated in a workshop in Fairbanks. Issues or concerns expressed by community leaders during that workshop are summarized below. The thorough discussion of leadership concerns from the 2010 workshop are included in Appendix B.

Figure 2: Anaktuvuk Pass Planning Workshop, May 28, 2009



- *Environmental:* climate change, including an increase in wildfires that affect caribou migration; water pollution by floatplanes; and tundra damage and erosion from all-terrain vehicles (ATVs).
- *Land Ownership and Land Use:* the Village Corporation has not settled its 14(c)(3) land transfer² to the City; and a lack of local control over nearby lands and resources.
- *Transportation:* high transportation costs in general; and the potential Foothills West Transportation Access project that would build a road from the Dalton Highway to Umiat could attract sport hunters and airboats onto the Colville River, that could scare wildlife and fish as well as providing easier importation of alcohol and drugs into the village.
- *Community Facilities:* The community would like to improve some community facilities, specifically the community hall, Tribal offices, and the cemetery as well as extending the water and sewer distribution system to all homes and providing new outdoor recreational facilities.
- *Housing:* A lack of housing has led to overcrowding. Additionally, much of the community's housing is not adequate for harsh arctic climate.
- *Cultural Resources:* There are too few people that are fluent in Iñupiaq. It is a challenge to maintain traditional activities and cultural values between generations.
- *Economics:* There is a lack of employment opportunities. Coupled with this is a lack of day care facilities that makes working outside the home logistically difficult.
- *Health and Social Services:* Social issues, such as domestic violence and drug and alcohol abuse, not being adequately addressed; concerns about radiation experiments conducted on some residents' thyroid glands by the U.S. Air Force's Arctic Aeromedical Laboratory in 1956 and 1957 is ongoing; and there are limited veterinarian services.
- *Subsistence Resources:* Changes in the caribou migration patterns are making it difficult to hunt caribou.
- *Capital Improvement Planning:* There is a lack of long-term planning for capital projects.

Renewed Community Involvement. More recently, the Borough has undertaken a renewed planning effort which has incorporated more extensive community outreach. The Borough is partnering with Arctic Slope Regional Corporation — ASRC Energy Services (ASRC-AES) and UMIAQ, LLC to develop village comprehensive plans and to update to the Borough's Areawide Comprehensive Plan. The planning team has worked closely with residents, the City of Anaktuvuk Pass, Naqsrarmiut Tribal Council and Nunamiut Corporation leadership to facilitate the preparation of this village plan.

Methods utilized to engage residents and encourage community input and feedback include:

- Developing the North Slope Borough Comprehensive Planning Community Participation Plan to devise the most effective methods to engage residents in the comprehensive planning process. It is available from the NSB Planning & Community Services Department.

²Section 14(c)(3) of the Alaska Native Claims Settlement Act [ANCSA] (43 U.S.C. § 1613(c)(3)) requires each village corporation to convey land for present and future public land uses to the municipal corporation in the village or to the state in trust.

- Meetings with the Anaktuvuk Pass Tri-lateral Committee, comprised of representatives from the Native Village of Anaktuvuk Pass, City of Anaktuvuk Pass, and the Naqragmiut Tribal Council were held on October 20, 2015 and February 11, 2016 to seek input on community issues and plan development;
- A community workshop was held on November 17, 2015 in Anaktuvuk Pass and approximately 61 residents attended. Participants discussed community strengths, weaknesses, opportunities, and threats. An additional community meeting was held on May 17, 2016 to review the public draft of this plan. 45 people attended;
- The planning team held an Elders & Youth Lunch at Nunamiut School on February 11, 2016 to seek additional input;
- A Facebook page dedicated to North Slope comprehensive planning efforts was created to announce meetings, seek comments; and provide status updates;
- The public review draft of the comprehensive plan was placed in eight locations throughout the community for public inspection. Comment forms were attached to the draft plans for residents to easily provide plan feedback;
- Flyers were posted throughout the village announcing the public comment period;
- The draft plan was posted on the North Slope Borough website for public review;
- Comments during the public comment period and at the May 17, 2016 meeting are provided in Appendix C; and
- Three potential plan covers were developed and residents were encouraged to vote for the one that they liked the best.

In addition to specific activities to engage residents of Anaktuvuk Pass, the planning team established a Comprehensive Planning Stakeholder Committee, comprised of representatives from each village, to provide guidance to the team on plan contents and engagement efforts. The Committee meets quarterly to discuss the progress on the comprehensive planning effort. Additionally, the committee members represent their respective communities. When a community's new plan is under development, the respective comprehensive planning stakeholder's role is to keep the community informed and serve as a contact for planning comments and concerns as well as relay information and concerns back to the Committee members.

Below are the results of the 2015 community SWOT exercise that was held in Anaktuvuk Pass on November 17, 2015. Information from the SWOT analysis provided the basis for the vision statement included in Section 1.4.

Community Strengths:

- An exceptionally scenic alpine environment with abundant wildlife;
- Pristine water;
- Unique culture; the only inland Nunamiut Eskimos;
- Strong, traditional values;

- Strong vibrant people that value our family and elders;
- A museum that helps to preserve our culture for education;
- Park Service designation provides some protection from outside development;
- Teacher turnover rate is low due to the desirable location; and
- Mask making.

Community Weaknesses:

- High transportation costs which contribute to the high costs of fuel and goods. Lack of access road drives up these costs;
- Overcrowded housing conditions, poorly equipped to handle harsh climates, only people with jobs can afford and qualify for houses, septic tanks causing health hazards, houses too close together is a fire hazard, many underprivileged people in the community, lack of sewer and running water hookups, large families living on limited water supply with one water tank;
- Lack of recreational opportunities and opportunities for our youth;
- Changing caribou migration patterns;
- Proximity to Gates of the Arctic National Park limits summer subsistence options due to Park Management restrictions;
- High unemployment;
- Lack of child care to support working parents;
- Community divided by creek with one inadequate bridge;
- Dusty roads in summer;
- Individual hikers not contributing to economy and scare caribou herds;
- Eleanor Lake is polluted;
- Human health impacts are not well considered when development projects are reviewed for environmental impacts;
- Village has not settled its 14(c)(3) land transfer to the City; and
- Property boundaries are not clear and ownership of vacant lands is not clear which inhibits re-development.
- Number of people who are fluent in Iñupiaq is small;
- It is a challenge to maintain traditional activities and cultural values between generations;
- Incidence of domestic violence and drug and alcohol use is not being adequately addressed;
- Cancer incidence by residents subjected to 1956 and 1957 radiation experiments by U.S. Air Force Aeromedical Laboratory, many want acknowledgement of past military tests on residents;
- Offices of children services – previous Child Protective Custody authority by the NSB has been assigned to State of Alaska and administered in Fairbanks, no tribal representative for the community members;
- Preserving our culture;
- Teshepuk and Central Arctic Caribou Herds have declined in population;

- Park service designation doesn't provide enough protection from outside development due to the allotments;
- An exceptionally scenic alpine environment brings in outsiders;
- Teacher two year limitations;
- Access and hunting permits are issued to outside hunters by the NSB and State of Alaska that fail to consider the impacts to local resident hunters and the community; and
- Iñupiaq culture diminishing from competition with technology with the younger generation.

Community Opportunities:

- Alternative energy could reduce heating and electricity costs;
- Expand tourism market;
- Promote local businesses;
- Improve cell service and develop a community wide Wi-Fi system;
- Give youth a sense of ownership and respect for our lands;
- Develop modern, energy efficient 'sod' homes;
- Seasonal winter trails/roads could reduce transportation costs;
- Airport terminal building; and
- Sustainable development that allows future generations to continue their subsistence lifestyle.

Community Threats:

- Climate change threatens our subsistence lifestyle, particularly affecting the migration of caribou and increased likelihood of wildfires from lightning strikes;
- Outside hunters compete for limited resources and potentially divert the traditional migration route of caribou by hunting and frightening the first group of migrating caribou;
- Resource development impacting caribou migration;
- Increased transportation costs leading to increased goods and fuel prices;
- Flooding;
- ATV (four-wheelers) used off trails damages tundra, causes erosion and could create channels between lakes disrupting wetlands;
- Funding is limited to properly maintain or improve community facilities such as the community hall, Tribal offices, the cemetery, piped water and sewer utilities and outdoor recreation facilities;
- Local hire;
- Reduced or eliminated revenue sharing from the State of Alaska;
- National Park designation attracts nature walkers that creates increased calls for search and rescue efforts;
- Permits that NSB signs to allow the sports hunters to hunt in land;
- Domestic violence and drug use is not being adequately addressed;
- Individual hikers tend to scare caribou herds; and
- Radiation thaw out falls on lichen causes health hazard to residents and caribou.

1.4 Vision Statement

A vision statement establishes community's desired outcome of the Comprehensive Plan. The statement provides a shared sense of how residents see the community developing over the next 20 years, the time horizon for this comprehensive plan. This vision statement, presented below, was developed from input during community meetings held as part of the planning process.

Anaktuvuk Pass is a tightly knit community where residents value families, education, and a strong cultural work ethic; have strong cultural ties to the land; and pass on our traditional and community values to each generation.

Anaktuvuk Pass residents appreciate the environment as God created it. We protect that environment from future damage so all who live in and visit Anaktuvuk Pass can continue to enjoy abundant wildlife and plants, clean water and air, and unobstructed views.

Anaktuvuk Pass residents value both the importance of the traditional harvest/subsistence life ways. We strive to preserve our Iñupiaq culture while embracing new ideas that can help us create a sustainable, safe, and affordable community. Protecting healthy and abundant caribou resources and migratory routes near and through the village is of utmost importance.

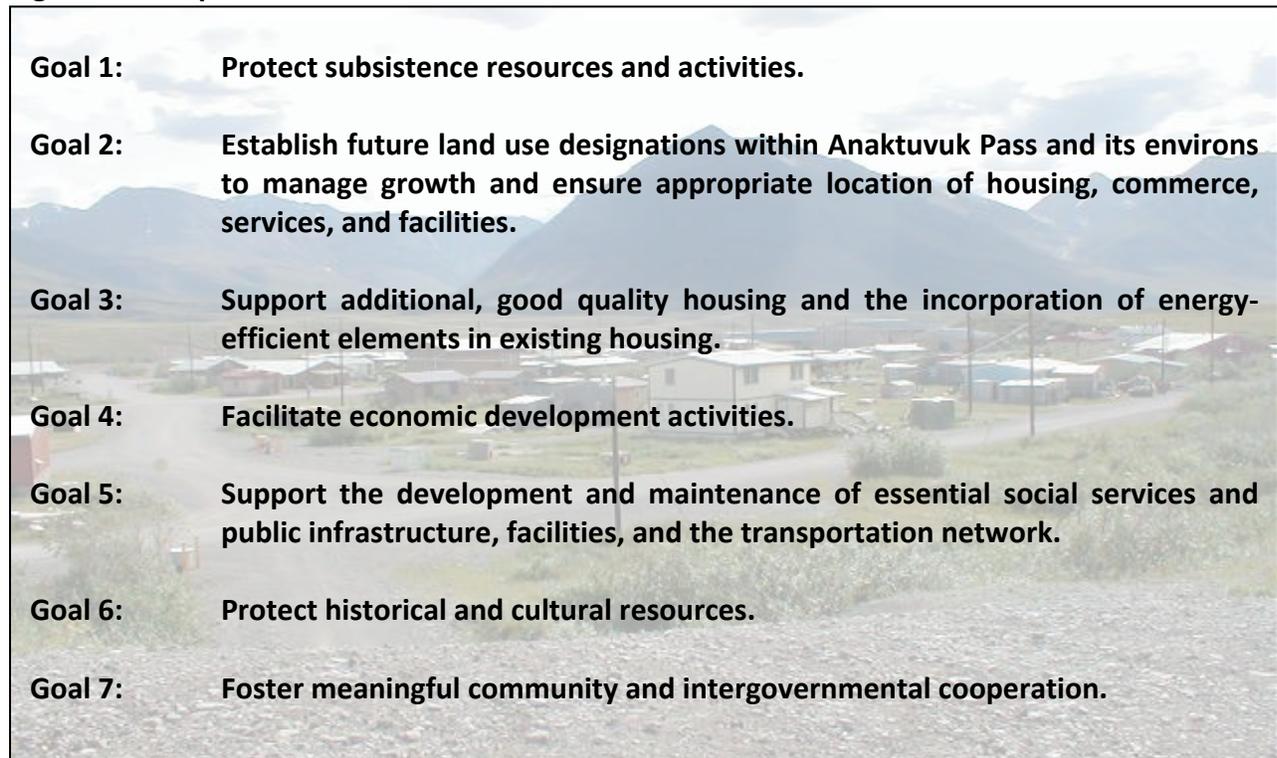
Community members respect each other and understand that by working together we can solve local problems and issues for the betterment of the community as a whole. We pass on this sense of community cooperation into all decision making to ensure that orderly, well understood development occurs that honors our traditional agreement process.

1.5 Plan Scope and Organization

An Area of Influence was established for this comprehensive plan through input from the community to focus the identification of issues and opportunities, goals, objectives and strategies. Map 4 illustrates the Area of Influence of this plan that includes the community and land typically used by residents for hunting and subsistence purposes.

As a result of community input, seven goals have been established for the plan that provide the overall direction for the plan, shown in Figure 3. Objectives for each of these goals and associated strategies for reaching those objectives are included in the tables in Chapter 11.

Figure 3: Comprehensive Plan Goals



Goal 1:	Protect subsistence resources and activities.
Goal 2:	Establish future land use designations within Anaktuvuk Pass and its environs to manage growth and ensure appropriate location of housing, commerce, services, and facilities.
Goal 3:	Support additional, good quality housing and the incorporation of energy-efficient elements in existing housing.
Goal 4:	Facilitate economic development activities.
Goal 5:	Support the development and maintenance of essential social services and public infrastructure, facilities, and the transportation network.
Goal 6:	Protect historical and cultural resources.
Goal 7:	Foster meaningful community and intergovernmental cooperation.

This Plan provides background about Anaktuvuk Pass as well as management guidance for the community's future. It is not necessary to read the plan from front to back. Instead, readers may wish to focus on those sections of the plan that meet their interest. Chapters 1 through 11 provide introductory material and a context for the goals, objectives and strategies, which are included in Chapter 12 along with a discussion of how the plan will be implemented. The references at the end of the plan identify studies, reports and other sources of information. The 12 chapters of the plan and appendices are organized as follows:

Chapter 1 provides the introduction to the plan, including the basis for comprehensive planning.

Chapter 2 provides a community overview, including the history of both the community and its people as well as the Iñupiat values.

Chapter 3 provides information on the natural environment, including the geography, vegetation, wildlife and climate change.

Chapter 4 includes information on subsistence, including the Area of Influence and what subsistence activities mean to the residents of Anaktuvuk Pass.

Chapter 5 includes a historical perspective on the population growth in Anaktuvuk Pass, as well as the Alaska Permanent Fund Dividend (PFD) enrollees and population projections.

Chapter 6 examines housing issues and provides a forecast of current and future housing needs.

Chapter 7 discusses community health, especially as it relates to land use and community development.

Chapter 8 examines infrastructure current infrastructure needs for water, sewer, power, solid waste, and transportation.

Chapter 9 provides an overview of the community's economic that includes employment and income.

Chapter 10 includes land ownership, land use regulation, and current and anticipated future land use.

Chapter 11 identifies potential capital needs and discusses plan implementation.

Chapter 12 concludes with the goals of the plan, related objectives and actions that will help meet those objectives.

1.6 Consistency with Adopted Plan Policies

Developing the Anaktuvuk Pass Village Plan is consistent with several recommendations of the 2005 adopted North Slope Borough Comprehensive Plan which includes the following selected policies related to Village planning and development. These policies are deemed part of this village plan.

“Develop community comprehensive plans to address existing and future growth and development needs. [Policy 2.2.1.14, page (pg) 2-18]

“Establish means for communities to assume greater land use control, as well as corresponding fiscal responsibilities.” [Policy 2.2.1.12, pg 2-18]

“Determine which communities desire zoning and enforcement mechanisms by conducting a survey in each village.” [Policy 2.2.1.13, pg 2-18]

“Develop land use zones that encourage use of existing facilities and infrastructure in villages that desire zoning.” [Policy 2.2.1.14, pg 2-18]

“Document housing needs for each village and incorporate into village comprehensive plans or the Borough Comprehensive Plan.” [Policy 2.2.7.101, pg 2-47]

“Emphasize compactness in community development during project planning to minimize operations and maintenance costs of community infrastructure.” [Policy 2.2.1.14, pg 2-18]

“Document sensitive subsistence use areas to avoid development in critical areas.” [Policy 2.2.3.38, pg 2-27]

“Consider maintaining important subsistence areas as Conservation Districts, or rezone as Subsistence, Districts.” [Policy 2.2.1.17 and 18, pg 2-19]

“Include villages in the notification and decision making process before permits are issued.” [Policy 2.2.20, pg 2-21]

“Review development plans for opportunities to decrease inefficient development.” [Policy 2.2.1.26, pg 2-21]

“Encourage land uses that maximize the use of existing infrastructure.” [Policy 2.2.1.26, pg 2-21]

“Create a land use, development phasing, and improvement financing plan for the construction of roads and utilities in the Borough communities.” [Policy 2.2.1.11, pg 2-16]

“Develop cooperative agreements between the Borough, cities, tribes, and the corporation to expand roads and utilities to support housing construction.” [Policy 2.2.7.101, pg 2-46]

“Require those developing outside of current utility service areas to pay their fair share for extending service.” [Policy 2.2.1.15, pg 2-21]

“Require developers to pay their fair share for extending utilities and building roads.” [Policy 2.2.1.11, pg 2-16]

“Identify important cultural and traditional resources and activities in the vicinity of proposed resource development and incorporate into planning for impact avoidance and mitigation.” [Policy 2.2.4.49, pg 2-31]

“Economic development activities within villages should avoid or minimize uses of areas and resources important to subsistence and traditional activities.” [Policy 2.2.4.58, pg 2-33]

“Identify and map hazard zones in each village.” [Policy 2.2.5.59, pg 2-34]

“Develop alternative energy sources for Borough communities, such as coal, natural gas and wind power.” [Policy 2.2.7.97, pg 2-45]



Photo Credit: UMIAQ Photo Library.

Chapter 2. Community Overview

This chapter provides background about Anaktuvuk Pass beginning with a description of the community's setting followed by an overview and the history of the community.

2.1 Local Governance

Anaktuvuk Pass has both municipal and tribal governments, both local and regional. Each of these four governmental organizations is described below.

City of Anaktuvuk Pass: The City of Anaktuvuk Pass is a second class city and a subdivision of the North Slope Borough. It that was originally incorporated as a fourth class city in in 1959. The seven members

of the City Council are elected at-large and the mayor is elected by the Council. The Mayor leads the City Council and is responsible for day-to-day management with assistance from a city administrator.

Naqragmiut Tribal Council: The seven-member Naqragmiut Tribal Council governs the Village of Anaktuvuk Pass, a federally-recognized tribe. It was established under authority of the Indian Reorganization Act (IRA) of 1934. The Naqragmiut Tribal Council is a member of the Iñupiat Community of the Arctic Slope (ICAS) regional Tribal government.

Iñupiat Community of the Arctic Slope: ICAS is the regional tribal government for all the North Slope villages. It was established in 1971 as an Indian Reorganization Act (IRA) government and is one of only two regional sovereign Tribal governments in Alaska recognized by the United States government.

North Slope Borough: Anaktuvuk Pass is located within the North Slope Borough (NSB or Borough), a regional home-rule government comprised of 94,763 square miles of northern Alaska. It retains all power not specifically restricted by its charter or by state law. The Borough provides some services for Anaktuvuk Pass residents, including planning and zoning authority. The NSB generally levies a property tax of 18.5 mills, with authority for up to 20.0 mills.

The NSB Department of Planning and Community Services administers the subdivision and zoning ordinances in Titles 18 and 19 of the North Slope Borough Municipal Code (NSBMC). The Department strives to provide a balanced and orderly community development process and to encourage economic development throughout the Borough (NSBMC § 19.05.040). It issues administrative zoning permits through the authority of Title 19 (Zoning Code) and approves subdivisions through Title 18 (Subdivision Code).

One person from each North Slope village is appointed by the Mayor and confirmed by the Assembly to serve on the Borough Planning Commission (NSBMC § 2.12.010). The Planning Commission is responsible for preparing the Borough's Comprehensive Plan and recommending its approval to the Assembly. In addition, the Planning Commission:

- Makes recommendations to the Assembly on amendments to Titles 18 and 19 and zoning amendments (outside of Barrow);
- Reviews the annual capital improvements program and 6 Year Capital Plan and submits a recommendation to the Assembly;
- Makes recommendations to the Assembly on public improvements;
- Decides on preliminary plats for subdivisions under Title 18;
- Reviews NSB Planning and Community Services Department permits and approvals and hears and decides conditional use permits and appeals of administrative permit decisions; and
- Provides a forum for North Slope village residents to voice concerns, receive answers to questions on a wide range of topics and obtains information on activities planned in a village's general vicinity and subsistence use area.

2.2 Setting

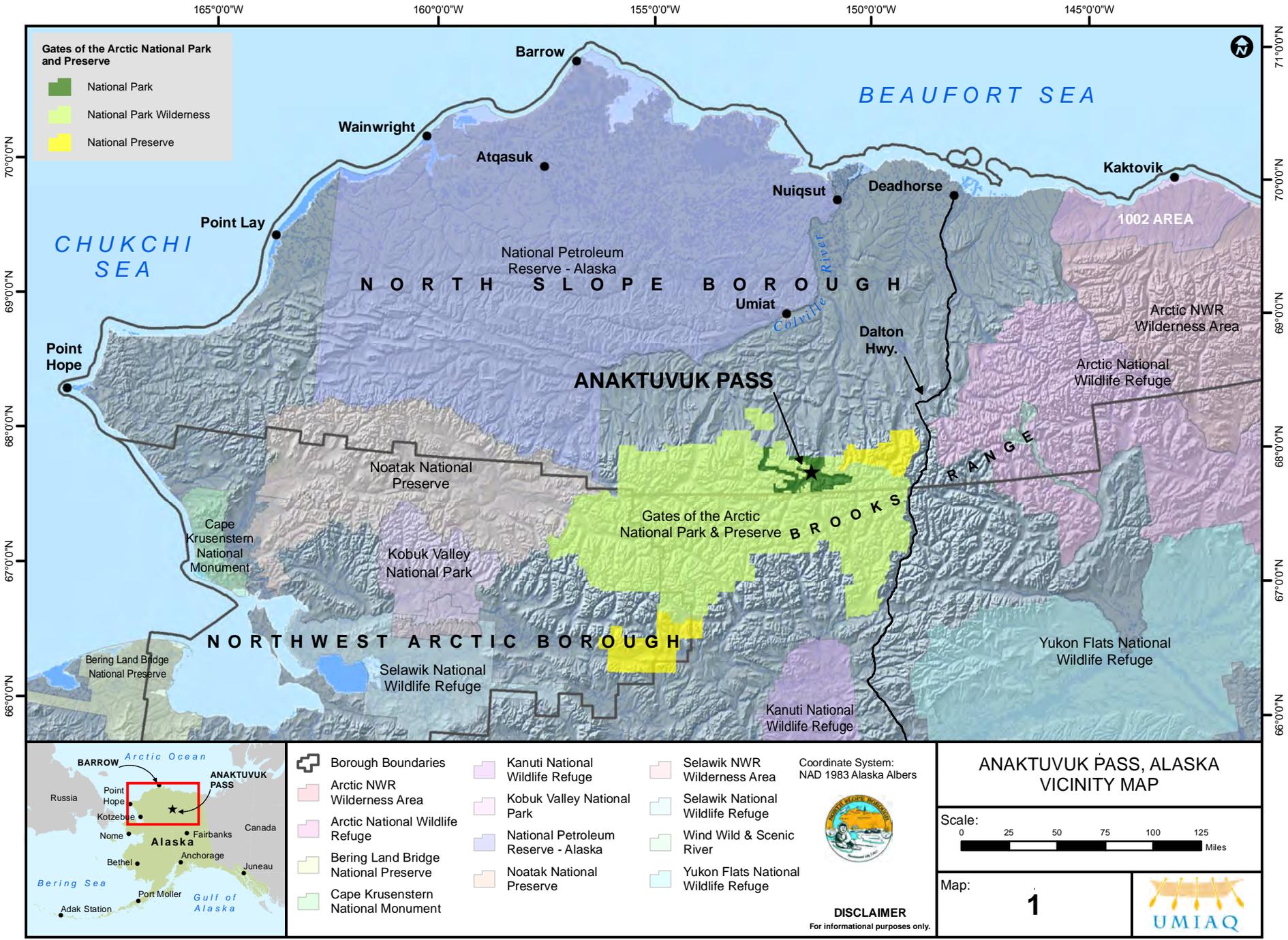
Located at the summit of a broad and beautiful glacial valley which cuts through the Brooks Range, the village of Anaktuvuk Pass is home to the Nunamiut, the only inland Iñupiaq community in the Borough.³ The village is located in the Endicott Mountains of the Brooks Range, 250 miles northwest of Fairbanks, about halfway between Fairbanks and Barrow and approximately 150 miles north of the Arctic Circle, shown in Map 1. The only North Slope Borough village located in a mountain setting, Anaktuvuk Pass was settled in a U-shaped, glacial valley, which forms a corridor 15 miles long and three to four miles wide along the continental divide where Contact Creek flows southward to the Yukon River and the Bering Sea while the waters from Anaktuvuk River flow northward to join the Colville River and the Beaufort Sea. The nearby mountain peaks rise from the valley floor at 2,200 feet to heights of 6,000 feet within the boundaries of the 8.4 million-acre Gates of the Arctic National Park and Preserve (see Map 2) which crosses the valley from the Three River Mountains to the Soakpak Mountains. The geographical coordinates for Anaktuvuk Pass are 68 degrees 08 minutes north and 151 degrees 45 minutes west.

Figure 4: View of the Brooks Range from Anaktuvuk Pass

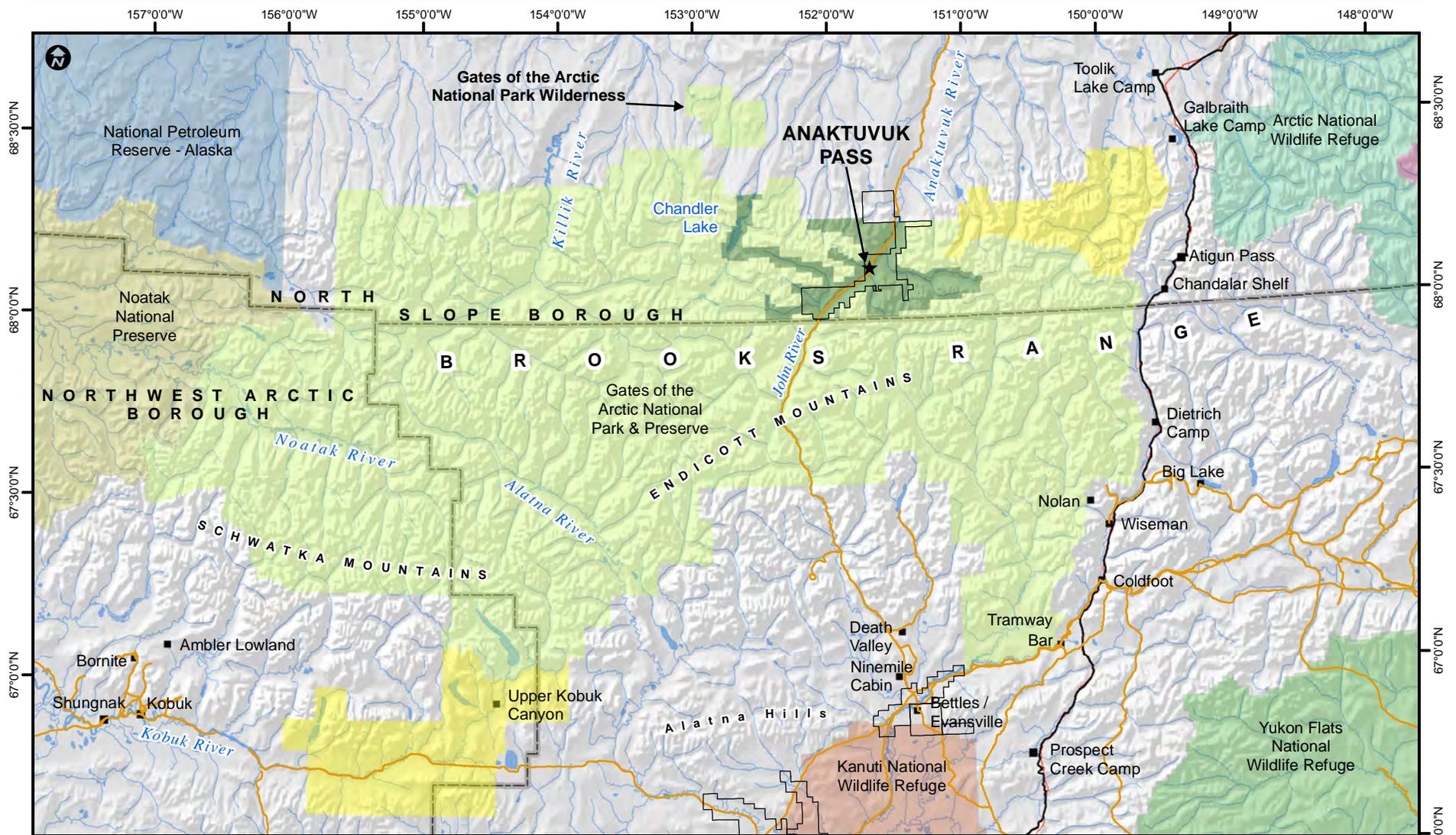


³ North Slope Borough. 1990. Commission on the Iñupiat History, Language and Culture. *Anaktuvuk Pass: Land of the Nunamiut*.

This page is intentionally left blank



This page is intentionally left blank



Coordinate System: NAD 1983 Alaska Albers

- Gates of the Arctic National Park and Preserve**
- National Park
 - National Park Wilderness
 - National Preserve

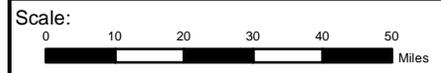
- Generalized ANCSA Conveyances**
- Case Type Description**
- Village Selections - AK (BLM -SDMS)
 - Borough Boundaries

- James Dalton Highway (Haul Road)
- Trans-Alaska Pipeline System (TAPS)
- Revised Statute 2477 Trails (ADNR)



DISCLAIMER
For informational purposes only. Umiq makes no expressed or implied warranties of merchantability or fitness with regards to character and function of this printed map. Not for navigation

**ANAKTUVUK PASS, ALASKA
GATES OF THE ARCTIC
NATIONAL PARK & PRESERVE**



Map: **2**



This page is intentionally left blank

2.3 The People

The people of the region, the Nunamiut, have a long history of living off the land. Nunamiut means “people of the land”, and the ancestors of today’s residents lived a nomadic life way in family-based groups. Three main groups of Nunamiut were named for the area of land they inhabited: The Tulugakmiut lived in Tulugak Lake area, the Narivakvukmiut in the Chandler Lake region and the Kitlikmiut around the Killik River.⁴

The Nunamiut moved around the North Slope during seasonal migrations in search of different foods. In May, they would traveled by dog team to the mouth of the Anaktuvuk River. Using skin boats cached there the previous fall, they floated to the mouth of what is today the Colville River at a place called Nigliq where an annual trade fair was held. There, they traded with coastal Iñupiat. Others travelled to Barrow to trade. During the month of August, the Nunamiut returned to the Anaktuvuk River where they fished until freeze-up. Over the winter, they hunted caribou in the broad valleys of the Brooks Range.

The Nunamiut consisted of a number of semi-nomadic groups usually made up of several extended families that number between 25 and 200 individuals. At their peak population, it is estimated that there were around 1,000 Nunamiut living throughout the mountains and river valleys.

In the late 1880s, limited contact was made with outside explorers, and over the next three decades the Nunamiut suffered catastrophic losses of human life from disease and starvation. In the 1920s, the lack of food drove many families toward the coast and eastward toward Canada where fur trapping for trade was still plentiful. Prior to 1940s, the Nunamiut had little contact with Westerners.

According to Rausch (1951), in 1949, “. . . except for the use of firearms, these people lived as they had done for centuries. They knew no English and existed almost exclusively by hunting.” In the late 1940s, Wien Alaska Airways began bringing supplies to the Chandler Lake area families and during the next few years residents began adopting Western clothing and food.

Unlike the coastal Iñupiat, the Nunamiut traditionally spent most of their time inland rather than near the sea. As in the past, the way of life today revolves around the hunting of caribou, sheep, and bear rather than whales, seals, and walrus harvested by their coastal relatives. Caribou have historically been the focus of the Nunamiut’s existence by providing meat, fat, and marrow for food as well as skins for clothing and shelter, tendons, and ligaments for thread and bones and antlers for tools and implements.

During the early part of the twentieth century, the Nunamiut engaged in trapping. In the years between 1935 and 1940, however, the fur trade declined due to the Great Depression. As a result, 13 Nunamiut families returned to their traditional land use areas in the headwater valleys of the Chandler, the Itqiliq

⁴ Rausch, R. 1951. *Notes on the Nunamiut Eskimo and Mammals of the Anaktuvuk Pass Region, Brooks Range, Alaska*. Arctic Magazine: 4(3), December.

and Killik rivers drainages, now known as the community of Anaktuvuk Pass. Family members ranged in age from infants to men and women in their sixties.

2.4 Community History

The area of Anaktuvuk Pass began to be settled in the 1940s. Motivated by the desire to obtain schooling for children, take advantage of improved air service, and ensure a sustained subsistence life way from the caribou migrating through the valley, families who had spread out along river drainages of the region relocated to the Anaktuvuk Valley. Wien Alaska Airways arranged for teachers visits and by 1949, 65 Nunamiut lived year-round in the Anaktuvuk Valley. Seasonal travel by foot or dog team continued through the Endicott Mountains to Ikillik and Galbraith Lake to obtain subsistence resources. In 1951, a small post office was established in the current village site and in 1959 the community incorporated as a fourth class city. A permanent school building was constructed in 1961. Over the next few years, the community became increasingly importance as families built log cabins and sod houses for winter use and spruce pole tent frames for canvas wall tents in summer. In the mid-1960s, plywood frame homes began to replace traditional structures, and by the late 1970s, the NSB began investing large sums in the community. Through its Capital Improvement Program, the Borough provided villagers with homes, schools, a clinic, public safety facilities, communications systems, water and sanitation systems, power and roads.

Today, Anaktuvuk Pass is the only remaining community of Nunamiut. The community's residents have adopted a unique blend of old and new ways. Hunters continue to harvest caribou along traditional migration routes and they may travel 200 miles a day by snow machine to check their trap lines and obtain other subsistence resources.

2.5 Iñupiaq Values

The Nunamiut of Anaktuvuk Pass continue to honor cultural ties to the land and their ancestors while they implement traditional Iñupiaq values. Iñupiat highly regard family, work ethic, the Iñupiaq language, drumming and dancing, and sharing food and knowledge of animals and fish with a deep respect for the environment in which they live, which provides fresh water, clean air and subsistence foods, particularly caribou. Table 1 summarizes values of the North Slope Iñupiat.

Table 1: Iñupiaq Values⁵

Value	Explanation
Paaḷaktautaiññiq - <i>Avoidance of Conflict</i>	The Iñupiaq way is to think positive, act positive, speak positive and live positive.
Nagliktuutiqaḡniq - <i>Compassion</i>	Though the environment is harsh and cold, our ancestors learned to live with warmth, kindness, caring and compassion.
Paammaaḡigñiq - <i>Cooperation</i>	Together we have an awesome power to accomplish anything.
Iḷagiigñiq - <i>Family and Kinship</i>	As Iñupiat people, we believe in knowing who we are and how we are related to one another. Our families bind us together.
Qĩñuiññiq - <i>Humility</i>	Our hearts command that we act on goodness. We expect no reward in return. This is part of our cultural fiber.
Quvianḡuniq - <i>Humor</i>	Indeed, laughter is the best medicine.
Aḡuniallaniq - <i>Hunting Traditions</i>	Reverence for the land, sea, and animals is the foundation of our hunting traditions.
Iñupiuraallaniq - <i>Knowledge of Our Language</i>	With our language, we have an identity. It helps us to find out who we are in our mind and in our heart.
Piqpakkutiqaḡniq suli Qiksiksrautiqaḡniq Utuqqanaanun Allanullu - <i>Love and Respect for our Elders and One Another</i>	Our Elders model our traditions and ways of being. They are a light of hope to younger generations. May we treat each other as our Elders have taught us.
Qiksiksrautiqaḡniq Iñuuniaḡvigmun - <i>Respect for Nature</i>	Our Creator gave us the gift of our surroundings. Those before us placed ultimate importance on respecting this magnificent gift for their future generations.
Aviktuaqatigiigñiq - <i>Sharing</i>	It is amazing how sharing works. Your acts of giving always come back.
Ukpiqquitiqaḡniq - <i>Spirituality</i>	We know the power of prayer. We are a spiritual people.

Iñupiaq Language. Language is an expression of one’s culture and values and it is used to communicate a people’s social and intellectual legacy. A continuum of Inuit languages range across the Arctic, and in Northern Alaska, there are four major dialects of Iñupiaq. Iñupiaq proficiency has diminished due to early

⁵ North Slope Borough. 2005. *North Slope Borough Comprehensive Plan*. Prepared by URS Corporation for the North Slope Borough. October. www.north-slope.org/your-government/comprehensive-plan

government school policies that prohibited speaking Iñupiaq on school premises and the pervasive influence of English-speaking radio and television.

According to the 2010 North Slope Borough Economic Profile and Census Report (NSB Census), the percentage of Nunamiut households speaking Iñupiaq mostly at home has dropped from 13 percent in 2003 to 6 percent in 2010. Those households speaking both English and Iñupiaq at home have also decreased over the same period, from 48 percent in 2003 to 39 percent in 2010. The majority of households in Anaktuvuk Pass spoke mostly English at home (53 percent) in 2010. The percentage of Iñupiat households that doesn't have any Iñupiaq speakers has increased significantly during the seven year period, from nearly 24 percent in 2003 to over 32 percent in 2010.

Because a dramatic decline in fluent Native speakers resulted when schools forbade students from speaking their native language, the North Slope Borough School District made an effort to strengthen the Iñupiaq language by offering language classes from early childhood through 8th grade. Nunamiut School offers the Visual Iñupiaq Verbal Acquisition (VIVA), developed by the North Slope Borough School District (NSBSD) to practice speaking⁶. The Borough places great importance on expanding fluency in Iñupiaq to preserve traditional culture and values. To assist adults in learning or re-learning Iñupiaq, the NSB Iñupiat History, Language and Culture Department (IHLC) sponsored the production of an online Iñupiaq language program in partnership with the Rosetta Stone program for Endangered Languages. The decline in fluent speakers has also led to a communication gap between elders and youth.

Subsistence Participation. Participating in subsistence hunting, fishing, gathering, preparation, cooking, sharing, and celebration activities is a cultural characteristic, skill and trait of the Iñupiaq culture. Not all members of the community have the ability or skill to hunt and harvest; yet all community members learn the skills necessary to support those activities. In Anaktuvuk Pass, this is particularly true of caribou hunting activities. In 2010, all households participated in subsistence hunting and gathering and use of these resources and roughly two-thirds of households acquire half or more of their diet from wildlife resources⁸. Additionally, in 2010 the NSB

Figure 5: Summer 1949, Tulugaq Lake. Gathering with people from Killik and Chandler Lake ⁷



⁶ North Slope Borough School District. 2016. Nunamiut School. www.nsbds.org/ns. Accessed Jan. 20, 2016

⁷ North Slope Borough. n.d. Heritage Event Programs. www.north-slope.org/assets/images/uploads/heritage_event_programs.pdf. Accessed Jan. 28, 2016

⁸ North Slope Borough. 2010. *North Slope Borough 2010 Economic Profile and Census Report*. Prepared by Circumpolar Research Associates Shepro, C., Maas, C. and D. Gallaway with J. McAnich for the North Slope Borough. www.north-slope.org/your-government/census-2010.

Census Report found that approximately 37 percent of residents hunted land mammals, 53 percent of residents fished and 53 percent picked berries and plants.⁹

Cultural Resources. Although Anaktuvuk Pass is a recently settled village, its people have an ancient heritage. More recently, since as the 1950s the Nunamiut were semi-nomadic caribou hunters. The Nunamiut traveled by dog-team and sled in winter and on foot in summer, hunting and fishing throughout valleys of the Brooks Range and its northern foothills, while living in caribou skin tents and houses built of moss. The Nunamiut were the last of the North America nomadic peoples to settle into village life.¹⁰ During the late 1940s and early 1950s, the families of Killik River and Chandler Lake established the village. Soon thereafter, there was regular air and mail service as well as seasonal schooling and periodic missionary support.¹¹

The Simon Paneak Memorial Museum in Anaktuvuk Pass was established in 1986. Since then, museum staff have worked closely with Nunamiut elders, researchers and students to record the locations of cultural sites, to map and photo-document their physical remains and to conduct interviews. This research and documentation assists in preserving the social, cultural, and personal contexts of the sites.

Figure 6: Simon Paneak Memorial Museum¹²



⁹ North Slope Borough. 2010. *North Slope Borough 2010 Economic Profile and Census Report*. Prepared by Circumpolar Research Associates Shepro, C., Maas, C. and D. Gallaway with J. McAnich for the North Slope Borough. www.north-slope.org/your-government/census-2010.

¹⁰ North Slope Borough. n.d. Department of Iñupiat Heritage, Language and Culture. *Simon Paneak Memorial Museum*. www.north-slope.org/departments/inupiat-history-language-and-culture/simon-paneak-memorial-museum.

¹¹ North Slope Borough. n.d. *Heritage Event Programs*. www.north-slope.org/assets/images/uploads/heritage_event_programs.pdf

¹² UMIAQ. 2011. Photo library. Simon Paneak Memorial Museum.

This page is intentionally left blank



Photo Credit: Alaska Department of Commerce, Community and Economic Development; Division of Community and Regional Affairs' Community Photo Library.

Chapter 3. The Natural Environment

Anaktuvuk Pass is comprised of 4.80 square miles of land and 0.10 square miles of water¹³ located at 2,200 feet elevation in the Endicott Mountains of the central Brooks Range, about 250 miles southeast of Barrow, 260 miles northwest of Fairbanks and 165 miles southwest of Deadhorse / Prudhoe Bay. The village is situated on the divide between the Anaktuvuk and John Rivers.¹⁴

This section provides background information on the climate, geography, geology and soils, vegetation and wildlife.

3.1 Gates of the Arctic National Park and Preserve

The village of Anaktuvuk Pass lies within the federal Gates of the Arctic National Park and Preserve (GAAR) established in 1980 whose purpose is to “preserve the vast, wild, undeveloped character and environmental integrity of Alaska's central Brooks Range and to provide opportunities for wilderness

¹³ Alaska Department of Commerce, Community and Economic Development. 2016. *Community Database Online*. Accessed Jan. 28, 2016. <http://commerce.state.ak.us/cra/DCRAExternal>. Accessed Jan. 13, 2016.

¹⁴ North Slope Borough. 1983. *Background for Planning: City of Anaktuvuk Pass*. Prepared by Alaska Consultants Incorporated.

recreation and traditional subsistence uses.”¹⁵ The park and preserve straddles the Brooks Range for about 200 miles north of the Arctic Circle and encompasses 8.4 million acres total within its boundaries, of which about 7.1 million acres are designated wilderness. Six federally designated Wild and Scenic Rivers¹⁶ flow within and out of the Gates of the Arctic: the Alatna, John, Kobuk, Noatak, North Fork Koyukuk, and Tinayguk rivers. Abutting the Gates of the Arctic National Park and Preserve is the Noatak National Preserve (6.4 million acres) and, to the south, the Kobuk Valley National Park (1.7 million acres), as shown in Map 2. These three National Park Service areas form a contiguous expanse of protected landscape of unique ecological, scenic and recreational importance from the North Slope Dalton Highway to the east and nearly to the Chukchi Sea coast on the west.¹⁷

3.2 Geography, Soils and Geology

The land feature of Anaktuvuk Pass forms a divide of the Brooks Range between the Anaktuvuk and John river watersheds. The Anaktuvuk River flows northward to the Colville River and then to the Beaufort Sea. The John River flows southward into the Koyukuk River, a tributary of the Yukon River that empties into the Bering Sea. There are many waterbodies in the vicinity of the village, including small tributaries of the Anaktuvuk and John rivers as well as many lakes, including Eleanor Lake, located just outside the community.

The broad Anaktuvuk Pass reaches about 2,200 feet above sea level and the surrounding mountains are about 6,000 to 7,000 feet above sea level. The pass extends about 30 miles long and three miles wide. To the north it opens onto the Arctic Coastal Plain and to the south it leads through the deep canyon of the John River and to the low, wooded Alaska interior. Most of the lands within the village drain into Contact Creek which flows north to the Arctic Ocean.

Glacial till covers the Anaktuvuk Valley floor, which consists of moraines, kames and other ice-formed features. Sand dunes and wind-blown sediment bluffs occur along the river drainages. A thick mat of organic material covers deeper soils. Within the village, soils tend to be loamy fine sand, occasionally gravel that overlays well drained sand.

The soils around the village are composed of discontinuous permafrost. Outside the vicinity of the village, the ground becomes more ice rich and the permafrost may be continuous, estimated to be 1,000 feet deep.¹⁸

¹⁵ U.S. Department of the Interior. 2016. National Park Service. *Gates of the Arctic National Park & Preserve: Significant Value of Gates of the Arctic*. www.nps.gov/gaar/learn/significant-values-of-gates-of-the-arctic.htm. Accessed Jan. 8, 2016.

¹⁶ The National Wild and Scenic Rivers System was created by Congress in 1968 to preserve certain rivers with outstanding natural, cultural, and recreational values in a free-flowing condition for the enjoyment of present and future generations. The Act is notable for safeguarding the special character of these rivers, while also recognizing the potential for their appropriate use and development and can be designated by Congress or, in some cases, the Secretary of the Interior.

¹⁷ Alaska Geographic, *Alaska National Interest Lands*, Alaska Geographic Society magazine, Volume 8, No. 4, 1981.

¹⁸ North Slope Borough. 1983. *Background for Planning: City of Anaktuvuk Pass*. Prepared by Alaska Consultants Incorporated.

3.3 Vegetation

Three biologic regions are located in the region of Anaktuvuk Pass: Arctic Mountains, Arctic Slope Foothills, and Spruce Forest regions.¹⁹ The village is located in the dry alpine tundra of the Arctic mountains region. Vegetation in this region includes tundra species dominated by sedges and in drier areas, heath moor species. To the north of Tukugak Lake, the Arctic Slope Foothills region, the vegetation is composed of tundra meadow plants and willows. To the south of the pass, the vegetation consists of upland spruce forests which include white spruce, balsam poplar and birch.

There are approximately 256 plant species in the area, including sedges, grasses, willows, fungi, lichens and ferns which provide major forage for large herds of herbivores. Willows, spruce and birch, in the past, provided essential fuel and tools for Nunamiut survival. Eskimo potatoes (sweet vetch roots) provide food in winter and berries provide food in the summer rich in vitamins.

3.4 Wildlife and Wildlife Habitats

A rich variety of fish and wildlife occupy the boreal forest in the John River valley and the Coastal Plain to the north. The following bullets list the most common birds, fish and mammals.

- Birds: At least 142 species of birds, of which 15 are year-round residents, exist in the area, including loon, swan, duck, geese, ptarmigan, hawk, gray falcon, owl, raven, crow and grouse.
- Fish: Eleven species of fish occur in the valley rivers, streams and lakes, including herring, lake trout, salmon, whitefish, Arctic char, red sucker, ling, sculpin and grayling.
- Mammals: Thirty-two species of mammals live near the village including hares, muskrat, squirrel, marten, marmot, fox, beaver, porcupine, bear, moose, Dall sheep, wolf, wolverine, lynx and caribou.

Caribou are the most important species for the Nunamiut's food security. The village is strategically located in the caribou migration corridor. In the spring and fall, large herds of caribou numbering into the tens of thousands, migrate through the mountain passes of the Brooks Range following ancient corridors. In spring, caribou move northward from the interior where they scatter in small groupings across the land. During the spring migration, caribou travel to traditional calving grounds on the Coastal Plain where they give birth to their young and spend the summer grazing in preparation for the coming winter. The Coastal Plain provides nutrient-rich lichen and moss. In the fall, they again form into large herds and migrate south through the mountains to their wintering grounds. The North Slope caribou herd ranges are illustrated in Map 3.

¹⁹ Rausch, R. 1951. *Notes on the Nunamiut Eskimo and Mammals of the Anaktuvuk Pass Region, Brooks Range, Alaska*. Arctic Magazine: 4(3), December.

The Nunamiut practice strict hunting protocols and methods to ensure caribou continue to migrate through Anaktuvuk Pass. These protocols have long traditions to prevent food shortages and famines that have plagued the Nunamiut in the past. An important protocol involves allowing the lead caribou to migrate without interference because other caribou follow the lead herd, the vanguard. If disturbed, caribou release a scent from their hooves which cause other caribou to scatter, altering their traditional migration route and pattern.

The population of caribou herds varies over time due to natural cycles. Caribou populations can also be impacted from weather, predation, overhunting and development activities. Regarding weather, warm spells or winter rain followed by a freeze can have devastating effects. The rain results in a layer of ice over the tundra, making lichens and other food unavailable. On the other hand, deep snow can make caribou more vulnerable to predation by wolves.

As a result of their dependence of caribou to sustain their way of life, Anaktuvuk Pass residents express concern about potential disturbances to the caribou population. Pressure from sport hunters, including competition for caribou, and disruption to migration routes are major concerns. To take advantage of seasonally available forage, caribou migrate between their summer and winter ranges. Winter diet consists predominantly of lichens with a shift to vascular plants in spring.

Three caribou herds inhabit the village's Area of Influence: the Teshekpuk Caribou Herd, the Central Arctic Herd and the Western Arctic Herd. While considered separate herds, there is some intermingling of caribou in areas where their ranges overlap. All of these herds are made up of barren ground caribou.

Figure 7: North Slope Caribou ²⁰



²⁰ Dau, Jim. 2014. Alaska Department of Game & Fish. *Alaska Fish & Wildlife News* www.adfg.alaska.gov/index.cfm?adfg=wildlifeneews.view_article&articles_id=678. August. Accessed Jan. 8, 2016.

Teshekpuk Caribou Herd (TCH): In 2013, the Alaska Department of Fish and Game estimated the population of the TCH to be 32,000, less than half of the highest count of 68,000 in 2008.²¹ The Department indicates that poor calf production, poor calf survival, spikes in adult female mortality and poor nutrition are contributing to the decline. The entire range of the TCH includes most of the North Slope except for the eastern part of the Borough south and east of Kaktovik.

Winter: The TCH is the only herd that overwinters on the North Slope. Three frequently used winter ranges include an area between Wainwright, Barrow and Atkasuk; an area including Teshekpuk Lake and Umiat; and an area to the east of Umiat and Anaktuvuk Pass. Some caribou, however, winter on the eastern Coastal Plain, the central Brooks Range or as far south as the Nulato Hills. Beginning in the early 2000s, most of the herd began wintering between Teshekpuk Lake and Anaktuvuk Pass. A portion of the herd migrates in a broad front using all major drainages of the Anaktuvuk River.

Spring: Most caribou of the TCH begin migrating from winter ranges across northern Alaska to the Teshekpuk Lake area during May. By early June, most of the cows move into the core calving areas around the lake. During the summer of 2013, almost 20 percent of the collared TCH wintered in parts of the Western Arctic Herd range. Caribou herds mix, especially during the fall and winter. However, in recent years, the amount of mixing seems to be increasing; many caribou that are mingled in the winter migrate with a different herd in spring.²²

Summer: After calving, most of the herd move north of Teshekpuk Lake to the coast for insect relief. Its summer range includes an area from Wainwright to an area east of Nuiqsut and south to Umiat. The TCH concentrate in the area west of the Colville River near Teshekpuk Lake with some caribou migrating to the area south of the Brooks Range and east into the Arctic National Wildlife Refuge (ANWR).

Fall: The TCH usually begin their fall migration south during October and November to wintering areas on the central Coastal Plain.

Central Arctic Herd (CAH): In 2013, 70,000 CAH caribou were counted, nearly identical to the 70,034 counted in 2010. The 2013 count included enough intermingling members from other herds to cause, Alaska Department of Fish and Game (ADF&G) herd managers continue to watch this herd carefully.²³ While the CAH is usually found near the Arctic coast between the Colville and Canning Rivers, its range extends from the northern foothills of the Brooks Range to the Beaufort Sea and from the Ikpikpuk River eastward to the Hulahula River.

²¹ Alaska Department of Game & Fish. 2014. *Alaska Fish & Wildlife News*.

www.adfg.alaska.gov/index.cfm?adfg=wildlifeneews.view_article&articles_id=678. August. Accessed Jan. 8, 2016.

²² Ibid

²³ Ibid

Winter: The winter range of the CAH extends from the northern foothills of the Brooks Range to the Beaufort Sea, and from the Ikpikpuk River eastward to the Hulahula River in the Arctic National Wildlife Refuge (ANWR). The winter range of the CAH, however changes over time. The herd typically uses windswept upland areas or areas of lighter snow cover where they can dig through the snow to feed on lichens, reindeer moss and dried sedges. On the north side of the range, they are usually found east of the Dalton Highway in the area of the upper Sagavanirktok River foothills and some as far east as the Canning River, but may be found west of the highway in the uplands of the Itkillik, Kuparuk and Toolik River drainages. Since the mid 1990's, the CAH has wintered on the south side of the range from the Chandalar Shelf to as far east as the Arctic Village area.

Spring: Pregnant cows arrive on the coastal plain between early May and early June, and calving occurs between the last week of May and the second week of June. Other caribou arrive by early July. The CAH's summer range extends from Fish Creek just west of the Colville River, eastward along the coast to the Katakturuk River.

Summer: The summer range extends from Fish Creek just west of the Colville River and eastward along the coast to the Katakturuk River. At times caribou may move into the foothills of the Brooks Range during the summer months. Movement within the North Slope area between the summer and winter ranges is inconsistent, but predominantly north-south along river corridors through mountain passes. But some may take routes straight over mountains.

Fall: The southern fall migration occurs between mid-August and early November, primarily within the Itkillik, Kuparuk, Sagavanirktok, and Ivishak river valleys. A gradual southward fall migration generally occurs in mid-August. During the mating season (rut) in October, large concentrations can be found from Galbraith Lake to the upper Sagavanirktok River and Accomplishment Creek on the north side of the Brooks Range to the Chandalar Shelf and upper Chandalar River.

Western Arctic Herd (WAH): The WAH, Alaska's largest herd, numbered about 235,000 in July 2013. This number represents a decline of 90,000 or about 27 percent over the prior two years and less than half its peak population in 2003²⁴ of approximately 490,000. The WAH range over 140,000 square miles of northwestern Alaska, including the mountains, foothills, Coastal Plain west of the Trans-Alaska Pipeline System to as far south as the Seward Peninsula.

Winter The winter Range of the WAH varies from year to year. Before the mid-1970s, a substantial portion of the herd wintered north of the Brooks Range or near Wiseman and Anaktuvuk Pass. Since the mid-1970s, the primary winter range has been south of the Brooks Range along the northern fringe of the boreal forest. However, between 1983 and 2005, up to 29 percent of radio-collared WAH caribou wintered on the North Slope south of the coastal plain and west of the Dalton Highway.

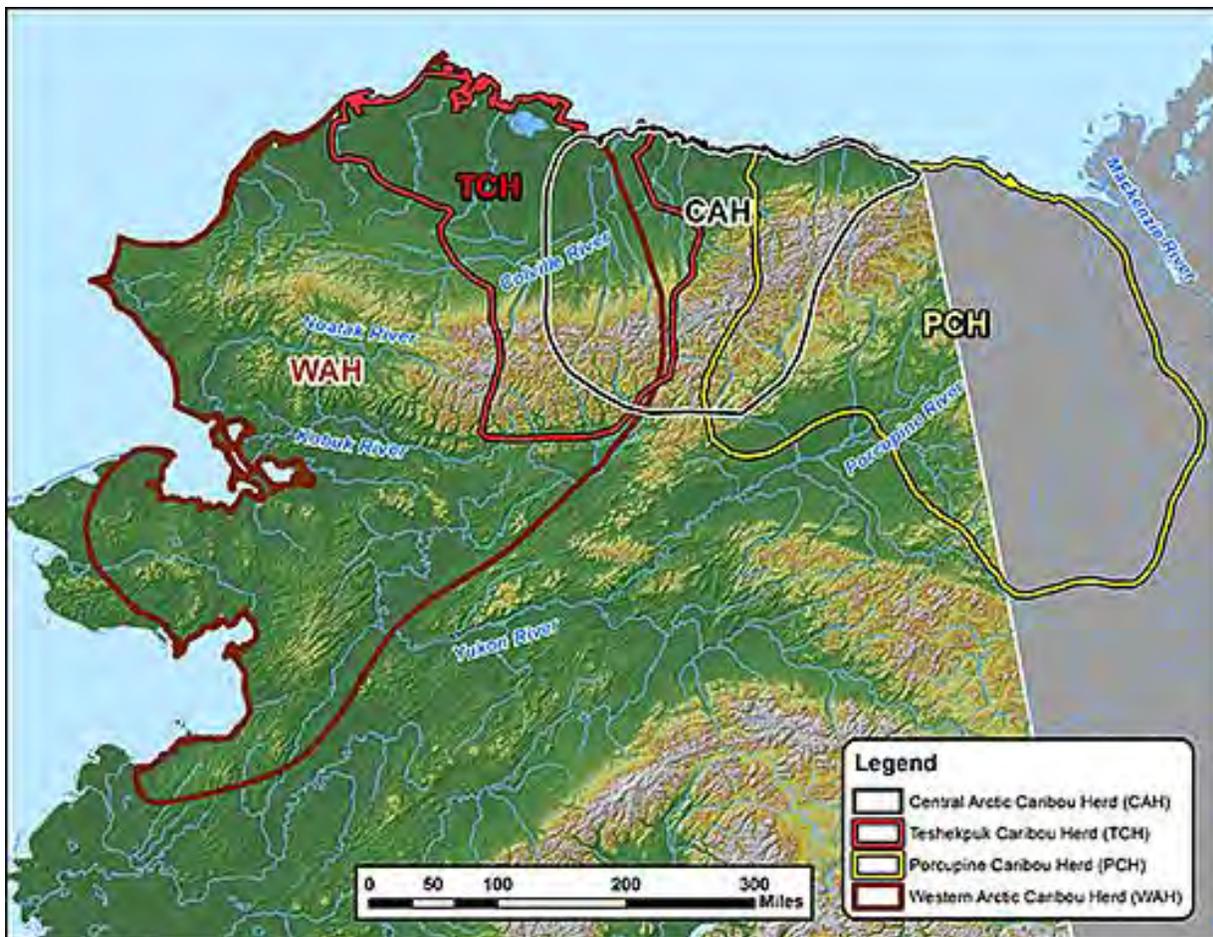
²⁴ Alaska Department of Fish and Game. 2014. *Western Arctic Herd Declines*. Caribou Trails Magazine. Summer 2014; Issue 14.

Spring: Spring migration begins in April although severe weather and deep snow can delay spring migration from the Brooks Range.

Summer During late- June to mid-August, caribou seek relief from insects along coastal areas (sandbars, spits, river deltas, and barrier islands) and uplands (foothills, snow patches and sand dunes) where winds prevent insects from concentrating. Radio telemetry data indicate that the vast majority of the WAH use the western North Slope and Brooks Range during the summer.

Fall: A gradual southward fall migration generally occurs after the insect season ends in mid-August. During recent years, caribou have begun their southerly migration later in the season and pause at different locations, sometimes staying in one place for two or three weeks at a time.

Map 3: Anaktuvuk Pass Caribou Range ²⁵



²⁵ Alaska Department of Game & Fish. 2014. *Alaska Fish & Wildlife News*. www.adfg.alaska.gov/index.cfm?adfg=wildlifeneews.view_article&articles_id=678. August. Accessed Jan. 8, 2016.

3.5 Wildlife Regulation

Endangered and Threatened Species. The federal Endangered Species Act protects both threatened and endangered species. The Act defines *endangered species* as “any species which is in danger of extinction throughout all or a significant portion of its range.” The term *threatened species* is defined as “any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.”²⁶ Two federal government agencies manage endangered and threatened species in the region: the U.S. Fish and Wildlife (USFWS) within the U.S. Department of the Interior and the National Marine Fisheries Service (NMFS) within the U.S. Department of Commerce.

The table below presents the threatened and endangered species within the Anaktuvuk Pass Area of Influence. Three migratory bird species are classified as threatened by the Secretary of the Interior under the Endangered Species Act. The Spectacled eider (listed in 1993) and the Steller’s eider (listed in 1997) are both are medium-sized sea ducks. The Eskimo curlew, believed to be extinct, was listed in 1967. The habitats of all the species in Table 2 are generally believed to be outside of the village of Anaktuvuk Pass.

Table 2: Threatened and Endangered Species within the Anaktuvuk Pass Area of Influence²⁷

Threatened Species
Steller’s eider (<i>Polysticta stelleri</i>)
Spectacled eider (<i>Somateria fischeri</i>)
Polar Bear (<i>Ursus maritimus</i>)
Endangered Species
Eskimo curlew (<i>Numenius borealis</i>)

New Hunting Regulations. The Western Arctic Caribou Herd Working Group (WG) was established in 1997 whose purpose is to “ensure conservation of the Western Arctic caribou herd, safeguard the spiritual and cultural well-being of Alaska Natives and the interests of all users of the herd, and to integrate indigenous knowledge with Western Science.”²⁸ This non-regulatory group of 20 individuals includes subsistence users, other Alaskan hunters, reindeer herders, hunting guides, transporters and conservationists. Staff from U.S. Fish & Wildlife Service, Alaska Department of Fish & Game, National Park Service and Bureau of Land Management provide support services to the group. The group identifies

²⁶ U.S. Department of the Interior. 2015. Fish and Wildlife Service. What Is the Difference Between Endangered and Threatened? www.fws.gov/midwest/wolf/esastatus/e-vs-t.htm. Accessed Jan. 6, 2016.

²⁷ U.S. Department of the Interior. 2016. Fish and Wildlife Service. *IPaC Information for Planning and Conservation*. <http://ecos.fws.gov/ipac>. Accessed Jan 8, 2016.

²⁸ U.S. Department of the Interior. 2015. Fish and Wildlife Service. *Western Arctic Caribou Herd Working Group*. www.fws.gov/refuge/Selawik/what_we_do/caribouworkinggroup.html. Accessed Jan. 10, 2016.

concerns, requests information and advocates for actions that will conserve and benefit the herd, including habitat studies or protections from the impacts of development.

The Western Arctic Caribou Herd Working Group's Cooperative Management Plan (CMP) has caribou management recommendations based on four levels of both population size and population trend. The latest WAH population count in 2013 coupled with the herd's declining trend over the past decade puts the herd below the *Liberal Management* level and into the *Conservative Management* level where conservation measures are outlined in the Plan. The Plan also includes conservation measures for a continued decline.²⁹

Due to population declines in both the Western Arctic and Teshekpuk herds, The Alaska Board of Game has made changes to the state's hunting regulations. The new regulations are based on guidelines set by the CMP that include: 1) stop the harvest of calves by all hunters; 2) close the nonresident cow season; and 3) begin reducing the harvest of bulls by nonresidents. An agreement by Advisory Committees across the range of the WAH also recommended reducing harvests. Additional recommendations to prohibit the harvest of cows with calves and creating daily quotas for bulls and cows were presented to the Board. For most of the range of the WAH, the bag limit under the new state regulations will remain at five caribou per day and there will not be a time during the year when caribou hunting is completely closed. However, for residents, depending on the date, hunters will be able to take either bulls or cows, and at some times of the year they will be able to take caribou of either sex. Season dates and bag limits for caribou hunting under state regulations by resident and nonresident hunters are delineated by Game Management Unit.³⁰

3.6 Climate and Climate Change

The climate of Anaktuvuk Pass is characterized by long cold winters, short summers, low precipitation, and persistent winds. Due to its high elevation, summers are cooler than surrounding areas. The average temperature in January is -14° Fahrenheit (F) while average temperatures in the summer reach 50° F. The maximum record low was -56° F and the recorded high was 91° F. For well over 200 days each year, the temperature does not rise above freezing. Streams and lakes in the area are generally covered with ice from late September until the middle of May.

Anaktuvuk Pass receives about 11 inches of rainfall a year and snowfall averages about 62 inches annually. The wettest months are June through September. The mean annual wind speed is eight to 10 miles per hour with northerly winds prevailing most of the year. The community experiences strong northerly or southerly winds from January through April, often with gale force or stronger. High winds and loose snow produce blizzard conditions and wind chill temperatures can reach -75° F. Extreme cold (-40° to -60° F) and ice fog may remain for a sustained period, often a week at a time.

²⁹ Alaska Department of Fish and Game. 2015. *New Caribou Hunting Rules in Effect*. Caribou Trails. Summer 2015; Issue 15. http://westernarcticcaribou.org/wp-content/uploads/2015/07/CT2015-FINAL-06_15_15_lowres-1.pdf

³⁰ Ibid

Similar to other communities within the North Slope Borough, Anaktuvuk Pass is experiencing impacts from climate change. Climate change in the Arctic is occurring much more quickly than in other regions. Over the past 50 years, the annual temperatures in Alaska have increased by an average of 3.4° F and winter warming has been even greater, rising by an average of 6.3° F.³¹

Higher levels of ultraviolet (UV) radiation in the Arctic are due to greenhouse gas effects of the stratospheric ozone temperatures and are projected to remain elevated. Increased UV exposure can cause skin cancer, cataracts, and immune system disorders in humans. Elevated UV can disrupt photosynthesis in plants and can have detrimental effects on the early life states of fish and amphibians. Risks are greatest in the spring when sensitive species are most vulnerable, and warming-related declines in snow and ice cover increase exposure for organisms normally protected by such cover.³²

There is increasing evidence that shrubs are expanding into tundra regions as the earth continues to warm. As shrubs expand northward, temperatures are expected to continue to increase and moisture levels to decrease, creating an environment that has a greater susceptibility to wildland fires.³³ Tundra fires can occur as early as May, but most ignitions occur by lightning strikes which peak in June and July. These fires are most often stopped by discontinuities in vegetation, wetland areas or by physical obstructions. The severity of the burns depends on the amount of moisture in the active layer. Small fires are characterized by consumption of no more than the fine surface vegetation of the active layer while larger fires burn to varying degrees into the below surface decaying organic material. The Anaktuvuk River Fire in 2007 burned a total of 256,000 acres. Because there has not been a lot of study on Alaska tundra fires, it is difficult to know if this fire was a rare event or an indication of global warming.³⁴ Additional information is provided on the Anaktuvuk Pass River Fire in Section 3.7 Weather Hazards.

Arctic permafrost can give off large quantities of both carbon dioxide and methane when it thaws. As temperatures rise in the Arctic, there is increasing concern that thawing permafrost will become a major contributor to the greenhouse gas emissions. As the permafrost heats up from temperature increases, ice turns to water and permafrost turns to thawed mud. The mud is full of organic matter, such as plants and mossy peat, that have been locked in the soil for thousands of years. When microbes decompose the organic matter, they release both carbon dioxide and methane into the atmosphere. The prevailing belief

³¹ U.S. Environmental Protection Agency. 2015. *Climate Impacts in Alaska*. www3.epa.gov/climatechange/impacts-adaptation-renamed/alaska.html. Accessed Jan. 13, 2016

³² Norwegian Polar Institute. 2016. The Arctic System. *The Amount of UV Radiation to the Arctic is Increasing*. www.arcticsystem.no/en/outsideworld/sunlight/increasing-UV.html. Accessed Jan 13 2016

³³ Science Daily. 2008. *Warming Climate May Cause Arctic Tundra to Burn*. www.sciencedaily.com/releases/2008/03/080304200902.htm. Mar. 5. Accessed Jan. 13, 2016.

³⁴ U.S. Department of the Interior. 2013. Bureau of Land Management. *Northeast NPR-A Supplemental IAP/EIS*. www.blm.gov/style/medialib/blm/ak/aktest/planning/ne_npra_final_supplement.Par.28170.File.dat/npra_final_chapter3.pdf. Accessed Jan. 16, 2016.

is that melting permafrost contributes to a release of greenhouse gases and global warming and further permafrost thaw.^{35 36}

Climate change will likely alter subsistence activities for Anaktuvuk Pass residents; the only uncertainty is the exact nature and extend of the change. Effects of climate change on subsistence are discussed in Chapter 4. Additionally, Appendix D contains climate change impacts and potential adaptation strategies for the village.

3.7 Weather Hazards

The North Slope Borough has identified a number of natural hazards facing Anaktuvuk Pass in the 2005 Anaktuvuk Pass Local All Hazards Mitigation Plan and the 2015 update for the North Slope Borough Local All-Hazard Mitigation Plan. Unless otherwise noted, the information in this section was obtained from these two hazard plans.

According to the 2015 North Slope Borough Local All-Hazard Mitigation Plan and 2005 Anaktuvuk Pass Local All Hazards Mitigation Plan, the hazards that pose the greatest risks to the community include riverine erosion, flooding, permafrost thaw, heavy snow, snow drifts, severe winter storms and tundra fires. Weather related hazards pose some of most significant threats, as does the impacts of climate change.

Riverine Erosion: Riverine erosion is the wearing away of riverbanks and riverbeds over time. This type of erosion has been an issue in Anaktuvuk Pass. In 2012, Contact Creek Bridge was replaced to address this issue. Additionally, sacrificial gravel is placed outside existing gabions annually as an erosion control measure to protect the riverbank.

Snowmelt Flooding: Although the water level of the Contact Creek rises during the spring melt-off, the river has not crested its banks in the community since it was channelized in the 1980s. Little Contact Creek, which runs north of the community, floods every spring. While there have not been recent reports of damage to homes or property, a year with exceptionally heavy snowfall in the surrounding Brooks Range could result in flooding at Little Contract Creek.³⁷

Alluvial Fan Flooding: Alluvial fans are areas of eroded rock and soil deposited by rivers. When various forms of debris fills the existing river channels on the alluvial fan, the water overflows and is forced to cut

³⁵ Aljazeera America. 2015. *Permafrost: What Lies Beneath. Frozen Soils Contain Clues about a Changing Climate and Other Surprises.* <http://america.aljazeera.com/watch/shows/techknow/articles/2015/12/21/permafrost-what-lies-beneath1.html>. Jan. 4. Accessed Mar.23, 2016.

³⁶ Hollesen, Jorgen, et al. 2015. *Permafrost Thawing in Organic Arctic Soils Accelerated by Ground Heat Production.* Nature Climate Change. Volume 5. June. www.nature.com/nclimate/journal/v5/n6/full/nclimate2590.html. Accessed Mar. 23, 2016.

³⁷ North Slope Borough. 2004. *City of Anaktuvuk Pass Local All Hazard Mitigation Plan.* Prepared by Joe Stankiewicz, North Slope Borough Risk Management Division.

a new channel. Fast, debris filled water causes erosion and flooding problems over large areas. This type of flooding is an annual event on the Little Contact Creek, which runs north of the community. Water from the Little Contact Creek washes over the banks and runs onto the tundra near Poker Hill Road and then the floodwaters submerge Main Street, until they eventually drain through culverts under the road. There has not been any damage reported from this type of flooding.³⁸

Wind: Although less frequent than in coastal areas, high winds that exceed 60 mph pose a moderate threat. Wind chills of down to -45° F are common and can threaten human life. Wind storms can also damage buildings and infrastructure, especially above-ground utility lines and reduce air quality, which can affect subsistence foods.

Heavy Snow and Snow Drifts: Heavy snow, generally more than 12 inches of accumulation in less than 24 hours, can immobilize a community. Accumulation of snow can cause roofs to collapse, knock down power lines and halt transportation, both on air and ground travel. In the mountains surrounding Anaktuvuk Pass, heavy snow can lead to avalanches, although no history of such an event threatening the community has been discovered. While heavy snow is a rare occurrence, drifting snow inhibits operation of aircraft and vehicles, including school buses and emergency response vehicles.

Extreme Cold: Extreme cold can halt air traffic due to ice fog. In addition, fuel can congeal leading to power outages which can in turn result in freezing water and sewer pipes.

Thunder Storms: Thunder storms pose a low risk with an average of one storm per year. However, in 2007 a severe tundra wildfire was started by a lightning strike.

Tundra Fire: Climate change is believed to increase the occurrence of tundra fires.³⁹ Tundra fires are rare in the North Slope, the occurrence of such fires are predicted to increase as a result of higher temperatures, drying tundra, low summer rains and increased lightning strikes due to climate change.⁴⁰ A 2007 fire along the Anaktuvuk River, started by a lightning strike, burned 256,000 acres over a period from July through the end of September. The fire was so severe that it burned wetlands that usually prevent its spread across the tundra. A high percentage of caribou winter diet in the area is lichens. Since lichens are absent for some years post-fire, the fire reduced forage availability for caribou and altered their migration routes away from the area.

³⁸ North Slope Borough. 2004. *City of Anaktuvuk Pass Local All Hazard Mitigation Plan*. Prepared by Joe Stankiewicz, North Slope Borough Risk Management Division.

³⁹ U.S. Department of the Interior. 2011. Bureau of Land Management. *NPR-A Climate Change Analysis: An Assessment of Climate Change Variables in the National Petroleum Reserve in Alaska*. SNAP: Scenarios Network for Alaska and Arctic Planning. University of Alaska. www.snap.uaf.edu/attachments/NPRA_Climate_Change_Analysis_2011.pdf. Accessed March 24, 2014.

⁴⁰ Jandt, et al. 2012. *Findings of Anaktuvuk River Fire Recovery Study, 2007-2011*. www.frames.gov/files/9613/9881/3547/Anaktuvuk_River_Fire_Study_FINAL_6-21-12.pdf. Accessed Jan. 15, 2016.

Drought in the organic mat of the tundra and sustained southerly winds during late summer when vegetation had started to die off appeared to be factors in the unusually large fire. The drought conditions were coincident with record low Arctic Ocean pack ice adjacent to the coast that could have resulted in warmer, dryer conditions and an unusual number of thunderstorms.⁴¹

Permafrost Thaw: Subsidence, or ground failure due to the thawing of the upper layer of permafrost, has recently occurred in villages within the North Slope Borough. Subsidence due to permafrost thaw from higher temperatures is a significant risk to Anaktuvuk Pass. In addition to threats to homes, thawing permafrost can impact public buildings, utilities and roads. During the summer of 2004, village residents reported subsidence throughout the community, including areas along Main Street that dropped two feet while some buildings became uneven. Some residents had to place gravel under their stairways, as subsidence caused the steps to sag and tilt. The floors of homes and businesses were also reported to sag unevenly.⁴²

Landslide: In 1997, a landslide occurred near the John River, 14 miles southeast of Anaktuvuk Pass; another occurred on Ingstand Mountain, five miles east of Anaktuvuk Pass.⁴³ Debris did not reach the community from either landslide. The 2005 North Slope Borough Hazard Mitigation Plan, updated in 2015, indicates that landslides are a low to moderate risk to the community.⁴⁴

3.8 Contaminated Sites

The Alaska Department of Conservation defines a contaminated site as “a location where hazardous substances, including petroleum products, have been improperly disposed.” Contaminated sites that have not been cleaned up have the potential to threaten public health or the environment and can potentially cause economic hardship to people and communities. ADEC identified 14 contaminated sites in the Anaktuvuk Pass area. The majority of these sites are related to the Trans Alaska Pipeline System. The only contaminated sites identified by the State of Alaska within the Anaktuvuk Pass city boundary are the Anaktuvuk Pass Power Plant, NSB Anaktuvuk Pass Pumphouse and the NSB Anaktuvuk Pass Former Drum Storage and Stockpile. Contaminated sites within the Anaktuvuk Pass area are listed in Table 3 and illustrated in Map 4. Additional information on these contaminated sites including closure details and cleanup chronology can be found on the ADEC Contaminated Sites Program website.⁴⁵

⁴¹ Jandt, et al. 2012. *Findings of Anaktuvuk River Fire Recovery Study, 2007-2011*. www.frames.gov/files/9613/9881/3547/Anaktuvuk_River_Fire_Study_FINAL_6-21-12.pdf. Accessed Jan. 15, 2016.

⁴² North Slope Borough. *2015 North Slope Borough Hazard Mitigation Plan*.

⁴³ Ibid.

⁴⁴ North Slope Borough. 2004. *City of Anaktuvuk Pass Local All Hazard Mitigation Plan*. Prepared by Joe Stankiewicz, North Slope Borough Risk Management Division.

⁴⁵ Alaska Department of Environmental Conservation. 2015. Division of Spill Prevention and Response, Contaminated Sites Program. <http://dec.alaska.gov/Applications/SPAR/PublicMVC/CSP/Search>. Accessed February 5, 2016.

The Anaktuvuk Pass Tri-lateral Committee has indicated that although the Alaska Department of Conservation indicates that the former Anaktuvuk Pass Power Plant clean-up is complete, the small creek that runs adjacent to the plant appears contaminated and that the former power plant, now abandoned, should be demolished. The Tri-lateral Committee also identified a surplus of power poles located on the former power plant site as a safety hazard, especially for children that are known to play in the area.^{46, 47} Additionally, a former teacher duplex, located between Nunamiut School and Nunamiut Corporation has not been used in many years and should be demolished and the site remediated as needed.

The Tri-lateral has expressed concern over two other sites included on the State of Alaska contaminated sites database. The Anaktuvuk Pass Native American Land Environmental Mitigation Program (NALEMP) Chandler Lakes Research Camp, Hazard ID number 25980, has been cleaned up, according to the Tri-lateral committee. The barrels that were removed from the site, however, are now stored in front of the Tribal office. Reportedly, funding was exhausted before the barrels were disposed of properly. Also, the committee reports that satellite images show clusters of barrels on the west shore of Chandler Lake, at the National Park Service (NPS) Anaktuvuk Pass Chandler Lakes Research Camp, Hazard ID number 26265.^{48, 49}

Table 3: Contaminated Sites in the Anaktuvuk Pass Area⁵⁰

Hazard ID	Site Name	Location	Alaska Department of Conservation Status	Site Type
17	BLM Alyeska Galbraith Camp	Mile 275 Dalton Highway	Cleanup Complete - Institutional Controls	Oilfield Services
167	Alyeska Pump Station (PS) 04 Deadleg Excavation	Mile 269 Dalton Highway	Open	Transmission Pipeline
1068	Anaktuvuk Pass Power Plant	Illinois Road	Cleanup Complete	Power Generation
1735	Alyeska PS 04 Fuel Island Area	Mile 269 Dalton Highway	Cleanup Complete	Transmission Pipeline
1967	Alyeska Galbraith Airport Generator	Galbraith Lake	Cleanup Complete	Unknown
2308	NSB Anaktuvuk Pass Pumphouse	West of Airstrip	Open	Non-Crude Terminal
2638	Chevron Tigkukpuk #1	18 miles north of Anaktuvuk	Cleanup Complete	Unknown
2964	Alyeska PS 04 Mainline Turbine Sump	Mile 269 Dalton Highway	Cleanup Complete - Institutional Controls	Transmission Pipeline

⁴⁶ Mekiana - Morry, Susan. 2016. Personal Communication. March 2, 2016.

⁴⁷ Anaktuvuk Pass. 2016. Tri-lateral Meeting. Feb. 11, 2016.

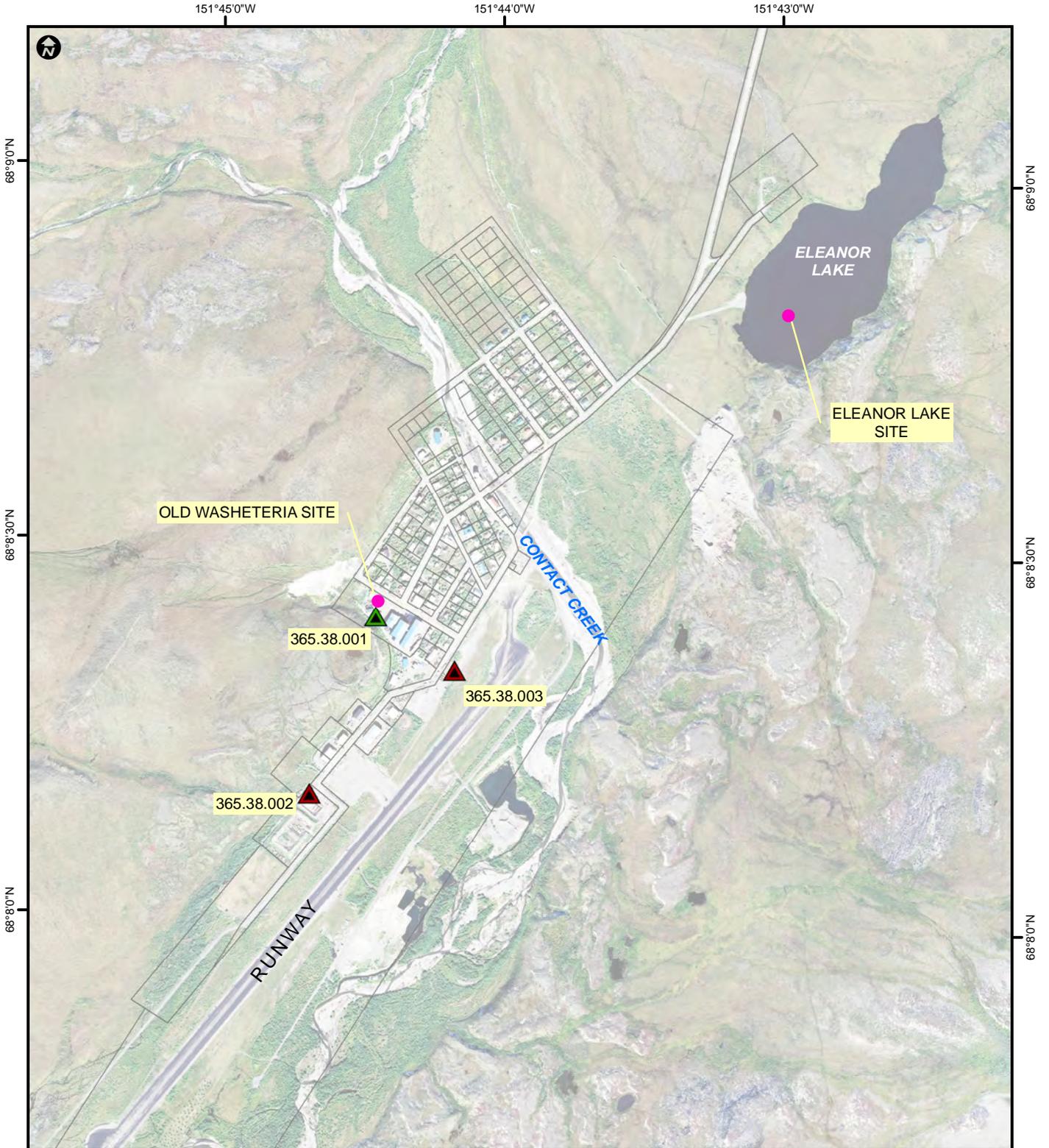
⁴⁸ Mekiana - Morry, Susan. 2016. Personal Communication. March 2, 2016.

⁴⁹ Anaktuvuk Pass. 2016. Tri-lateral Meeting. Feb. 11, 2016.

⁵⁰ Alaska Department of Environmental Conservation. 2015. Division of Spill Prevention and Response, Contaminated Sites Program. <http://dec.alaska.gov/Applications/SPAR/PublicMVC/CSP/Search>. Accessed February 5, 2016.

Hazard ID	Site Name	Location	Alaska Department of Conservation Status	Site Type
3219	Alyeska Galbraith Airport Diesel	Galbraith Lake Airport	Cleanup Complete - Institutional Controls	Airport/Airfield
4168	Federal Aviation Administration (FAA) Umiat - Nondirectional Beacon (NDB)	Umiat	Cleanup Complete	Unknown
4540	AT&T Alascom Trans-Alaska Pipeline System (TAPS) Repeater Slope	~9 Miles S, SW of Pump Station 3	Cleanup Complete	Telecommunications
25363	NSB Anaktuvuk Pass Former Drum Storage and Stockpile	West of Airport Apron	Open	Landfill/Dump
25980	Anaktuvuk Pass Native American Land Environmental Mitigation Program (NALEMP) Chandler Lakes Research Camp	Chandler Lakes; ~25 Miles NW of Anaktuvuk Pass	Open	Military Installation - Base/Post/Other
26265	National Park Service (NPS) Anaktuvuk Pass Chandler Lakes Research Camp	Chandler lakes, ~25 Miles NW of Anaktuvuk Pass	Open	Park/Recreation Area

This page is intentionally left blank



NAD 83 State Plane Zone 4

ADEC SITE STATUS

- Active
- Cleanup Complete
- Identified as contaminated by AKP Tri-lateral Committee

IMAGERY: August 21, 2013 DCCED

DISCLAIMER
For informational purposes only.

ANAKTUVUK PASS, ALASKA
ADEC - CONTAMINATED SITES

Scale:
0 490 980 1,470 1,960 2,450 Feet

Map:
4

This page is intentionally left blank



Photo Credit: North Slope Borough. Iñupiat History, Language and Culture

Chapter 4. Subsistence

Subsistence is important for the people of Anaktuvuk Pass for both food and cultural sustenance. It is a common and traditional practice for residents to share their subsistence resources with others within and outside the community. The sharing of subsistence resources with family members, Elders, those who cannot hunt or fish, and other community members is an important Iñupiat value and a source of pride by people who give and receive those gifts.

Subsistence hunting, fishing, and gathering of food and fiber resources are part of the heart and soul of the community. The identity of the people of Anaktuvuk Pass extends far from the boundaries of the community (see Map 5). This area, also known as the Area of Influence, includes the land and water that is essential to the survival of the community. The Area of Influence encompasses the land, air, and waters of the wildlife populations upon which the Nunamiut depend. Because of the migratory nature of the wildlife, hunters must travel extensively to sustain physical and cultural needs as well as the needs of family and the community. Because the Iñupiat subsist on similar wildlife, the range of hunters from different villages often overlap.

This discussion on subsistence continues with a discussion of the definitions of subsistence, the community's subsistence Area of Influence, the community's subsistence harvest and subsistence vulnerabilities.

4.1 Definitions of Subsistence

Subsistence is generally defined as the customary and traditional use of natural resources for the direct personal or family consumption of food, shelter, fuel, clothing, tools, and transportation; for the making and selling of handicraft articles; and for sharing with elders or other persons who cannot hunt, fish or gather foods. The NSB Land Use Regulations (Title 19) define subsistence as “an activity performed in support of the basic beliefs and nutritional needs of the residents of the Borough and includes hunting, whaling, fishing, trapping, camping, food gathering, and other traditional and cultural activities.”⁵¹ For Anaktuvuk Pass residents, subsistence is the difference between thriving and starvation and is the essential means of continuing a traditional life way.⁵² Elders in the village recall years when caribou did not travel within hunting distance of the residents and residents died of starvation. In recent history, the absence of caribou within hunting distance has required other villages to share meat with Anaktuvuk Pass residents. Protecting the traditional migratory patterns of caribou, particularly avoiding shooting or harassing the vanguard herd, is essential to the survival of the community.

Figure 8: Easter Creek Caribou ⁵³



⁵¹ North Slope Borough. 2015. *North Slope Borough Municipal Code. Land Management Regulations, Title 19, Chapter 19.20.020.67.*

www.municode.com/library/ak/north_slope_borough/codes/code_of_ordinances. Accessed Jan. 6, 2016.

⁵² North Slope Borough. 1989. *NSB Coastal Management Program, Areas Meriting Special Attention, Phase 1 Report.* June.

⁵³ U.S. Department of the Interior. 2016. National Park Service. *Photo Gallery: Mammals.* Photo by Christopher Houlette. www.nps.gov/media/photo/gallery.htm?id=8298B53A-1DD8-B71C-0746418F1A71DA34

4.2 Subsistence Area of Influence

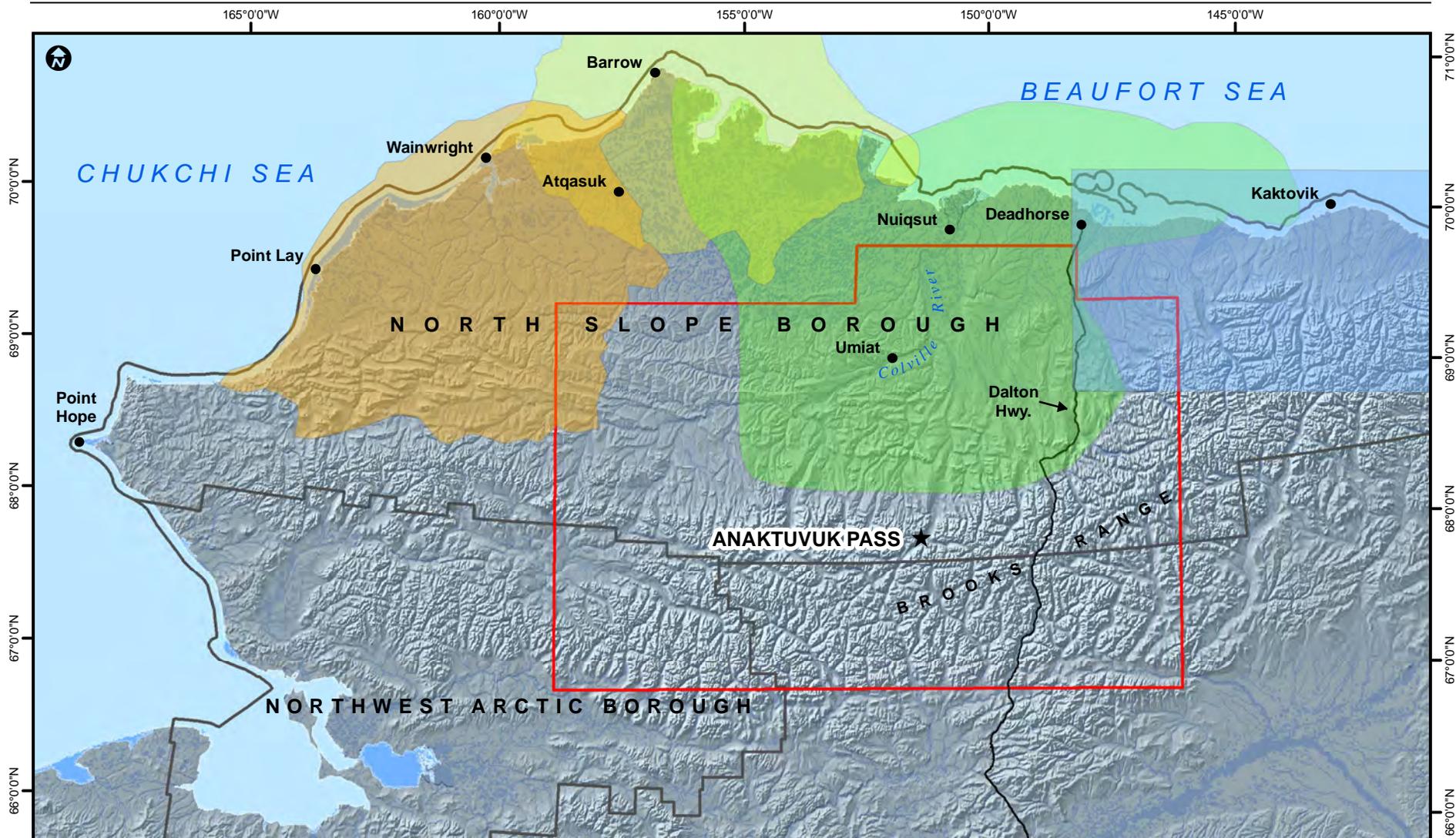
The Nunamiut's traditional subsistence range covers a 54,000 square-mile area, designated here as its Area of Influence, and is generally bound by the following resources:

- Southwest corner of the Area of Influence from the Ambler and Kobuk rivers to approximately 170 miles easterly to the John and Allen Rivers is the southern border. Continuing another 130 miles east to the Chandalar and East Fork of the Chandalar rivers to form the southeast corner of the Area of Influence.
- North from the Chandalar River approximately 180 miles to the northeast corner of the Area of Influence finds the Canning and Kavik rivers.
- West approximately 50 miles from the Canning River to the Sagavanirktok River and heading North approximately 25 miles to a location of 10 miles south of Deadhorse and continuing west approximately 100 miles and maintaining a border 10 miles south of Nuiqsut. Turning south for approximately 25 miles and continuing west approximately 140 miles finding the Meade and Kaksu Rivers to form the westerly extent of the Area of Influence.
- South approximately 180 miles returning to the Ambler and Kobuk Rivers.

A hunter can cover 200 miles a day in a snow machine compared to a third of that distance with a dog sled team. The frozen tundra and rivers typically accommodate snow machine travel for eight months of the year (October through May). When river water travel is available (typically from June, about a month after break-up, until October), a motorboat can accommodate a crew, gas and provisions for a two or three week hunting and fishing trip. For trips longer than one day, residents use camps and cabins they may spend extended periods of time. The Anaktuvuk Pass Area of Influence overlaps with other North Slope communities, as depicted in Map 5. The overlap is greatest with the Nuiqsut Area of Influence⁵⁴; Anaktuvuk Pass hunters also share a subsistence area with those in Kaktovik and Wainwright.

⁵⁴ The Nuiqsut Area of Influence depicted in Map 5 is the same area shown in the draft Nuiqsut Comprehensive Plan, which is still under development.

This page is intentionally left blank



-  Anaktuvuk Pass Area of Influence (AOI)
-  Borough Boundaries
-  Wainwright AOI
-  Barrow AOI
-  Draft Nuiqsut AOI
-  Kaktovik AOI

**Overlapping regions of AOI's will display mixed colors.

Coordinate System:
NAD 1983 Alaska Albers



DISCLAIMER
For informational purposes only.
Not for navigation

**ANAKTUVUK PASS, ALASKA
AREA OF INFLUENCE (AOI) MAP**



Map:

5



This page is intentionally left blank

4.3 Anaktuvuk Pass Subsistence Harvest

Hunting, fishing, and gathering of food and plants are essential subsistence activities, especially among Iñupiat households where the subsistence is an important source of food. The lands and waters where Anaktuvuk Pass residents hunt and fish cover a broad area and is shown on Map 5. Residents' primary subsistence resource is caribou.⁵⁵ Caribou comprise about 83 percent of Anaktuvuk Pass's total subsistence harvest. Historically, large numbers of caribou from the Western Arctic, Central Arctic, and Porcupine herds passed through the foothills of the Brooks Range into Anaktuvuk Pass. Nunamiut are taught by past generations to refrain from hunting in the north to ensure that the migrating caribou come through the Anaktuvuk Pass valley. This is especially important from late July through September.⁵⁶ While caribou are hunted year-round, the caribou are in their prime condition from August through October, so that is the most important time for hunting. Table 4 depicts Nunamiut hunting seasons. It was developed in 2010 with input from hunters from Anaktuvuk Pass. However, the caribou harvests, especially in late summer and fall, have been very low over the last decade. Residents have reported that there has not been a fall caribou harvest since about 2007. Thus, Table 4 represents typical hunting seasons, not necessarily recently successful ones.

Dall sheep, brown bear, and moose are also harvested. Birds and fish supplement terrestrial animals, especially when caribou numbers are low. Additionally, blueberries and salmonberries are plentiful in the Anaktuvuk Pass area from July to October.⁵⁷ Farther out from the village, Dall sheep, brown bear, and moose are hunted in August, September, and October. Ptarmigans are available year round and thus are the most important bird species in the area. However, a variety of geese and ducks are also harvested during their brief migration period through the area. Grayling, Arctic char, lake trout, and whitefish are also important food sources despite being a smaller component of the subsistence diet. Berries and Eskimo potatoes are harvested and salmonberries and blueberries are frequently plentiful in the area.

The area north of Anaktuvuk Pass encompassing the Chandler and Anaktuvuk River drainages is important for subsistence activities. Due to the absence of large river systems in the area, residents of Anaktuvuk Pass are unable to boat to resources during the summer. Additionally, summertime off-road vehicle use is limited to areas within the boundaries of the Anaktuvuk Pass Land Exchange.

After the park was established in 1980, issues regarding off-road vehicle (ORV) use in the park wilderness needed to be resolved. The Anaktuvuk Pass Land Exchange was crafted between the Nunamiut Corporation, the City of Anaktuvuk Pass, the Arctic Slope Regional Corporation, and the National Park Service. The 1992 Final Legislative Environmental Impact Statement on All-Terrain Vehicles for

⁵⁵ Brower, H.K. and R.T. Opie. 1996. North Slope Borough Subsistence Harvest Documentation Project: Data for Anaktuvuk Pass, Alaska for the period July 1, 1994, to June 30, 1995. Technical Report. Department of Wildlife Management. North Slope Borough. Barrow. Revised version.

⁵⁶ Mekiana-Morry, Susan. 2016. Personal Communication. March 2, 2016.

⁵⁷ Alaska Department of Natural Resources. 2014. Division of Oil & Gas. Alaska Peninsula Current Best Interest Finding, Current and Projected Uses. <http://dog.dnr.alaska.gov/leasing/BestInterestFindings.htm>. Accessed Feb. 3, 2016.

Subsistence Use in Gates of the Arctic and Record of Decision, ratified by Congress in 1995, authorized an exchange of federal park and wilderness land with Native regional and village corporations. This agreement allows ATV access by Anaktuvuk Pass residents to pursue caribou and other subsistence resources within the Anaktuvuk Pass Land Exchange boundaries and also provides broad public access easements through ASRC and Nunamiut lands. This exchange was completed in 1996, but a complete survey of the lands was only finished recently. To allow for ATV access, the exchange deauthorized some park wilderness and designated new wilderness areas that were formerly ASRC and Nunamiut lands. The ATV as defined by the agreement, is a six or eight wheeled off-road vehicle with low-pressure tires and weighing a maximum 1,200 pounds empty or 2,000 pounds fully loaded. The Argo is a popular brand of ATV used by Anaktuvuk Pass residents.⁵⁸

Table 4: 2010 Major Subsistence Activities Calendar⁵⁹

Subsistence Resource	Winter					Spring		Summer			Fall	
	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct
Caribou	M	M	M	M	M	M	L	L	M	H	H	H
Moose										M	H	L
Wolf, wolverine	L	M	H	H	H	L						
Dall Sheep	L								M	H	H	H
Bear						L	L	L	L	M	M	M
Squirrel				L	L	M	M			L	L	
Hare				L	L	L	L					
Duck						M	H	H	M	L	L	
Geese						M	H	H	M	L	L	
Ptarmigan			L	M	H	H	M	L	L			
Lake Trout	L	L	L	M	H	H	H	H	H	H	M	L
Grayling	M	L	L	L	L	L	M	H	H	H	H	M
Arctic Char	L	L	L	M	H	H	H	H	H	H	M	L
Whitefish	L	M	H	H	M							
Key												
Blank	No harvest activity					M	Medium harvest activity					
L	Low harvest activity					H	Highest harvest activity					

⁵⁸ Chakuchin, H. Jobe. NEPA Specialist, Park Planner. National Park Service. Personal communication during public comment period. May 31, 2016.

⁶⁰ North Slope Borough. 2010. *North Slope Borough 2010 Economic Profile and Census Report*. Prepared by Circumpolar Research Associates Shepro, C., Maas, C. and D. Gallaway with J. McAnich for the North Slope Borough. www.north-slope.org/your-government/census-2010 North Slope Borough.

4.4 Subsistence Economy

In Anaktuvuk Pass, as in other North Slope villages, residents survive in a mixed economy with the following main components: (1) harvest local food and fiber resources; (2) barter food for services; (3) food and services sharing with Elders, those who cannot participate in harvest activities and the community at-large; (4) Nunamiut Corporation and ASRC Regional Corporation dividend incomes; (5) Alaska Permanent Fund dividend income; and (6) wage labor. However, to the Anaktuvuk Pass individual and family, harvesting of area wildlife is necessary for food, clothing, and trade as well as cultural identity.

According to the most recent available North Slope Borough Economic Profile and Census Report (2015), 98.6 percent of Anaktuvuk Pass Iñupiaq households used subsistence foods, down from 100 percent in 2010; 70.9 percent depended on subsistence foods for half or more of their diet and 1.4 percent of the Iñupiat households depended on subsistence foods for all of their diet.^{60 61} The percent of Anaktuvuk Pass Iñupiat households receiving less than half of their diet from subsistence foods has increased over the last decade and a half. In 1998, 25 percent received less than half of their diet from subsistence foods, increasing to 29 percent by 2015.⁶² Iñupiat households in Anaktuvuk Pass reported a 61 percent decrease in hunting activities over the past five years. Fishing and gathering activities have also reportedly decreased over the last five years; 35 percent of Iñupiat households stated that fishing has decreased and 41 percent noted a decrease in gathering. Residents also report an increase in both subsistence trips and distance traveled for subsistence activities over the same time period.⁶³

Sharing the harvest is an important aspect in subsistence life way. In 2015, 45 percent of Anaktuvuk Pass households received half or more of their subsistence diet from other households and 35 percent of households shared half or more of their harvests with others in the community.⁶⁴ Of those Anaktuvuk Pass households that share subsistence food, 100 percent share within the community, up from 62 percent in 1998 and 97 percent in 2010. Sharing with other communities has also increased over the same timeframe. Sharing with other North Slope Borough communities increased from 32 percent in 1998 to 49 percent in 2015; with NANA communities from 0 percent to six percent; with Anchorage from 0 percent to 22 percent; and with Fairbanks from six percent to 33 percent.⁶⁵

In 2010, Anaktuvuk Pass had a high dependency ratio: just under 34 percent of the population was under the age of 17 and nearly 3 percent was over the age of 64 — both groups are dependent upon able adults for subsistence hunting and sharing. The 2010-2014 American Community Survey (ACS) 5-Year Estimates

⁶⁰ North Slope Borough. 2010. *North Slope Borough 2010 Economic Profile and Census Report*. Prepared by Circumpolar Research Associates Shepro, C., Maas, C. and D. Gallaway with J. McAnich for the North Slope Borough. www.north-slope.org/your-government/census-2010North Slope Borough.

⁶¹ North Slope Borough. 2015. Unpublished. Draft *North Slope Borough 2015 Economic Profile and Census Report*. Prepared by Circumpolar Research Associates Shepro, C., Maas, C. and D. Gallaway for the North Slope Borough.

⁶² Ibid

⁶³ Ibid

⁶⁴ Ibid

⁶⁵ Ibid

reports that approximately 18.9 percent of households had income below the federally-designated poverty level, placing further stress and importance on the need for subsistence hunting, fishing, and gathering by residents who are of age and able to engage in this costly and vigorous activity.⁶⁶

Subsistence activities require substantial finances to purchase costly transport (snow machines, ATVs, boats, sleds, parts and fuel), tools (ammunition, firearms, nets, floats and harpoons), and food preparation and storage materials (knives, smokers, freezers, pots and pans). Dividend income and local employment provide the means to purchase tools, equipment and supplies that make traditional subsistence harvest activities more time-efficient. Families use their income to purchase 4 to 6-wheeled Argo all-terrain vehicles, snow machines, boats, fuel, rifles, ammunition, nets, sheds, fish wheels, traps, knives, rope, baskets, tubs, freezers, and other tools of the trade. The Anaktuvuk Pass community lacks the equipment, such as boats, that other NSB communities have. This may put them at a disadvantage compared to other communities.

Subsistence activities are not oriented toward sales or profits but rather, are focused on meeting the nutritional and clothing needs of their families, crews and other village residents. Some parts of the harvest are used for clothing, food for dogs, and handicrafts for sale. The combination of wage employment, dividend income, and subsistence activities sustains the community and is the economic basis for the subsistence way of life so highly valued in the village. A 2003 NSB Census survey revealed that about 20 percent of Anaktuvuk Pass households receive income from craft sales in part derived from harvested animals; this topic was not surveyed in the 2010 or 2015 NSB Censuses.⁶⁷

The fishing and hunting areas of Anaktuvuk Pass residents cover an approximately 25,600 square mile area. Hunters must cover considerable ground to harvest terrestrial animals. As such, use of snow machines is an efficient tool and, therefore, money for these vehicles, their maintenance and repair, and fuel, along with rifles and ammunition, is a requirement for subsistence living. Often, a hunter must work in wage employment during the weekday and hunt and fish in the summer evenings or on the weekends; this emphasizes the need for a speedy land or water craft to make efficient use of this limited time for hunting and harvesting. The NSB Census revealed that the average subsistence household spent about \$3,752 on supplies and tools for this activity in 2010 and \$6,435 in 2015.^{68 69}

⁶⁶ U.S. Census Bureau. 2014. *2010 – 2014 American Community Survey 5-Year Estimates – Anaktuvuk Pass City, North Slope Borough, Alaska State*. <http://factfinder.census.gov>. Accessed Jan 22, 2016.

⁶⁷ North Slope Borough. 2003. *North Slope Borough 2003 Economic Profile and Census Report*. Prepared by Circumpolar Research Associates Shepro, C., Maas, C. and D. Gallaway.

⁶⁸ North Slope Borough. 2010. *North Slope Borough 2010 Economic Profile and Census Report*. Prepared by Circumpolar Research Associates Shepro, C., Maas, C. and D. Gallaway with J. McAnich for the North Slope Borough. www.north-slope.org/your-government/census-2010North Slope Borough.

⁶⁹ North Slope Borough. 2015. Unpublished. Draft *North Slope Borough 2015 Economic Profile and Census Report*. Prepared by Circumpolar Research Associates Shepro, C., Maas, C. and D. Gallaway for the North Slope Borough.

Trade and sharing of resources has always been a cornerstone of the Nunamiut way of life. Pre-Western contact, the people traded with the coastal Iñupiat at Nigliq and Barrow and with the Athabaskans to the south.⁷⁰ The coastal Iñupiat provided seal oil and ugruk skins and guns and other goods. Eventually, the Nunamiut began trading for guns and other Western goods provided by whalers even before outsiders visited the Anaktuvuk Pass areas. Indians from the Kobuk region traveled to Hunt Fork to obtain sinew and caribou skins.

The Iñupiat share their subsistence resources with others in the community and often with other communities within the North Slope Borough and as far away as when the need arises. In years past, the villages of Nuiqsut and Barrow have shared food supplies with Anaktuvuk Pass when the caribou did not arrive.⁷¹

4.5 Subsistence Vulnerabilities

Subsistence resources and users within the community's Area of Influence are vulnerable to a number of activities as well as climate change. Disturbance to subsistence resources can alter animal migration patterns and cause hunters to travel greater distances which increases their expenses and exposure to hazards. Some of the activities with the potential to affect subsistence activities are summarized below. The availability of subsistence resources in the community's Area of Influence and residents' access to those resources may change due to the impacts of sport hunting, commercial recreation, scientific studies, and road construction within the area, as well as to the effects of climate change, such as tundra fires. Sport hunters shooting the vanguard of the caribou herds, low flying aircraft harassing wildlife, and the draining of lakes for ice roads can alter wildlife ecosystems and migratory patterns, causing hunters to travel greater distances or potentially miss hunting opportunities entirely. Late freeze-up can limit snow machine access to the tundra for caribou hunts; and accelerated thawing of the permafrost can release methane gases that can alter food sources for mammals, fish and fowl, which may result, in the long-term, to food scarcity. In the future, warmer summers may breed a greater number of mosquitoes or other pests which harass caribou populations, altering the timing and route of their travels. Melting permafrost may lower the surface level of fresh water lakes. Drier summers may also reduce lake water levels and alter fish habitat. Lastly, loss of wage income related to decreased oil development and revenues on the North Slope, over time, may reduce the ability to afford modern hunting equipment.

The Nunamiut have had, and continue to have, a tremendous capacity to adapt to change and to persevere. Through the comings and goings of wage labor and resource scarcity during the eras of commercial whaling, fur trading, reindeer herding, military installations, and now, oil development, the Nunamiut have retained their hunting, fishing, gathering and sharing skills and social networks. In the

⁷⁰ Rausch, R. 1951. *Notes on the Nunamiut Eskimo and Mammals of the Anaktuvuk Pass Region, Brooks Range, Alaska*. Arctic Magazine: 4(3), December.

⁷¹ North Slope Borough. 2003. *North Slope Borough 2003 Economic Profile and Census Report*. Prepared by Circumpolar Research Associates Shepro, C., Maas, C. and D. Gallaway.

face of new circumstances and vulnerabilities, it is expected that existing and future village Elders will continue to share with their youth their knowledge of traditional tools and equipment, the variability of ecosystems and weather, wildlife harvesting skills, and environmental stewardship to facilitate the community's adaptation to climate and economic change for generations to come.

The United Caribou Association of the Nunamiut (UCAN) was established in 2014 for the Anaktuvuk Pass community to protect their primary source of subsistence foods as a united front. The community hopes that the Association will serve a similar function for Anaktuvuk Pass and other communities that depend on caribou for subsistence in the same way that the Alaska Eskimo Whaling Commission represents coastal arctic communities that rely on the bowhead whale. UCAN is controlled by the tri-lateral committee, made up of representatives from the City of Anaktuvuk Pass, the Naqsrarmiut Tribal Council, and the Nunamiut Corporation. They hope to protect subsistence activities and resources through local coordination and with the federal and state governments. Recently, UCAN submitted a letter to the Alaska Board of Game requesting to expand the Controlled Use Area.

Sport Hunters. Alaska resident and non-resident sport hunters, many of them bow hunters, access caribou hunting areas from the Dalton Highway. In 2010, about 1,500 sport hunters harvested approximately 900 Central Arctic Herd caribou. For the purpose of this discussion, sport hunters are defined as non-Iñupiat hunters who arrive alone or in groups, with or without a commercial guide. Commercial outfitters or guides require a North Slope Borough Commercial Recreation land use permit issued by the NSB Planning and Community Services Department. Non-guided hunters do not need a NSB Commercial Recreation land use permit, however they do need a hunting license as well as permission to hunt on land they do not own, as do Commercial Recreation guides. Some residents of Anaktuvuk Pass have expressed concern that the NSB does not notify residents of permits issued for game hunting until after permits are issued.

Sport hunters are included in this discussion of subsistence vulnerabilities because sport hunters practice a method of hunting that can be harmful to Anaktuvuk Pass subsistence hunters and their families. Low-flying aircraft from sport hunters can harass wildlife, particularly caribou. Often, commercial outfitters will target the vanguard of a herd, causing the rest of the animals to scatter. Changing migration patterns cause residents to travel greater distances, at greater expense and risk, to find and harvest their caribou. Animals are harder to find and when travelling greater distances. Hunters risk the meat spoiling before they can reach the village. In addition, sport hunters sometimes leave carcasses and meat on the tundra and take only the antlers. This practice is offensive to the subsistence users who rely on the caribou harvest.

Gates of the Arctic National Park and Preserve (GAAR) Restrictions. After the Park was established, NPS officials imposed a ban on ATV use on park lands. Anaktuvuk Pass residents needed access for subsistence hunting but the ban limited travel on traditional lands. Traditional hunting by foot and dog teams no longer provides adequate food for the village as these modes of transportation are slow and unsuited for

carrying large quantities of food to share with hunter's families, Elders, and other residents who cannot hunt. ATV and snow machine use is restricted to Native allotments that were selected as seasonal camps for subsistence activities, such as for picking berries or fishing. This means the Nunamiut cannot move between their traditional use areas within the Area of Influence, and Elders and the disabled cannot access their traditional allotments. This restriction is a threat to the health and well-being of the village that, coupled with the scattering of the caribou by sport hunters and low-flying aircraft, could result in food scarcity in the village.

In response to the need for ATV and snow machine access to subsistence resources within the Park, in the late 1980s the residents of Anaktuvuk Pass began negotiating an agreement between the NPS, the Arctic Slope Regional Corporation (ASRC), the City of Anaktuvuk Pass, and the Nunamiut Corporation for a four-way land exchange to establish an area near the village's traditional hunting grounds where motorized vehicles could travel on traditional lands without Anaktuvuk Pass hunters being arrested and their gear and meat being confiscated by NPS officials. This land exchange agreement was ratified by Congress in 1995 and provided ATV use on 126,632 acres of non-wilderness park land in exchange for relinquishing subsurface and surface development rights on 116,435 acres of Nunamiut Corporation lands. The agreement also provides public pedestrian and dog sled access across 148,484 acres of Native lands to reach NPS-administered lands.⁷²

All hunters within GAAR require a hunting license from the Alaska Department of Game and Fish (ADG&F), including residents within GAAR. Licensed sport hunters are allowed to hunt within the Itkillik and Kobuk Preserves, but not in the main part of the Park. Title VIII of the Alaska National Interest Lands Conservation Act (ANILCA) allows rural Alaskan to pursue subsistence uses on public lands except when the National Park Service, acting on behalf of the Secretary of the Interior, deems such activity to be limited as necessary for public safety, administration, or to assure the continued viability of a particular fish or wildlife population. Currently, federal subsistence wildlife regulations limits the number and the season for taking moose, caribou, musk ox, sheep, bear, coyote, fox, lynx, wolf, wolverine, and ptarmigan.

Anaktuvuk Pass Controlled Use Area. The Alaska Department of Fish and Game established the Anaktuvuk Pass Controlled Use Area, which encompasses approximately 3,250 square miles to the north, east and west of the village, as shown in Map 6. Within the Controlled Use Area lands are owned by the State of Alaska, ASRC, or the Nunamiut Corporation.

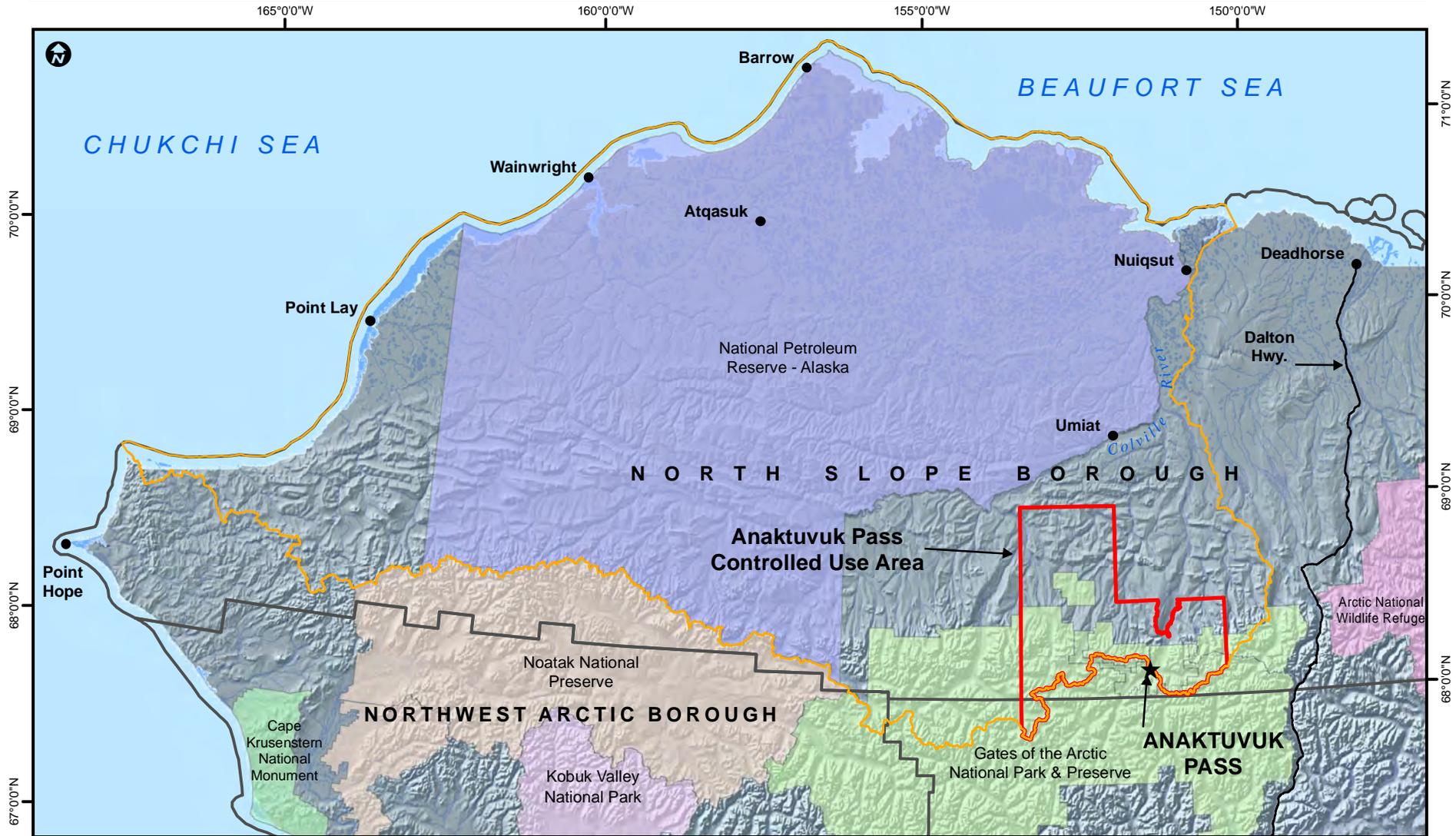
The Anaktuvuk Pass Controlled Use Area is closed to the use of aircraft for hunting caribou, including the transport of caribou hunters, their hunting gear, or parts of caribou during August 15 through October 15. However, this provision does not apply to the transport of caribou hunters, their gear or parts of caribou by aircraft between publicly-owned airports, such as the Anaktuvuk Pass airport. Hunters may land at the Anaktuvuk Pass airport and then trek into Preserve lands, State lands, Nunamiut Corporation lands, or

⁷² U.S. Department of the Interior. 1996. U.S. National Park Service. *Section 302 of the Omnibus Parks and Public Lands Management Act of 1996*. Public Law 104-333.

ASRC lands to hunt with permission from the owners. The intent of this designated Controlled Use Area, at least on the part of village residents, is to (1) better control sport hunters access to caribou herds; (2) better educate hunters about hunting etiquette and protocols; and (3) require sport hunters to secure written permission from land owners prior to hunting on their lands. Enforcement of the Controlled Use Area is primarily complaint driven through ADF&G.

Shared Area of Influence. Anaktuvuk Pass's Area of Influence overlaps other North Slope Communities' areas of influence. Nuiqsut is the closest community and with which Anaktuvuk Pass hunters most share hunting grounds. Anaktuvuk Pass residents feel this makes their subsistence activities vulnerable. Of particular concern is the caribou migration. Anaktuvuk Pass residents are concerned that when Nuiqsut hunters take the lead animals it disrupts the herd and impacts their hunting opportunities. They would prefer Nuiqsut let the lead animals pass.⁷³

⁷³ Anaktuvuk Pass. 2016. Tri-lateral Meeting. Feb. 11, 2016.



ADF&G Controlled Use Areas

- Anaktuvuk Pass Controlled Use Area
- Unit 26A Controlled Use Area
- Borough Boundaries
- Arctic National Wildlife Refuge
- Cape Krusenstern National Monument
- Gates of the Arctic National Park & Preserve
- Kobuk Valley National Park
- National Petroleum Reserve - Alaska
- Noatak National Preserve

Coordinate System:
NAD 1983 Alaska Albers

DISCLAIMER
For informational purposes only. Umiq makes no expressed or implied warranties of merchantability or fitness with regards to character and function of this printed map. Not for navigation

**ANAKTUVUK PASS, ALASKA
CONTROLLED USE AREAS MAP**

Scale:
0 20 40 60 80 100 Miles

Map: **6**

This page is intentionally left blank

Oil & Gas Activities. Linc Energy, Inc. is an oil and gas development company making a substantial investment into oil exploration at Umiat. Umiat is located about 80 miles north of Anaktuvuk Pass and about the same distance south of Nuiqsut. The Alaska Department of Transportation and Public Facilities (DOT&PF) at one time proposed a road from Umiat eastward to the Dalton Highway called the Foothills West Transportation Access Project. The purpose of this “Road to Resources (R2R)” project was intended to provide access to coal, oil and gas resources along the northwestern foothills of the Brooks Range as well as within the National Petroleum Reserve - Alaska (NPR-A). The road would have provided both exploration and development opportunities for the area as well as facilitated more economically-feasible development within the NPR-A.⁷⁴ Residents of Nuiqsut commented that the road would have opened the door to sport hunters, which would negatively impact subsistence hunting by the communities of Nuiqsut, Anaktuvuk Pass, and Barrow due to the lack of State enforcement of hunting regulations in the area. Residents of Anaktuvuk Pass also oppose development of the nearby Nanushuk coal mine and the Gubik natural gas fields that this road would have facilitated. The ADOT&PF agency discontinued its plans for the Foothills R2R in October 2014.

Climate Change. Changes in the environment that affects the health of subsistence resources or residents’ access to them are of great concern to residents. Changes in resource distribution, fluctuation in caribou populations, epidemic disease, and prolonged contact with Euro-Americans have caused major changes in the geographic distribution and life ways of the Iñupiat, and the viability of the subsistence life way continues to be the most critical issue on the North Slope. The impacts of global climate change are more acute in the Arctic than in most regions of the world, and changes to the environment and habitats of the North Slope resulting from climate change are affecting subsistence resources and resource users.⁷⁵ Communities are adjusting to the impacts, including changes in species diversity, numbers, and distribution of Arctic-adapted species, vegetation coverage and type, and the physical structure of the landscape itself.

Generally, communities harvest resources nearest to them, but harvest activities may occur anywhere in the planning area. Subsistence is at the core of Iñupiat kinship systems and social networks, which are shaped by subsistence task groups and the sharing of subsistence foods. This sharing network extends across the North Slope and beyond; it is accepted by the community that Iñupiaq people cannot thrive without subsistence foods. Variety in resources and timing is a critical component of the wider subsistence system, because families and villages share large amounts of what they have most of with family in other communities, especially in times of need. Thus, all communities consume the resources and are invested in the viability of subsistence everywhere on the North Slope.

⁷⁴ North Slope Borough. 2016. Department of Wildlife Management. *State of Alaska Oil and Gas Leases*. www.north-slope.org/departments/wildlife-management/other-topics/oil-and-gas-activity/state-of-alaska-oil-and-gas-activities. Accessed Jan. 2, 2016

⁷⁵ Hassol, Susan Joy. 2004. *Alaska Climate Impact Assessment. Impacts of a Warming Arctic*. University of Alaska, Fairbanks. www.amap.no/documents/download/1058

The most important subsistence foods to the Nunamiut are caribou, water fowl, and fish, and the subsistence diet is highly nutritious and protective against many common diseases. Subsistence foods are also a critical aspect of economics on the North Slope, where a mixture of subsistence and cash economy continues to be a system that serves families well. A lack of subsistence foods would create serious nutritional and economic shortages for the Iñupiat, because most products available in stores are extremely expensive and much lower in nutritional quality. Recognition of the critical importance of subsistence food is reflected by the preference for a rural priority for subsistence resources in times of need that is protected by federal law and specifically by Section 810 of the ANILCA. Currently, the most serious threats to the viability of subsistence on the North Slope include the removal of access to harvest areas due to industrial development, and the impacts of climate change. Residents of Anaktuvuk Pass are concerned about the long-term effects of climate change on food security, such as:

- Later freeze-up can limit snow machine access to the tundra for caribou hunts, and accelerated thawing of the permafrost can change vegetation patterns, such as more brush cover than in the past, which in turn may affect the species composition and location;
- Thawing permafrost releases methane gas which may alter the taste of tundra vegetation, upon which caribou feed;
- The release of methane gases as permafrost soils thaw could increase the rate of warming; Warmer summers may result in a greater number of mosquitoes or other pests that harass caribou and may alter the timing and location of their migrations; Drier summers may also reduce lake water levels and alter fish habitat;
- Thawing permafrost may result in lowering or drainage of lakes; and
- Earlier break-up of rivers cause erosion of riverbanks resulting in shallower water and increased aquatic plants which restrict boat navigation;
- A decrease in lichen cover on tundra has resulted in a decline in primary caribou forage over the last 24 years and continues to deteriorate due to increased temperatures and, to a lesser extent, to tundra fires;⁷⁶ and
- General drying trends could lead to more tundra wildfires resulting in loss of caribou habitat within reach of subsistence hunters.

The Nunamiut have a tremendous capacity to adapt to change as is evidenced through their response to changes in caribou migratory routes, fur trading, government regulations, tourism, and technology changes. Through all of these changes, the residents have retained their hunting, fishing, gathering and sharing skills and social networks. In the face of new circumstances and vulnerabilities, it is expected that existing and future village Elders will continue to share with their youth their knowledge of traditional tools and equipment, the variability of ecosystems and weather, wildlife harvesting skills, and environmental stewardship to facilitate the community's adaptation to climate and economic change for

⁷⁶ Joly, Kyle et al. 2006. *Changes in Vegetation Cover or Western Arctic Herd Winter Ranges from 1981 to 2005: Potential Effects of Grazing and Climate Change*. www.fs.fed.us/pnw/pubs/journals/pnw_2006_joly001.pdf.

generations to come. While the Nunamiut are adaptable, maintaining healthy subsistence resources is vital to sustaining the local population. If the availability of wildlife for subsistence declines, residents of Anaktuvuk Pass would experience hardship and could potentially see a decline in the population of the community due to out-migration of households. Maintaining a clean and healthy wildlife habitat is the key to sustaining the local population.

A commonly observed impact of climate change is an increase in the number of plant, animal and insect species appearing. Residents have reported fish from warmer, southern waters appearing in their fishing nets, and a proliferation of insects, including flies that reportedly make caribou sick. Climate changes may be reducing food sources for caribou and muskoxen, possibly shifting their range away from the communities or reducing their numbers. The same habitat changes may favor moose, which local hunters perceive as less suitable as subsistence staples because they are solitary, require large ranges per animal, and do not predictably move in large numbers to specific areas, making it more difficult and energy intensive to harvest them. Due to their size, moose also require more effort to butcher, transport, and process than caribou and muskoxen.⁷⁷

Subsistence Access. Climate change could create harvest disruptions either due to the resource changing its migration schedule or growth schedule due to weather conditions preventing access. For example, most North Slope hunters make an effort to hunt caribou in the fall before the males go into rut. In the past, the ground and smaller rivers and lakes would usually freeze around late September before the males would go into rut, making it feasible to hunt by snow machine. In recent years, hunters are faced with the possibility that the land and water can freeze and thaw out several times before freezing for the winter, making it difficult to travel long distances. For example, a hunter takes a boat and water is frozen outside of the village, or a hunter takes a snow machine or four-wheeler and the water is thawed outside of the village. In general, travel across much of the North Slope is most efficient by snow machine and uncertain travel can be particularly difficult in the fall when people are trying to harvest caribou.

Water. Fresh water is a critical resource on the North Slope, and tundra ponds across certain areas of Alaska have been shrinking as a result of increased evaporation and permafrost melting, both of which are projected to continue through the end of this century.⁷⁸ Melting permafrost can allow perched water to dissipate, and higher temperatures cause a higher rate of evaporation. The loss of tundra ponds is a loss of fresh drinking water and nesting grounds for migratory birds. At the same time, thermokarst⁷⁹ is creating or increasing the size of lakes in parts of the planning area.

⁷⁷ Hassol, Susan Joy. 2004. Alaska Climate Impact Assessment. Impacts of a Warming Arctic. University of Alaska, Fairbanks. www.amap.no/documents/download/1058.

⁷⁸ U.S. Department of the Interior. 2011. Bureau of Land Management. *NPR-A Climate Change Analysis: An Assessment of Climate Change Variables in the National Petroleum Reserve in Alaska*. SNAP: Scenarios Network for Alaska and Arctic Planning. University of Alaska. www.snap.uaf.edu/attachments/NPRA_Climate_Change_Analysis_2011.pdf. Accessed December 22, 2015.

⁷⁹ Thermokarst is a land surface characterized by very irregular surfaces of marshy hollows and small hummocks formed as ice-rich permafrost thaws.

Erosion and climate change may also be changing water levels in rivers and streams in some parts of the planning area, making transportation by boat and land more difficult, damaging or destroying infrastructure, and reducing water quality (e.g., turbidity, dissolved oxygen, increased methane gas) until some waters are no longer suitable fish habitat.



Photo Credit: www.north-slope.org/our-communities/anaktuvuk

Chapter 5. Population

Thirteen families, about 65 people, settled the village of Anaktuvuk Pass during the 1940s. According to the North Slope Borough Economic Profile and Census Report⁸⁰ from 2010, Anaktuvuk Pass had 388 residents. Newer population estimates certified by the State of Alaska Department of Commerce, Community and Economic Development (DCCED) indicate that the 2015 village population is 393. However, the number of residents can vary seasonally. Subsistence activities may take residents out of the community for weeks at a time and some teachers at Nunamiut School and their families live elsewhere during the summer months.

5.1 Historical Population and Population Trends

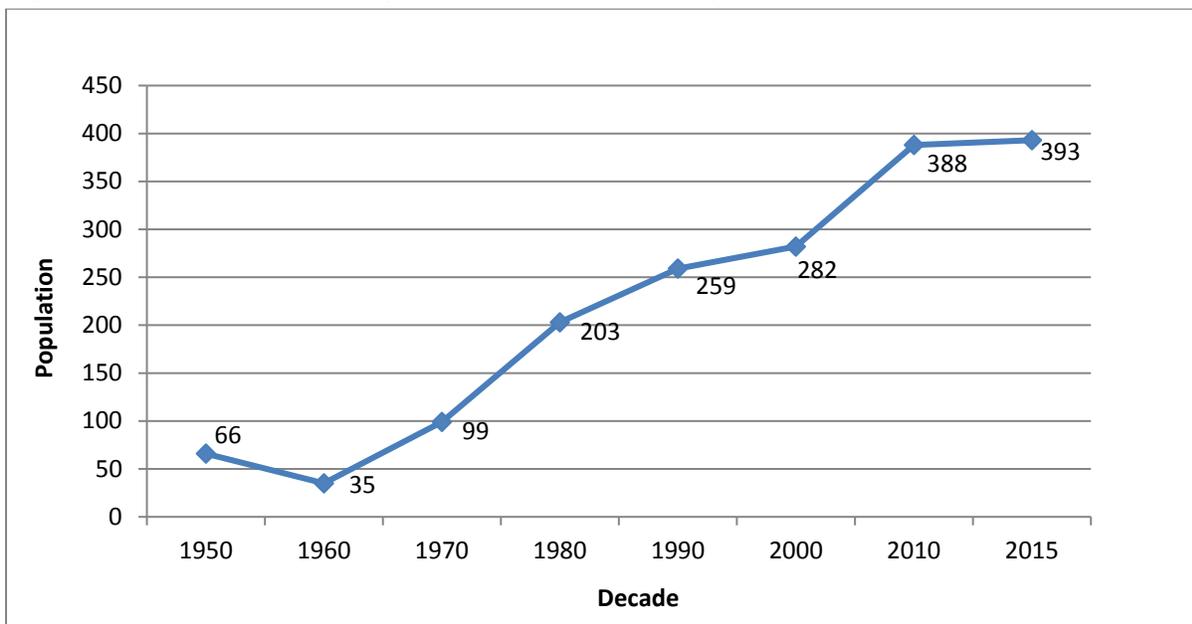
The following table provides a historical perspective of Anaktuvuk Pass's population since the village was established. Complementing Table 5 is Figure 9, graphically depicting the population changes between 1950 and 2015.

⁸⁰ The NSB carried out its own census in 1998, 2003, 2010 and 2015, reportedly due to chronic U.S. Census population undercounting in many villages.

Table 5: Historical Population, 1950 to 2015

Year	Population	Source
1950	66	U.S Decennial Census ⁸¹
1960	35	U.S Decennial Census
1970	99	U.S Decennial Census
1980	203	U.S Decennial Census
1990	259	U.S Decennial Census
1998	314	NSB Census ⁸²
2000	282	U.S Decennial Census ⁸³
2003	346	NSB Census ⁸⁴
2010	388	NSB Census ⁸⁵
2014	375	DCCED Certified ⁸⁶
2015	393	DCCED Certified ⁸⁷

Figure 9: Anaktuvuk Pass Population: 1950 to 2015 by Decade



⁸¹ U.S. Department of Commerce. 2016. U.S. Census Bureau. *1960, 1970, 1980, 1990. Census of Population, Alaska.* www.census.gov/prod/www/decennial.html. Accessed Jan. 7, 2016.

⁸² North Slope Borough. 2010. *North Slope Borough 2010 Economic Profile and Census Report.* Prepared by Circumpolar Research Associates Shepro, C., Maas, C. and D. Gallaway with J. McAnich for the North Slope Borough. www.north-slope.org/your-government/census-2010NorthSlopeBorough.

⁸³ U.S. Department of Commerce. U.S. Census Bureau. 2000. *Alaska: Summary Population and Housing Characteristics.* www.census.gov/prod/cen2000/phc-1-3.pdf. Accessed Jan. 7, 2016.

⁸⁴ North Slope Borough. 2003. *North Slope Borough 2003 Economic Profile and Census Report.* Prepared by Circumpolar Research Associates Shepro, C., Maas, C. and D. Gallaway.

⁸⁵ North Slope Borough. 2010. *North Slope Borough 2010 Economic Profile and Census Report.* Prepared by Circumpolar Research Associates Shepro, C., Maas, C. and D. Gallaway with J. McAnich for the North Slope Borough. www.north-slope.org/your-government/census-2010NorthSlopeBorough.

⁸⁶ Alaska Department of Commerce, Community and Economic Development. 2016. *Community and Regional Affairs. Research and Analysis. Population Adjustment.* <https://www.commerce.alaska.gov/web/dkra/ResearchAnalysis/PopulationAdjustment.aspx>

⁸⁷ Jason Bergerson, NSB Policy Analyst. Personal Communication. Jan. 26, 2016.

The population of Anaktuvuk Pass has been increasing steadily with some plateaus and minor declines. The 1960 U.S Decennial Census indicates that the population had dropped from 66 people in 1950 to 35 in 1960, rising to 99 in 1970. The Anaktuvuk Pass Tri-lateral indicated that the 1960 population drop was the result of older children attending boarding school outside the village.⁸⁸ The variability could also be attributed to the seasonal movement of residents for subsistence activities as well as the dates in which census takers arrived in the village (typically, in April of the census year). In 1980, the U.S. Census Bureau (again, in April) counted 203 persons residing in the village and in 1990, 259 persons. In the decade between 1970 and 1980, the Anaktuvuk Pass population grew by 104 persons, doubling the population, corresponding with the period where Native Village shareholders returned to their indigenous villages to settle. Between 1980 and 2000, the population growth rate stabilized, growing by 79 persons over those two decades. Between 2000 and 2010 the population grew by an estimated 106 persons. The fairly dramatic decrease in population of 32 people between the 1998 NSB Census and the U.S Decennial Census in 2000 most likely is the result of underestimating the population by the U.S. Census Bureau. Moreover, the 2000 and 2010 data sources are from the U.S. Decennial Census and the North Slope Borough Census, respectively. The North Slope Borough Census, intended to have a more thorough process of counting residents, could account for the large increase by accurately counting the population that had historically been undercounted. Table 6 below provides details on specific Anaktuvuk Pass population characteristics and the changes that have taken place between 2003 and 2010 based on the NSB Census.

Table 6: 2003 and 2010 Population Characteristics^{89 90}

Characteristic	2003	2010
Total Population	346	388
Female	48.2%	45.7%
Male	51.8%	54.3%
Median age of females	21	27
Median age of males	26	24
Median age of total population	23	25
Ethnicity		
Iñupiat	88.3%	87.5%
Caucasian	8.6%	6.6%
Other	3.1%	5.9%
Iñupiaq speakers (percent of population who are fluent)	20.1%	16.2%
Percent of population 16 years of age and younger	40%	33.7%
Percent of population 65 years of age and older	5.8%	2.9%
Average household size	3.54	3.61

⁸⁸ Anaktuvuk Pass. 2016. Tri-lateral Meeting. Feb. 11, 2016.

⁸⁹ North Slope Borough. 2010. *North Slope Borough 2010 Economic Profile and Census Report*. Prepared by Circumpolar Research Associates Shepro, C., Maas, C. and D. Gallaway with J. McAnich for the North Slope Borough. www.north-slope.org/your-government/census-2010North Slope Borough.

⁹⁰ 2015 North Slope Census population characteristics were not available for the public review of this plan. Updated information will be included when it becomes available.

The 2010 NSB Census revealed that, in general, there tends to be a sharp drop in the number of women between the ages of 20 to 24, generally attributed to migration to larger communities for better employment opportunities, while men of the same age group tend to remain in their communities because of their detailed knowledge of local subsistence activities. This appears to be the case in Anaktuvuk Pass, as illustrated in Table 7 that between 2003 and 2010, the median age of females increased six years while the median age of males decreased by two years.⁹¹

Also between 2003 and 2010, the percent of the total Caucasian population has decreased by two percent. A slight increase in other ethnicities, mostly Athabascan and Yup'ik, residing in Anaktuvuk Pass, occurred during the same period. Still, nine out of ten people living in Anaktuvuk Pass are Iñupiat.⁹²

Although the average overall household size in Anaktuvuk Pass in 2010 was 3.61 persons, there are distinct differences between household size by ethnicity. The average Iñupiat household size was 3.8 people, about half were comprised of four people or more, while the average Caucasian household size was 2.18, with all having four people or less. There was not a similar pattern for the four households of other ethnicities.

Table 7: Anaktuvuk Pass Age Distribution, 2003 and 2010^{93 94}

Age Range	2003	2010
15 years and under	36.1%	32.1%
18 years and under	42.3%	39.4%
18 – 24	10.3%	12.5%
55 - 64	5.1%	6.3%
65 and older	5.8%	2.4%
Youth Dependency Ratio	63.0	49.0
Age Dependency Ratio	11.0	4.8
Total Dependency Ratio	74.0	54.0

Interestingly, the NSB 2010 Census indicates that between 2003 and 2010 there was a significant decrease in the total dependency ratio, the number of people that are below age 16 or above age 64 (dependents)

⁹¹ North Slope Borough. 2010. *North Slope Borough 2010 Economic Profile and Census Report*. Prepared by Circumpolar Research Associates Shepro, C., Maas, C. and D. Gallaway with J. McAnich for the North Slope Borough. www.north-slope.org/your-government/census-2010North Slope Borough.

⁹² Ibid.

⁹³ North Slope Borough. 2010. *North Slope Borough 2010 Economic Profile and Census Report*. Prepared by Circumpolar Research Associates Shepro, C., Maas, C. and D. Gallaway with J. McAnich for the North Slope Borough. www.north-slope.org/your-government/census-2010North Slope Borough.

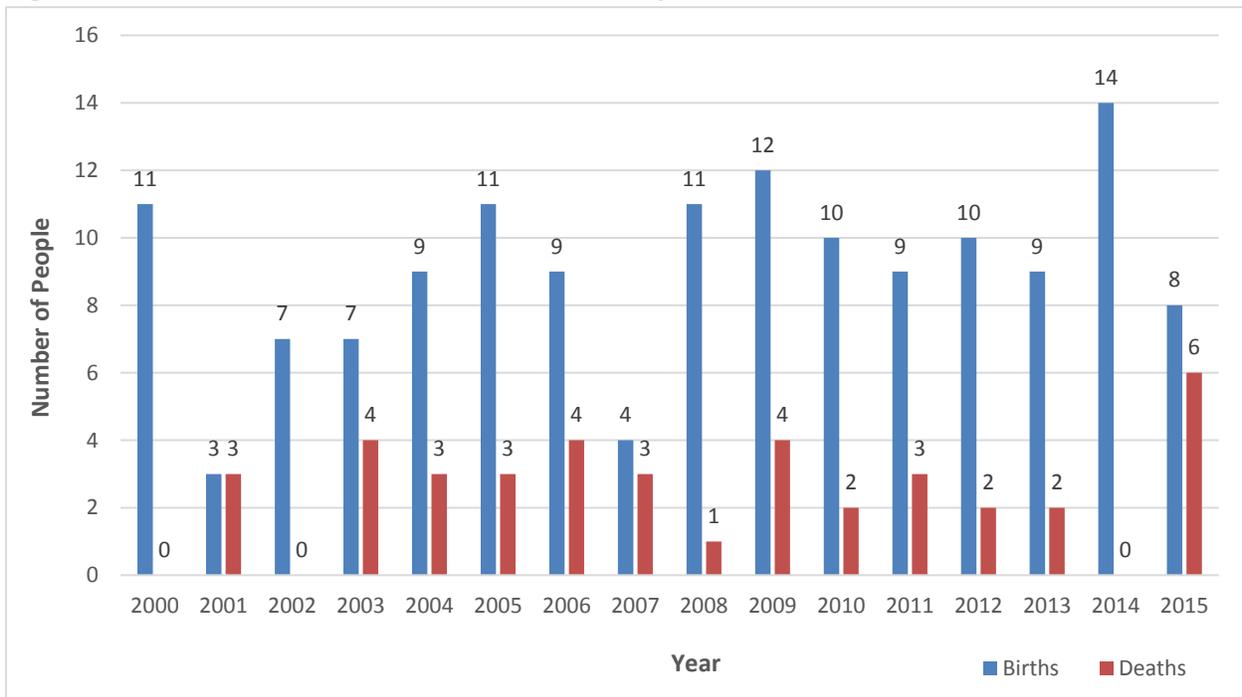
⁹⁴ 2015 North Slope Census population characteristics were not available for the public review of this plan. Updated information will be included when it becomes available.

to wage earners, as noted in Table 7.⁹⁵ In 2010, there were 50 percent fewer elders in Anaktuvuk Pass than there were in 2003. Moreover, there was also a 10 percent decrease in the number of children under the age of 15. Coupled with the decrease in the dependency ratio is a 50 percent decrease in males between the ages of 34 – 55 living in Anaktuvuk Pass.⁹⁶ The next NSB Census may shed more light on the reason for these significant changes.

5.2 Births and Deaths

The strongest component of population growth is natural increase with more births than deaths. A positive natural increase may account for part of the 111-person population growth over the 2000-2015 period. Between 2000 and 2015, 144 residents were born and 40 persons passed away, for a net increase of 104 persons based simply on births and deaths. As illustrated in Figure 10, births have been variable over the fifteen-year period, ranging from 3 in 2001 to 14 in 2014; deaths have ranged from 0 in 2000 and 2002 to 6 in 2015. Each year births have exceeded deaths.

Figure 10: Anaktuvuk Pass Natural Increase in Population: Births and Deaths, 2000 to 2015⁹⁷



⁹⁵ North Slope Borough. 2010. *North Slope Borough 2010 Economic Profile and Census Report*. Prepared by Circumpolar Research Associates Shepro, C., Maas, C. and D. Gallaway with J. McAnich for the North Slope Borough. www.north-slope.org/your-government/census-2010North Slope Borough.

⁹⁶ North Slope Borough. 2010. *North Slope Borough 2010 Economic Profile and Census Report*. Prepared by Circumpolar Research Associates Shepro, C., Maas, C. and D. Gallaway with J. McAnich for the North Slope Borough. www.north-slope.org/your-government/census-2010North Slope Borough.

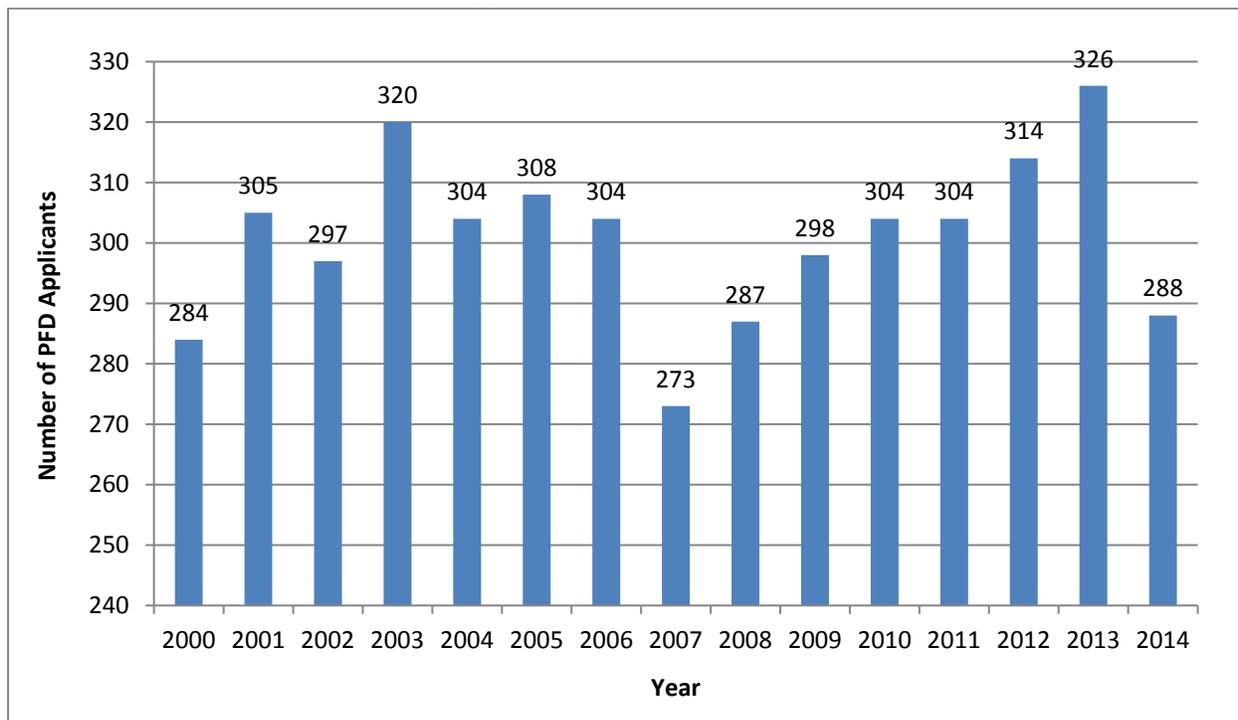
⁹⁷ Gibson, David. Research Analyst II. Alaska Bureau of Vital Statistics. Jan. 28, 2016.

5.3 In-Migration and Out-Migration

Data are not collected on new residents or existing residents moving out of the village, also known as resident in-migration and out-migration. Out-migration is usually related to high school graduates leaving to attend college, workers seeking employment opportunities elsewhere, or persons leaving to be close to other family members or loved ones. In-migration would most often be attributed to new residents moving to the village to live with or near family members or for employment.

One potential indicator of in- and out-migration in Anaktuvuk Pass may be the number of persons who qualify for the annual Alaska Permanent Fund (PFD) dividend. The Permanent Fund program tracks the dividend recipients by their zip code. Figure 11 illustrates the combined number of adults and children applicants for the Alaska Permanent Dividend Fund program with a postal code for Anaktuvuk Pass during the 2000 to 2014 time period. In 2000, 284 persons with a 99721 zip code successfully applied to the Permanent Fund Dividend program, increasing to 326 in 2013. However, the number of Anaktuvuk Pass residents applying for the Alaska PFD dropped dramatically in 2014, to 288, a decrease of 38 people. This decrease counters the population increases as shows in Table 5 and Figure 9.

Figure 11: Total Permanent Fund Applicants in Anaktuvuk Pass, 2000 to 2014⁹⁸



⁹⁸ Alaska Department of Revenue. Permanent Fund Dividend Division. *Annual Reports*. <https://pfd.alaska.gov/Division-Info/Annual-Reports>. Accessed Feb. 2, 2016

5.4 Low, Moderate and High Population Growth Projections

Population projections used by planners and policy makers to assist in the preparation of planning for future development are often imprecise. Projections are especially difficult for small communities or populations, particularly when combined with an unanticipated conditions that may affect in and out migration. Examples of these conditions are employment opportunities,⁹⁹ availability of land for development, or, as is the case of many rural Alaska communities, the abundance of subsistence wildlife.

Positive natural increase (more births than deaths) and minor in-migration may account for the past decade and a half's population growth of 111 persons. This represents an annual growth rate of 2.6 percent, most of which occurred between 2000 and 2010. This is a remarkable growth rate for a small, isolated community. Over the next twenty years, population growth is expected to remain stable provided that caribou herds traveling traditional routes remain healthy.

A low growth rate shown in the table below assumes that energy costs rise and subsistence activity declines, and a stable or reduction in government and construction jobs; resulting in an overall population decline of one-half (0.5) percent per year. The moderate growth scenario of 0.5 percent per year assumes a stable job market in areas of temporary construction, government services and tourism with an abundance of subsistence resources. The high 1% annual growth rate scenario assumes that there is some moderate growth in government services and tourism, perhaps coupled with other industry development nearby that may provide temporary jobs for residents in Anaktuvuk Pass. There are no foreseeable jobs or other economic indicators to support another decade or two with over 2 percent annual growth rate.

Table 8: Five, Ten and Twenty Year Population Projections

Growth Rate	Base Year 2015	5 Year Forecast 2020	10 Year Forecast 2025	20 Year Forecast 2035
High Growth (+1%)	393	413	434	480
Moderate Growth (.5%)		403	413	434
Low Growth (-.5%)		383	374	356

Given the foregoing population projection, there are several implications for housing and infrastructure needs in the planning horizon of five, ten, and twenty years. The needs examined include housing, water, sewer, landfill and power. Future needs based on these population projections are discussed under the applicable sections in the remainder of this plan.

⁹⁹ North Slope Borough. 2003. North Slope Borough 2003 Economic Profile and Census Report. Prepared by Circumpolar Research Associates Shepro, C., Maas, C. and D. Gallaway.

This page is intentionally left blank



Photo Credit: UMIAQ photo library

Chapter 6. Housing

Alaskans in many rural communities such as Anaktuvuk Pass are grappling with aging infrastructure, extraordinarily high energy and transportation costs, as well as a multitude of housing issues that include overcrowded conditions and housing cost burden. This chapter examines these issues in Anaktuvuk Pass, focusing on both existing conditions and future housing needs.

6.1 Existing Conditions

The 2010 North Slope Borough Economic Profile and Census Report (NSB Census) indicates that there were 118 housing units in Anaktuvuk Pass, including eight mobile homes/trailers (a 10 percent increase from 2003); 64 single family homes; two buildings with three to four housing units each; five buildings with five or more units each; and one characterized as *other*. The 118 housing units from the 2010 NSB Census represents an increase of 14 total housing units over a seven year period, since 2003, the previous NSB Census. The Housing Authority for the North Slope, Tagiumiullu Nunamiullu Housing Authority (TNHA), has constructed an additional five homes since 2010,¹⁰⁰ bringing the total inventory of homes in Anaktuvuk Pass to 123.¹⁰¹

¹⁰⁰ The NSB conducted household surveys during the winter and spring of 2009; the first of the five homes was constructed during the summer of 2009 and was not included in the NSB Census survey.

¹⁰¹ Garoutte, Claude. 2016. TNHA Construction Services Project Manager. Personal Communication. March 24, 2016.

The 2010 U.S. Decennial Census also reports 118 housing units, of which 99 were occupied and 19 were vacant. Of the 19 vacancies, one was attributed to being vacant but available for rent; the remaining 18 were vacant for other reasons other than the home was rented but not occupied, for sale only, sold but not occupied or only occupied for seasonal, recreational or occasional use.¹⁰² The 2010 NSB Census, however, notes that there were only four vacant housing units.¹⁰³

The 2010-2014 American Community Survey (ACS) 5-Year Estimates indicates that over 90 percent of Anaktuvuk Pass's homes were constructed between 1960 and 2000 (44.3 percent between 1960 and 1979; 47 percent between 1980 and 1999). Only 8.2 percent of the community's homes were constructed between 2000 and 2009.¹⁰⁴

Nearly all (97 percent) of homes are single family detached and remaining three percent are either two, three or four-unit buildings. Nearly 12 percent of Anaktuvuk Pass homes have one bedroom; 62 percent have two to three bedrooms; and 25 percent have four or more bedrooms. Most households are either one-person (nearly 30 percent) or four or more- person households (57 percent). The average Anaktuvuk Pass home size is 1,237 square feet, the largest average size of all the North Slope communities, yet smaller than either the State of Alaska or United States average size home.¹⁰⁵ The average household size differs among ethnicities; Iñupiat households have an average of 3.8 people while Caucasians have a 2.18 person average household size.

¹⁰² U.S. Department of Commerce. 2010. U.S. Census Bureau. *2010 Census*. Accessed 2 February 2016. www.census.gov/2010census

¹⁰³ North Slope Borough. 2010. *North Slope Borough 2010 Economic Profile and Census Report*. Prepared by Circumpolar Research Associates Shepro, C., Maas, C. and D. Gallaway with J. McAnich for the North Slope Borough. www.north-slope.org/your-government/census-2010North Slope Borough.

¹⁰⁴ U.S. Census Bureau. *2010 – 2014 American Community Survey 5-Year Estimates – Anaktuvuk Pass City, North Slope Borough, Alaska State*. <http://factfinder.census.gov>. Accessed Jan 22, 2016.

¹⁰⁵ Wiltse, N., Madden, D., Valentine, B., Stevens, V. 2014. 2013 Alaska Housing Assessment. Cold Climate Housing Research Center. Prepared for: Alaska Housing Finance Corporation. www.ahfc.us/efficiency/research-information-center/housing-assessment

Table 9: 2000 and 2010 Housing Characteristics^{106 107 108}

Housing Characteristic	2000		2010	
	Number	Percent	Number	Percent
Total number of housing units	101	100%	118	100%
Occupied housing units	84	83.2%	99	83.9%
Vacant housing units	17	16.8%	19	16.1%
Owner occupied homes (of occupied units)	58	69.0%	60	60.6%
Renter occupied homes (of occupied units)	26	31.0%	39	39.4%
Overcrowded households*	22	25.9%	15	24.6%
Severely overcrowded households*	2	2.4%	9	14.8%

Overcrowding. The U.S. Department of Housing and Urban Development (HUD) defines an overcrowded dwelling as one in which more than one person per habitable room resides in the house and a severely overcrowded dwelling as one with one and a half or more people per habitable room. The 2014 Alaska Housing Finance Corporation Housing Assessment estimates that 21.4 percent of the population in the seven remote North Slope villages reside in overcrowded conditions.¹⁰⁹ The 2010-2014 American Community Survey (ACS) 5-Year Estimates indicates that in 2014, 39.4 percent of Anaktuvuk Pass households were either overcrowded or severely overcrowded, approximately eleven times the national average. In a 2015 unpublished white paper prepared by TNHA, major housing issues facing North Slope communities are identified and potential solutions are analyzed. The paper indicates that there is dramatic housing need in Anaktuvuk Pass; forty-five families are living in overcrowded conditions with a shortage of 49 homes. This housing shortage results in multiple generations living under one roof in overcrowded conditions.¹¹⁰ The 2010 U.S. Census and 2010-2014 ACS 5-Year Estimates substantiate the extent of overcrowding in Anaktuvuk Pass. The ACS numbers of overcrowded and severely overcrowded households is depicted in Figure 12.

¹⁰⁶ North Slope Borough. 2010. *North Slope Borough 2010 Economic Profile and Census Report*. Prepared by Circumpolar Research Associates Shepro, C., Maas, C. and D. Gallaway with J. McAnich for the North Slope Borough. www.north-slope.org/your-government/census-2010North Slope Borough.

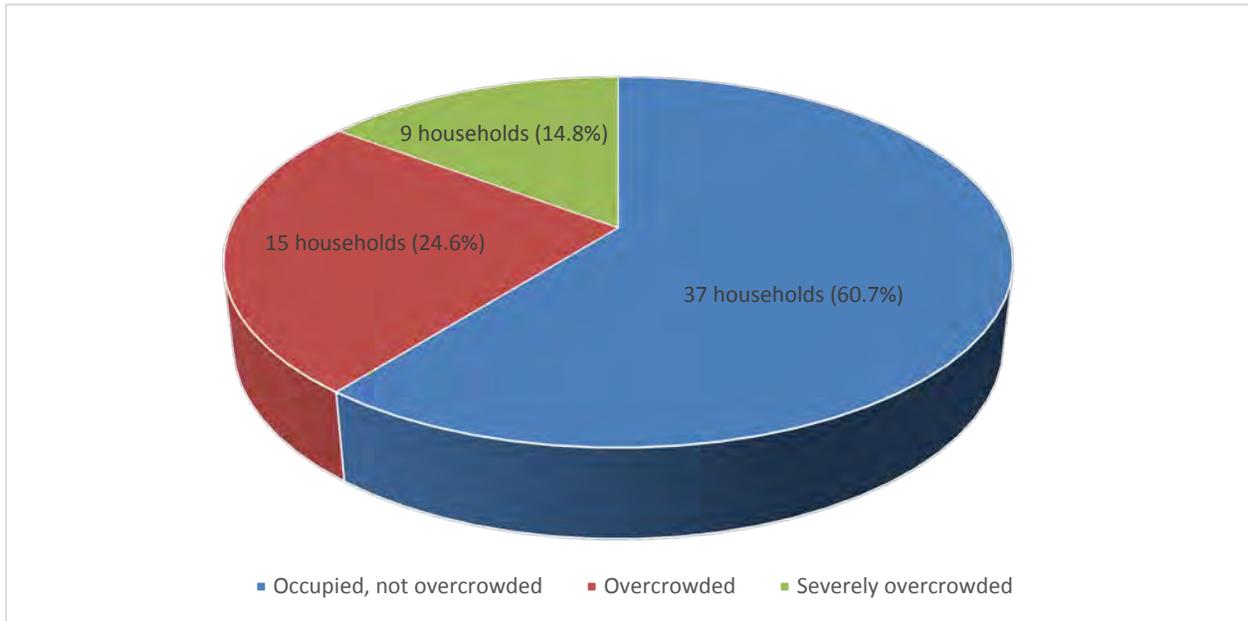
¹⁰⁷ * denotes date source is ACS 2010-2014 American Community Survey 5-Year Estimates

¹⁰⁸ 2015 North Slope Census population characteristics were not available for the public review of this plan. Updated information will be included when it becomes available.

¹⁰⁹ Wiltse, N., Madden, D., Valentine, B., Stevens, V. 2014. *2013 Alaska Housing Assessment*. Cold Climate Housing Research Center. Prepared for the Alaska Housing Finance Corporation. www.ahfc.us/efficiency/research-information-center/housing-assessment.

¹¹⁰ Tagiugmiullu Nunamiullu Housing Authority. 2015. Unpublished white paper. *North Slope Borough Housing: A Brief Analysis of Issues and Options with Budgetary Quotes*.

Figure 12: Incidence of Housing Overcrowding ^{111 112}



Housing Affordability. The U.S. Department of Housing and Urban Development (HUD) defines affordable housing as that which costs no more than 30 percent of a household’s monthly income. Households paying more than this for mortgages, rents, fees, utilities, taxes, and insurance are considered cost-burdened.¹¹³

The median household income in 2014 in Anaktuvuk Pass was \$49,375.^{114 115} Thirty percent of the median household income is \$14,813; affordable housing would need to be less than \$14,813 annually or approximately \$1,234 monthly for most households. The median owner costs for those with a mortgage payment was \$900; for those homeowners without a mortgage it was \$494; and for renters it was \$1,083.¹¹⁶ These figures indicate that the majority of homeowners and renters in Anaktuvuk Pass are not cost-burdened. Housing costs, as a percent of household income, are shown in Figure 13 for Anaktuvuk Pass, the North Slope Borough, and the State of Alaska. The chart indicates that of the three groups – owner-occupied homes with mortgages; owner-occupied homes without mortgages; and renters – the most cost burdened are generally renters across the three geographic areas. Not surprisingly, the least

¹¹¹ U.S. Census Bureau. *2010 – 2014 American Community Survey 5-Year Estimates – Anaktuvuk Pass City, North Slope Borough, Alaska State*. <http://factfinder.census.gov>. Accessed Jan 22, 2016.

¹¹² Total units estimated in the 2010 – 2014 ACS 5-Year Estimates is 61.

¹¹³ U.S. Department of Housing and Urban Development. 2016. *Affordable Housing*. http://portal.hud.gov/hudportal/HUD?src=/program_offices/comm_planning/affordablehousing. Accessed Feb. 2, 2016.

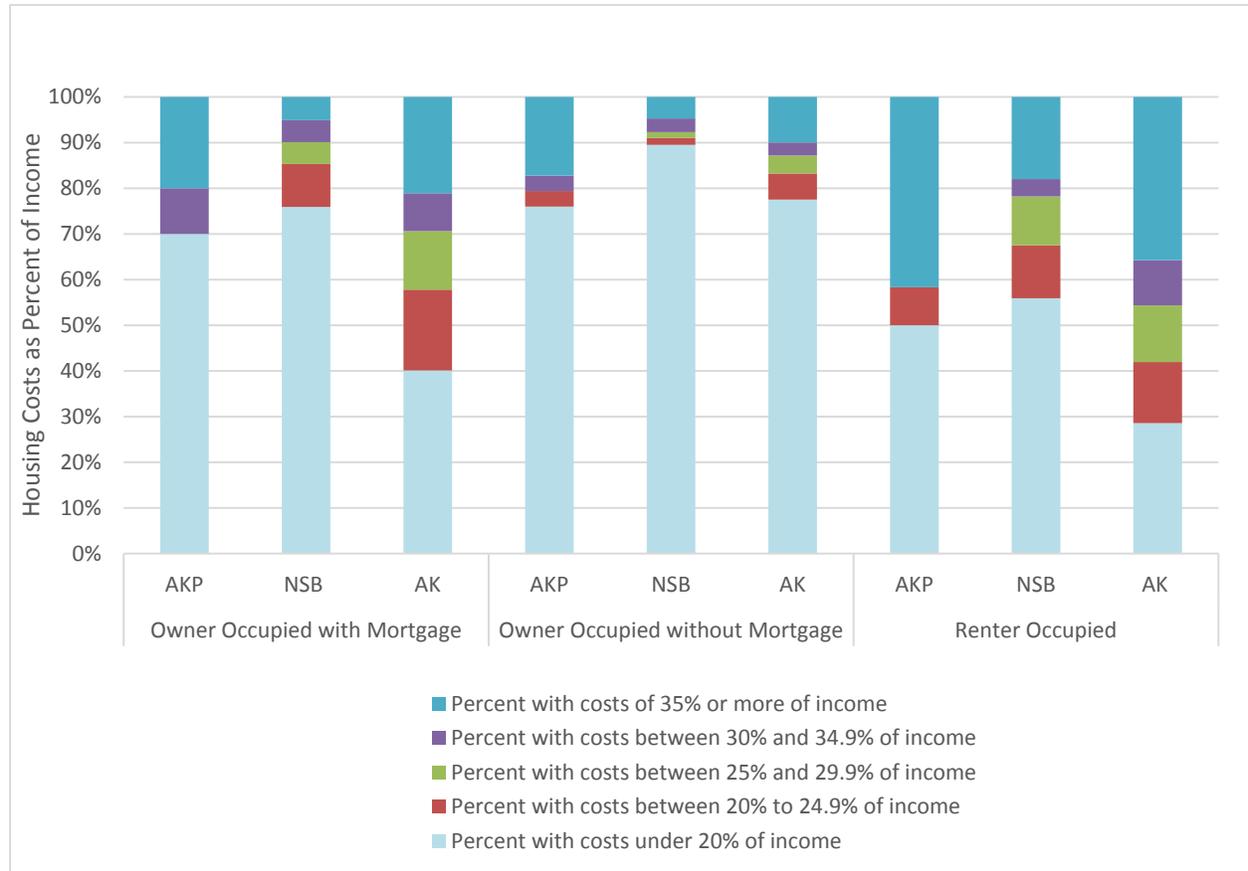
¹¹⁴ U.S. Census Bureau. *2010 – 2014 American Community Survey 5-Year Estimates – Anaktuvuk Pass City, North Slope Borough, Alaska State*. <http://factfinder.census.gov>. Accessed Jan 22, 2016.

¹¹⁵ 2014 adjusted dollar.

¹¹⁶ U.S. Census Bureau. *2010 – 2014 American Community Survey 5-Year Estimates – Anaktuvuk Pass City, North Slope Borough, Alaska State*. <http://factfinder.census.gov>. Accessed Jan 22, 2016.

cost-burdened households are those homeowners without a mortgage payment. In Anaktuvuk Pass, however, over 20 percent of households without a mortgage are still cost-burdened.

Figure 13: Anaktuvuk Pass Housing Costs as Percent of Income ¹¹⁷



The availability of housing and the cost to construct new housing is an issue that significantly contributes to the lack of housing in Anaktuvuk Pass. The overcrowding and severe overcrowding may be a larger issue than cost-burden; it is the lack of housing availability that most affects the community. Additionally, residents have reported that they have difficulty saving for a down payment.

The Alaska Housing Finance Corporation (AHFC) prepares an annual construction cost survey that collects contractor pricing for a market basket of materials determined by the design of a model home. This market basket of materials represents approximately 30 percent of the materials needed to construct the model home but does not represent 30 percent of the total cost to build it. In 2015, the Construction Cost Survey shows that a market basket of materials that costs \$23,405 in Anchorage and \$26,971 in Fairbanks,

¹¹⁷ U.S. Census Bureau. 2010 – 2014 American Community Survey 5-Year Estimates – Anaktuvuk Pass City, North Slope Borough, Alaska State. <http://factfinder.census.gov>. Accessed Jan 22, 2016.

cost a shocking \$61,510 in Barrow or 263% of the Anchorage cost.¹¹⁸ This figure assumes added perspective, when one considers that Barrow, as a hub community, is far less expensive than Anaktuvuk Pass. At the very least, air transport to Anaktuvuk Pass, even from Fairbanks, would add substantial additional freight cost to the market basket price.

In February 2008, TNHA solicited bids to rebuild a three-bedroom home that was damaged by fire in Nuiqsut. Bids were received from two large regional, general contractors. The first bid was a staggering \$1,127,000; the second bid offered construction at \$1,034,000 at a cost of nearly \$862 a square foot.¹¹⁹

TNHA Programs.

Rental Housing. The U.S. Department of Housing and Urban Development (HUD) provided a portion of the funding to construct a five-unit housing development for Elders in the community. Because the 5-plex was built using federal funds, income restrictions limited the number of people that were eligible to occupy the units. Elders who are ASRC and Nunamiut Corporation shareholders earn an annual income from dividends which often exceeded the HUD income eligibility criteria for senior housing and, therefore, many local Elders could not occupy those units. TNHA arranged to have the senior housing purchased from HUD; the new owners are owner boards established for this purpose. The units were then rented to local Elders. There currently are three Elders living in the senior housing and one manager, who doesn't pay rent. TNHA spends approximately \$81,000 annually for utilities and maintenance of the senior housing in Anaktuvuk Pass, a subsidy of about \$27,000 per resident.¹²⁰ Due to the high cost of maintaining the building, TNHA recently issued eviction notices to residents. The situation remains uncertain. There are no other rental properties in Anaktuvuk Pass managed by TNHA.

New Homes. TNHA is attempting to address village housing supply challenges with sustainable housing designs that are compatible with the harsh arctic climate. The housing authority has been working with the Cold Climate Housing Research Center (CCHRC) to design economical homes also that are appropriate for the climate and the culture. The first TNHA Sustainable Housing Project prototype house, Generation I, was constructed in Anaktuvuk Pass in 2009. The home combines the tradition of using the ground for warmth with modern technology like soy-foam insulation and solar panels. The model home is a one-story, 800 square foot home with earth berms established along three sides to simulate a traditional sod home and provide modest insulation. The home is oriented to allow for the use of natural sunlight and wind for energy. The entrance runs along the side of the home, perpendicular to the wind direction so that the wind blows the snow away from the entrance.

Most homes on the North Slope rest on wood pilings driven into the ground, which accelerate permafrost thaw by conducting heat into the frozen ground. As the permafrost thaws, the ground around it settles.

¹¹⁸ Alaska Housing Finance Corporation. *2015 Construction Costs Survey*. <http://laborstats.alaska.gov/housing/constcost.pdf>. Accessed Feb. 7, 2016.

¹¹⁹ Tagiugmiullu Nunamiullu Housing Authority. 2015. Unpublished white paper. *North Slope Borough Housing: A Brief Analysis of Issues and Options with Budgetary Quotes*.

¹²⁰ Garoutte, Claude. 2016. TNHA Construction Services Project Manager. Personal Communication. March 24, 2016.

The TNHA Sustainable Housing Project homes have a post-on pad foundation that rests atop the ground, isolating the house from the soil and preventing heat transfer to the permafrost. The foundation incorporates beams that act as skids designed to facilitate easy relocation of the house if necessary. The homes also have a ventilation air distribution system that automatically operates when the heat is turned on. The homes also use solar energy for hot water heating with three solar thermal collectors and incorporate a Lifewater self-contained sewage treatment plant.¹²¹

Since the construction of the first prototype home, four more, now Generation IV, have been constructed. These homes are located along Soakpak Road near Caribou Street. The three-bedroom homes are 822 square feet and cost about \$409,000 to construct with an asking price of \$80,000. Two of the homes have been sold and the remaining two have been vacant for several years awaiting qualified applicants. Applicants must make not more than 30 percent of the area median income of \$86,400. Potential homebuyers must also participate in a Alaska Housing Finance Corporation homeownership class prior to purchasing a home.¹²²

Home Energy. The average annual energy use for houses in the North Slope costs approximately \$3,219. The highest annual energy costs on the North Slope are found in Anaktuvuk Pass, where residents pay an average of \$4,351 annually. However, the individual household range is dramatic; the average annual energy cost for homes built during the 1970s is \$5,410, decreasing to an average of \$3,364 for homes built during the 1990s to an average of \$1,685 for homes built in 2005 or later.¹²³

Throughout the North Slope, 13 percent of households have completed the Home Energy Rebate, Weatherization, or a Building Energy Efficiency Standard (BEES) program. Anaktuvuk Pass has had the greatest participation with 35 percent of households completing one of the programs.¹²⁴

6.2 Current and Future Housing Needs

There is currently a housing shortage in Anaktuvuk Pass. This shortage often results in multiple generations, and families, residing in the same household and in overcrowded conditions, reflected in U.S Decennial Census data. An additional housing unit for each household with overcrowded conditions reveals the need for an additional 39 homes as of 2010. TNHA has calculated a current shortage of 49 homes.¹²⁵

¹²¹ Cold Climate Housing Research Center. 2012. *Sustainable Northern Shelter: Anaktuvuk Pass*. www.cchrc.org/sites/default/files/docs/AKP_factsheet2012.pdf. Accessed Feb. 6, 2016.

¹²² Garoutte, Claude. 2016. TNHA Construction Services Project Manager. Personal Communication. March 24, 2016.

¹²³ Wiltse, N., Madden, D., Valentine, B., Stevens, V. 2014. *2013 Alaska Housing Assessment*. Cold Climate Housing Research Center. Prepared for the Alaska Housing Finance Corporation. www.ahfc.us/efficiency/research-information-center/housing-assessment.

¹²⁴ Ibid.

¹²⁵ Tagiugmiullu Nunamiullu Housing Authority. 2015. Unpublished white paper. *North Slope Borough Housing: A Brief Analysis of Issues and Options with Budgetary Quotes*.

If the high growth scenario of one percent growth occurs and the current shortfall of 39 housing units were provided, Anaktuvuk Pass would need an additional seven homes by 2020, an additional eight homes by 2020, and another 17 homes by 2035. This represents a total net increase of 32 habitable dwelling needed by 2035. If the low growth scenario of a 0.5 percent decline in population occurs, much of the overcrowding in housing could be relieved due to smaller size households. The moderate growth scenario of half of a percent growth would result in the need for an additional 15 homes over the next 20 years beyond the current need of 39 homes.

Table 10: Five, Ten and Twenty Year Projected Housing Needs

Growth Rate	Base Year 2015		5 Year Forecast 2020		10 Year Forecast 2025		20 Year Forecast 2035	
	Population	Homes Needed	Population	Homes Needed	Population	Homes Needed	Population	Homes Needed
High Growth (+1%)	393	39	413	46	434	54	480	71
Moderate Growth (.5%)			403	43	413	46	434	54
Low Growth (-.5%)			383	35	374	32	356	25

In addition to more homes, residents of Anaktuvuk Pass have also expressed the desire for homeownership education, including classes on different financing options that are available to residents and teaching the youth how to purchase and maintain homes. Residents have also indicated that they are amenable to living in multi-family housing, including an apartment building or duplexes.¹²⁶

¹²⁶ Anaktuvuk Pass. 2016. Tri-lateral Meeting. Feb. 11, 2016.



Photo Credit: North Slope Borough.

Chapter 7. Community Health

Anaktuvuk Pass’s overall community health depends on many factors that include access to resources such as quality and affordable housing; employment opportunities; quality education; recreational opportunities; and safe homes and neighborhoods. This chapter examines the overall health in the community, through recent health-related initiatives, to healthy life ways and healthy environments.

7.1 Recent Health Initiatives

As part of the 2010 North Slope Borough Economic Profile and Census Report, a health survey was conducted to better understand the health issues facing North Slope communities, to work more effectively with villages on addressing community health issues, and to inform planning and policy decisions that impact community health. The North Slope Borough Health and Social Services Department analyzed survey data and prepared a Baseline Community Health Analysis Report in 2012.¹²⁷ Health conditions were gathered using a self-reporting survey by heads of households.

Overall, the results of the 2010 health survey indicate that the general health status among adults in Anaktuvuk Pass was reported to be good. However, compared to the NSB as a whole, residents were less likely to report “very good” to “excellent” health, but also less likely to report “fair” to “poor” health. Anaktuvuk Pass household heads were significantly more likely to be at a healthy weight and significantly

¹²⁷ North Slope Borough. 2012. Department of Health & Social Services. *Baseline Community Health Analysis Report*. www.north-slope.org/departments/health-social-services/baseline-community-health-analysis-report.

less likely to be obese than were their counterparts in the other North Slope villages. Yet, Anaktuvuk Pass household heads were significantly more likely than residents in other North Slope villages to report high cholesterol and prevalence of adult smoking.

The reported prevalence of chronic health problems among adults was similar to the prevalence in the Borough overall, such as thyroid problems, diabetes, high blood pressure, and heart disease. Also similar to other North Slope villages were reported levels of moderate physical activity, high soda/sugared beverage consumption, low helmet use, high prevalence of chronic ear infections in children and impacts of drugs and alcohol use on the community.¹²⁸

The levels of reported food insecurity were very high in Anaktuvuk Pass. Household heads were significantly more likely to report difficulty getting foods for healthy meals than were household heads in the other villages, in particular having enough subsistence foods. Anaktuvuk Pass households were twice as likely as other NSB households to have members who, at times in 2010, did not have enough to eat.¹²⁹

A community health forum was held in Anaktuvuk Pass in 2013 by the North Slope Borough Health and Social Services Department. The purpose was to present findings of the 2012 Baseline Community Health Analysis Report to the community, start to address issues identified in the report and hold discussion on the best ways to facilitate the changes needed to address community health issues. The four most common themes voiced by participants at the community health forum included:

- healthy activities/healthy lifestyle;
- tobacco/drug/alcohol free;
- traditional Iñupiat values and lifestyle/subsistence hunting and gathering; and
- social problems: suicide, domestic violence, and abuse.

The discussions from the community health forum were entered into an online program that generated a picture of words that were most often used during the discussions, with larger words representing words that were used most often.¹³⁰ The results are displayed in Figure 14.

¹²⁸ North Slope Borough. 2010. *North Slope Borough 2010 Economic Profile and Census Report*. Prepared by Circumpolar Research Associates Shepro, C., Maas, C. and D. Gallaway with J. McAnich for the North Slope Borough. www.north-slope.org/your-government/census-2010North Slope Borough.

¹²⁹ North Slope Borough. 2012. Department of Health & Social Services. *Baseline Community Health Analysis Report*. www.north-slope.org/departments/health-social-services/baseline-community-health-analysis-report.

¹³⁰ North Slope Borough. Department of Health and Social Services. *Anaktuvuk Pass Community Health Forum Report*. www.north-slope.org/assets/images/uploads/Anaktuvuk_Pass_Forum_Report1.pdf

Harvesting local subsistence food has been central to the culture of many remote Alaska communities. However, the evolution to partial cash economy often means greater reliance on store-bought food. In Anaktuvuk Pass, like much of rural Alaska, the quality and availability of store-bought food is subject to fluctuations outside the control of local residents. Access is dependent on a person's ability to pay high prices that can be twice as much or more than the cost of food in Anchorage. Options are limited to what is available on the shelves. Perhaps most importantly, store-bought foods do not fulfill the important roles that traditional foods, like caribou, play Anaktuvuk Pass.^{132 133}

Figure 15: Tomatoes growing in the arctic through the Gardens in the Arctic Project¹³¹



Certainly local foods are more affordable than store bought foods. Many believe that wild foods provide a better protection against the cold weather, and that harvesting and processing local foods requires considerable exertion which sharpens the physical and mental well-being of individuals. The North Slope Borough Wildlife Management Department regularly tests samples of harvested wildlife to monitor the overall health of subsistence animals and their ability to provide nutrients and dietary health to Borough residents.

Recent efforts by residents in Anaktuvuk Pass have demonstrated that growing vegetables in the arctic climate is possible. The Gardens in the Arctic project raised start-up funds to purchase planter box starter systems for the Nunamiut School and several families with future plans to dedicate a centrally located plot of land to erect a community high tunnel, a hybrid between row covers and greenhouses and are relatively inexpensive, to grow crops for the benefit of the entire village.^{134 135}

Physical activity is essential to good health. Regular exercise helps maintain healthy weight and reduces the risk of high blood pressure, type 2 diabetes, heart attack, and stroke. Planning efforts that promote physical activity might include pedestrian safety initiatives, access to a park and playground, a swimming

¹³¹ Gofundme. 2016. Gardens in the Arctic. www.gofundme.com/k7nloc. Accessed Feb. 2, 2016.

¹³² Hodges Snyder, Elizabeth and Ken Meter. 2015. *Food in the Last Frontier: Inside Alaska's Food Security Challenges and Opportunities*. Environment. May-June. www.environmentmagazine.org/Archives/Back%20Issues/2015/May-June%202015/alaska_full.html. Accessed Feb. 2, 2016

¹³³ Gerlach, Craig S. and Philip A Loring. 2015. *Rebuilding northern foodsheds, sustainable food systems, community well-being, and food security*. Aug. 5. www.ncbi.nlm.nih.gov/pmc/articles/PMC3748440. Accessed Feb. 2, 2016.

¹³⁴ Gofundme. 2016. Gardens in the Arctic. www.gofundme.com/k7nloc. Accessed Feb. 2, 2016.

¹³⁵ Rogers, Jillian. 2015. Alaska Dispatch News. *As food costs soar, Arctic gardeners flourish*. www.adn.com/article/20150803/food-costs-soar-arctic-gardeners-flourish. Accessed Feb. 2, 2016.

pool or other recreational facilities could facilitate increased physical activity. Anaktuvuk Pass has a new outdoor playground at the newly renovated Nunamiut School, pictured in Figure 16. The school also has a gymnasium that is open to the public during the evenings and a swimming pool that is open to the community one night a week. Other popular community recreation activities in Anaktuvuk Pass include skiing, snowboarding, sledding, and basketball. A new outdoor basketball court for the community was funded by Arctic Slope Community Foundation in 2013.

Figure 16: Playground at Nunamiut School ¹³⁶



7.3 Healthy Environment

The environment plays a significant role in shaping a safe and healthy community. Environmental factors that can affect community health include exposure to hazardous substances in the air, water, soil and food; physical hazards, such as noise or slips/falls; and weather hazards (see Section 3.7). In addition to basic needs, a healthy environment supports safety and social interaction. Physical features, which include the layout and design of a community and the availability of recreational amenities can contribute to an active life way or a more sedentary one.

Poor indoor air quality and ventilation is a significant issue for many Alaska homes. Older homes, built during the 1970s and 1980s, often have a higher risk of moisture and air quality issues than newer homes. Nearly 100 homes in Anaktuvuk Pass that were built during these two decades are at high risk for moisture and air quality problems. Homes constructed during the 1990s and 2000s have a low risk for these problems.¹³⁷ Other housing issues relate to overcrowding. Relieving overcrowded housing conditions can increase both physical and mental health. The physical benefits of relieved overcrowding include the

¹³⁶ Walladmmitt, Daniel. 2013. A Day at Anaktuvuk Pass. <http://northierthanthou.com/2013/01/25/a-day-at-anaktuvuk-pass/#ip-carousel-3140>. Accessed Feb. 2, 2016.

¹³⁷ Wiltse, N., Madden, D., Valentine, B., Stevens, V. 2014. *2013 Alaska Housing Assessment*. Cold Climate Housing Research Center. Prepared for the Alaska Housing Finance Corporation. www.ahfc.us/efficiency/research-information-center/housing-assessment.

reduced spread of illness; the less people, the fewer opportunities to transmit diseases. Better hygiene is also related to alleviated overcrowding because it is easier to keep a home clean and in good condition when it is not constant use. Also associated with easing overcrowded conditions is healthy sleep patterns; reduced noise and activity coupled with additional sleeping space allows for better sleeping. The mental health benefits of mitigating overcrowding include preventing depression and domestic conflict as well as helping children to do better in school because they have space and a quiet environment to study and learn.^{138 139}

Airborne dust is problematic, causing respiratory problems such as bronchitis, asthma, and a high incidence of sinus infection.¹⁴⁰ Roadway and airport dust is also blown onto drying subsistence foods, which can cause them to be inedible.

Pedestrian safety is an issue that affects the entire community. Many unnecessary injuries and fatalities occur as a result of intoxication or inattentiveness of either the driver or the pedestrian. Residents are much more likely to walk throughout a community when they feel safe. Pedestrian safety measures include ensuring that roadway shoulders and rights-of-way are clear of obstructions, such as dumpsters or large utility service barrels that would force residents to walk into the roadway; ample visibility for oncoming traffic so they can see pedestrians; and sufficient lighting for pedestrians.

7.4 Access to Healthcare

Health services in Anaktuvuk Pass are provided by three different organizations: NSB Health and Social Services Department, Arctic Slope Native Association (ASNA), and Tanana Chiefs Conference (TCC). The services provided by each organization are listed below.¹⁴¹

NSB Health & Social Services Department services:

- Village health clinic facility and community health aide;
- Eye clinic;
- Arctic Women In Crisis assistance;
- Women, Infant & Children Program;
- Children & Youth Services;
- Senior Services;
- Public Health Office/Veterinary Clinic Services.

¹³⁸ Solari, Claudia D. and Mare, Robert D. 2012. *Housing Crowding Effects on Children's Wellbeing*. Social Science Research 2012 Mar; 41(2): 464–476. www.ncbi.nlm.nih.gov/pmc/articles/PMC3805127. Accessed Apr. 1, 2016.

¹³⁹ Wolfson, Mariel and La Jeunesse, Elizabeth. *Challenges and Opportunities in Creating Healthy Homes: Helping Consumers Make Informed Decisions*. Harvard Joint Center for Housing Studies. www.jchs.harvard.edu/research/publications/creating-healthy-homes. Accessed Apr. 1, 2016.

¹⁴⁰ North Slope Borough. 2005. *North Slope Borough Comprehensive Plan*. Prepared by URS Corporation for the North Slope Borough. October. www.north-slope.org/your-government/comprehensive-plan.

¹⁴¹ Brower, Jennifer. North Slope Borough. Personal Communication. Feb. 6, 2016 and May 31, 2016.

TCC Services:

- Primary health care;
- Dental services;
- Medical travel;
- Screening For Life Services:
 - Office visits
 - Mammograms and clinical breast exams
 - Pap tests
 - Prostate cancer screening tests
 - Colorectal cancer screening tests
 - Lung cancer screening tests
 - Health education
 - Help with coordinating associated care
- Behavioral health services.

ASNA Services:

- Medical, travel and funeral assistance
- Medical housing
- Funeral Assistance
- Funeral Travel

Anaktuvuk Pass residents have expressed the need for assistance with the cost of airfare for medical travel as well as meals and lodging expenses while in Fairbanks. Residents have also stated that there is a need for dedicated housing for Anaktuvuk Pass residents when traveling to Fairbanks for medical services. The current hostel in Fairbanks, operated by TCC, is often full. Additionally, having an Iñupiaq-speaking employee that can assist in facilitating health care needs and providing translation services is a much-needed service, as has been available at the Chief Andrew Isaac facility in the past. While ASNA does offer some travel assistance for medical needs, many residents do not qualify due to income limits.

Residents have also expressed the need for a 24-hour medical hotline to address health care needs. Additionally, residents feel that appropriate procedures need to be implemented so that hotline attendants communicate more effectively with other attendants to ensure patient concerns are addressed.

This page is intentionally left blank



Photo Credit: Department of Commerce, Community and Economic Development; Division of Community and Regional Affairs' Community Photo Library.

Chapter 8. Public Facilities and Services

Non-residential buildings in Anaktuvuk Pass include several buildings owned by the North Slope Borough (NSB) including a the Fire Station, Public Safety Officer (police) building, water treatment plant, sewage treatment plant, electric power generating plant, heavy equipment/operations and maintenance shop, Village Liaison and Teleconference building, and Simon Paneak Memorial Museum.

Other non-residential buildings include the Nunamiut Corporation Restaurant and hotel, Chapel of the Mountains Presbyterian Church, U.S. Post Office, community hall, National Park Service (NPS) building, and the Iñupiat Community of the Arctic Slope (ICAS) office. In 2009, an expansion of the Simon Paneak Memorial Museum began and was completed in 2011.

The NSB provides all utilities to Anaktuvuk Pass.

8.1 Water and Sewer

The NSB Anaktuvuk Pass water and wastewater system has remained largely unchanged since the original construction was completed in the late 1990s.¹⁴² The system was commissioned in 1999, and since then new homes have been built and are requesting water/sewer connections. The homes that are not connected to the underground system are currently serviced through truck water haul service or vacuum sewage truck service provided by the NSB.

The current water/sewer system serves 104 buildings: 94 residential and 10 commercial.¹⁴³ Currently, the NSB is considering construction funding for an expansion to connect 17 more buildings in Anaktuvuk Pass. The design of the connection upgrades is complete and once funding is located, the project can be bid. According to the NSB 2015 CIP Plan, just over \$3 million is planned for construction in 2017. In the original PAR investigating the connection work, completed in April 2014, a total of 24 buildings were considered but seven are excluded primarily because mainline extensions would be required to properly connect. Additionally, the seven buildings not included in the planned expansion are excluded due to various reasons from no modern facilities in the building, buildings not on a permanent foundation, or a cold weather research house that will not be done due to request from Tagiugmiullu Nunamiullu Housing Authority (TNHA). Through public meetings and discussions with residents, community members have repeatedly indicated having water and sewer connections extended to those homes that are not yet connected to the system is the greatest capital priority.

Existing Water System. A water well provides water year around to the community. The well was drilled and installed in 1994. It was drilled to 165 feet in depth and had casing set to 130.2 feet. According to the well log kept during the well installation, the groundwater appears confined below a seasonally frozen zone with free water through the depth of the boring.

A static water level of 13.6 feet below ground was observed during the well installation. The well was tested then at 100 gallons per minute (GPM), but the total depth of the aquifer was unknown. Currently, the water well is pumping at between 35-45 gallons per minute.¹⁴⁴ NSB Water/Sewer Utility System Specialist (USS) personnel reported that when the pump goes down or needs maintenance in the existing well, they are unable to continue to pump water and must shut down pumping operations. With an alternating well, there would be a continuous source even during periods when one well is not operating. In addition, with the water pressure declining in the existing well, drilling a second well should be investigated as a redundant water well source. As part of 2015-05, the NSB Six Year Capital Plan designated funding to investigate a new water well and a consultant is hired to investigate new water well locations.

¹⁴² North Slope Borough. 2014. *Project Analysis Report: Anaktuvuk Pass Water & Sewer Connections –Phase 1*. April 28, 2014. Prepared by UMIAQ.

¹⁴³ Ibid.

¹⁴⁴ Wagner, Greg. NSB Water/Sewer Utility System Specialist. Personal Communication. Jan. 14, 2016.

A water well that is now decommissioned is located at the corner of Main Street and Airport Street, but no longer is a producing water source. It has been permanently capped off.

The raw water well pump house is located on the north side of Contact Creek near the intersection of right-of-way easement for Caribou Street and Kayak Street. The raw water is pumped from the well house directly to the water treatment plant, transferred by a buried 2-inch water line directly into the reservoir tank, then into the treatment plant, where all of the water is treated before being distributed into the village.

The water treatment/distribution building (in this plan referenced as the water treatment plant) treats and distributes water through pressurized water mains to individual services. The plant uses a chlorine disinfection system. There are two 6-inch water main loops that supply water throughout the village. Both start and terminate at the water treatment plant. The water system is a recirculating loop design, comprised of two circulating water loops totaling 14,495 linear feet (LF) of insulated arctic pipe¹⁴⁵. The insulated pipe protects the water mains from freezing. The water treatment plant also supports the truck water hauling through a truck fill station at the water treatment plant, located on the south side of the building. See the water distribution system in Map 7.

The village has one water tank reservoir with a capacity of 300,000 gallons. The approximate dimensions are 40 feet diameter and 30 feet tall. The tank is filled by the water well year around and is primarily used for fire protection. The water tank is located adjacent to the water treatment plant, on the north side of the building.

The maximum capacity of the water treatment plant in this plan, because the water amount entering the facility is capped at what can be pumped from the existing water well. Currently, the amount of water processed every day is 35 gallons per minute pumped from the well. This multiplied by 1,440 minutes in a 24-hour period gives a total of 50,400 gallons per day.

Data from 2014, provided by the NSB Water and Sewer Utility, showed averages much higher than what is typically found in other villages on the North Slope. The NSB data reported that 32,651 gallons per day (GPD) or an average of 100.8 GPD per person was used in Anaktuvuk Pass. This higher usage rate is unusual, because typically water usage should mirror closely the wastewater usage rate. In Anaktuvuk Pass, the reported wastewater average is 8500-9000 GPD. The above average water usage was caused by water line leaks that were prevalent during 2014, with several occurring where service lines connected into water main lines. Repairs were been completed in 2015 and reported water usage has lowered the water demand to between 9,000 to 11,000 GPD.

¹⁴⁵ North Slope Borough. 2014. *Project Analysis Report: Anaktuvuk Pass Water & Sewer Connections –Phase 1*. April 28, 2014. Prepared by UMIAQ.

Assuming water demand is now 11,000 GPD, the calculated water demand for Anaktuvuk Pass is 34.0 gallons per day per capita (GPDPC). This number is based on the portion of the population (324) that is currently connected to the buried water and sewer system. This is comparable to the NSB slope averages between 28 to 35 GPDPC. Peaking data is not clearly definable from the available water data and no hourly data is available. For the purposes of this plan, the daily peaking factor of 1.6 factor for Nuiqsut was used.¹⁴⁶ The basis for using this flow rate is that the Anaktuvuk Pass wastewater flows match the Nuiqsut peaking factor.

The current population of Anaktuvuk Pass is 393 and with a 34 GPDPC, the total daily use is 13,362 GPD. This is well below the capacity water treatment maximum amount that is treated by the plant on a daily basis. NSB Water Sewer personnel reported that when school is in session the daily usage jumps to about 14,000 gallons per day. As mentioned earlier in this section, the capacity of the treatment plant is capped at what is pumped daily from the water well, which is 50,400 gallons per day. Annual estimated treated water available is 18,396,000 at the current well pumping rate.

With the planned new 2017 services, the water usage will increase the average piped water demand by 1,700 GPD and 70.8 gallons per hour (GPH). Peak factors for total community water usage are 1.6 times over the daily average and are 2.9 times over the hourly average use, or 17,600 GPD and 1,329 GPH based on maximum daily and hourly usages. This water demand is within the capabilities of the water treatment and distribution plant to support.¹⁴⁷

Table 11: Estimated Future Water Usage, High Growth Rate of 1%

Forecast Year (High Growth Rate-1%)	Population Count (Ea.)	Daily Usage (Gallons/per person/per day)	Proposed Usage Gallons/Per Year
2015	393	13,362	4,877,130
2025	434	14,756	5,385,940
2035	480	16,320	9,956,800

Future population growth anticipated at a high growth rate of 1% a year, forecasts population increases of 413 in 2020, 434 in 2025 and 480 in 2035. Even calculating available water usage using this highest rate of growth, available water in the village will exceed the demand anticipated.

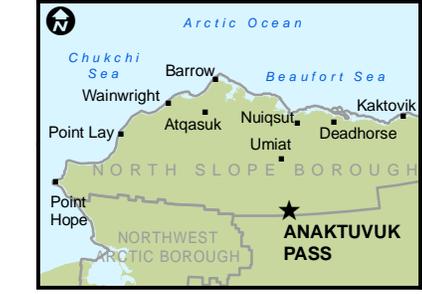
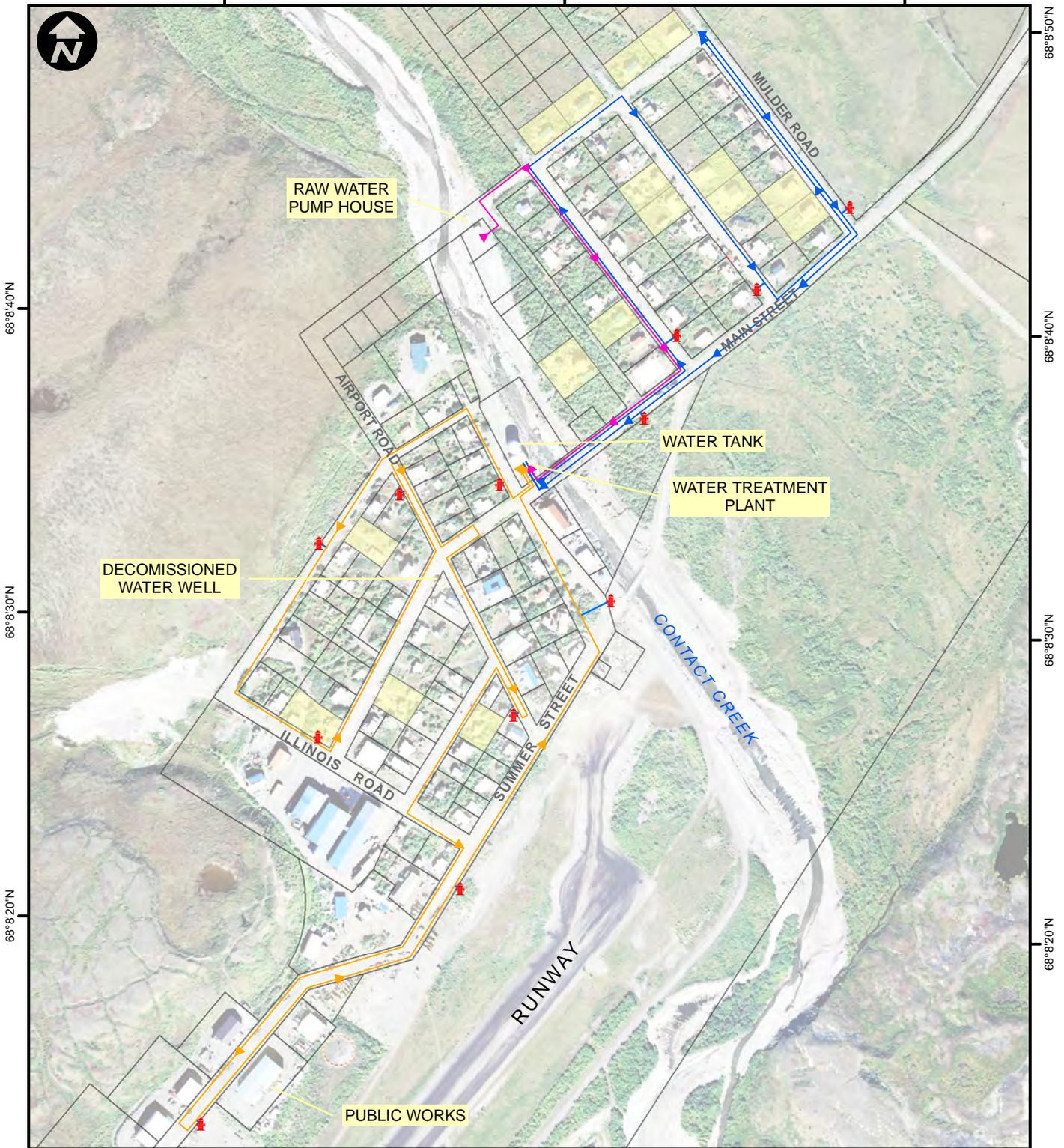
¹⁴⁶ North Slope Borough. 2013. *Project Analysis Report: Atqasuk and Nuiqsut Water and Sewer Connections*. Feb. 22, 2013. Prepared by UMIAQ.

¹⁴⁷ North Slope Borough. 2014. *Project Analysis Report: Anaktuvuk Pass Water & Sewer Connections –Phase 1*. April 28, 2014. Prepared by UMIAQ.

151°44'30"W

151°44'0"W

151°43'30"W



NAD 83 State Plane Zone 4

- Raw Water Line
- Water Main Loop 1
- Water Main Loop 2
- Fire Hydrant
- Proposed Connections
- Parcels - NSB / GIS

IMAGERY: August 21, 2013 DCCED

DISCLAIMER
For informational purposes only.

**ANAKTUVUK PASS, ALASKA
WATER DISTRIBUTION**

Scale:
0 200 400 600 800 1,000 Feet

Map: **7**

This page is intentionally left blank

Existing Sewer System. Wastewater is collected by gravity mains draining to the wastewater treatment plant, which is located on Access Road, north of the Anaktuvuk Pass airport, adjacent to the Power Plant building. Anaktuvuk Pass utilizes 10,940 LF of gravity collection piping and currently provides service to 94 homes. There are 43 cleanouts located throughout the distribution system to allow for cleaning and access to the main lines. Collection piping is heat traced arctic pipe to prevent freezing of the mains and prevent thawing of the surrounding permafrost trenches. There are currently no sewer force mains or lift stations in the buried portion of the system in Anaktuvuk Pass.¹⁴⁸

The buried wastewater collection system consists of gravity sewers and one lift station within the wastewater treatment plant. Gravity sewers are installed on slope so that wastewater flows through the pipe without assistance from mechanical or electrical devices. Buildings drain into service barrels, which in turn drain into sewer mains. Wastewater flow from sewer mains collects at the lift station in the wastewater plant. When sufficient wastewater is collected, the lift station pumps wastewater through a force main to the wastewater treatment skid. Map 8 illustrates Anaktuvuk Pass's existing sewer system.

There are currently 22 homes that still use honey buckets or sewage holding tanks in Anaktuvuk Pass. As discussed in the water section of this plan, 17 of these homes will be connected to below grade water and sewer service in 2017. Until they can be connected, the waste is pumped at each home, and hauled directly to a single cell lagoon located at the landfill, approximately 2 miles from the village. The lagoon is used to settle sewage solids and provide treatment prior to seasonal effluent discharge. The existing lagoon is undersized to support the existing tank truck volume in Anaktuvuk Pass, and often overflows in the spring during dumping and is too small to provide an adequate settling of effluent. The volume of wastewater disposed in the lagoon needs to be reduced, or the lagoon upsized to support the community's truck hauled volume.¹⁴⁹

With the addition of the 17 new services the volume of waste disposal will drop. In addition, a design for two new lagoon cells has been completed, and the NSB plans to construct them as soon as funds are available. With the connection of the new sewer services and the expansion of the new sewage cells, the overflow problem will be solved. The new sewage cells are designed to accommodate 22 households short-term or 10 households long-term with 3.67 persons per household. The wastewater treatment plant does not process wastewater from tank trucks nor honey buckets.

The larger of the two new cells will serve as the primary treatment cell, and the smaller new cell and existing cell will become secondary storage cells, providing for a second year of treatment before discharge onto the tundra. The discharge occurs on a yearly basis, and sludge removal is necessary in the existing cell to increase room for storage. Sludge is bagged and placed in the landfill.

¹⁴⁸ North Slope Borough. 2014. Project Analysis Report: *Anaktuvuk Pass Water & Sewer Connections –Phase 1*. April 28, 2014. Prepared by UMIAQ.

¹⁴⁹ Ibid.

Only the homes connected to the sewer system are included in the total average wastewater flow. For Anaktuvuk Pass, the total GPD is 8,344 GPD, indicating 25.8 GPDPC. The estimated portion of the population on the piped system is 324 people. The population of Anaktuvuk Pass is 393 people. If all were connected to the system, the daily wastewater flow would increase to 10,139 GPD. Once the new connections are completed this total daily amount will increase by 1800 gallons per day or an anticipated 69 people. The new homes do not increase the wastewater plant inflows above the permit level ignoring intrusion and infiltration into the collection system.

Recent interviews with NSB Water/Sewer USS employees in Anaktuvuk Pass confirm the wastewater daily amounts treated are between 8500-9000 GPD. Peak community flows appear to be 13,500 GPD indicating a daily peaking factor of 1.6 and with the new connections will grow to an expected 16,223 GPD. The average and peak flows are based on graphical interpretation to remove unusually high flows due to leaks or ground water infiltration. No hourly data is available; however, the value is comparable to that of Nuiqsut. Nuiqsut’s daily peaking factor is 1.6.

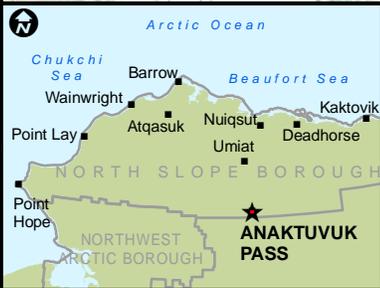
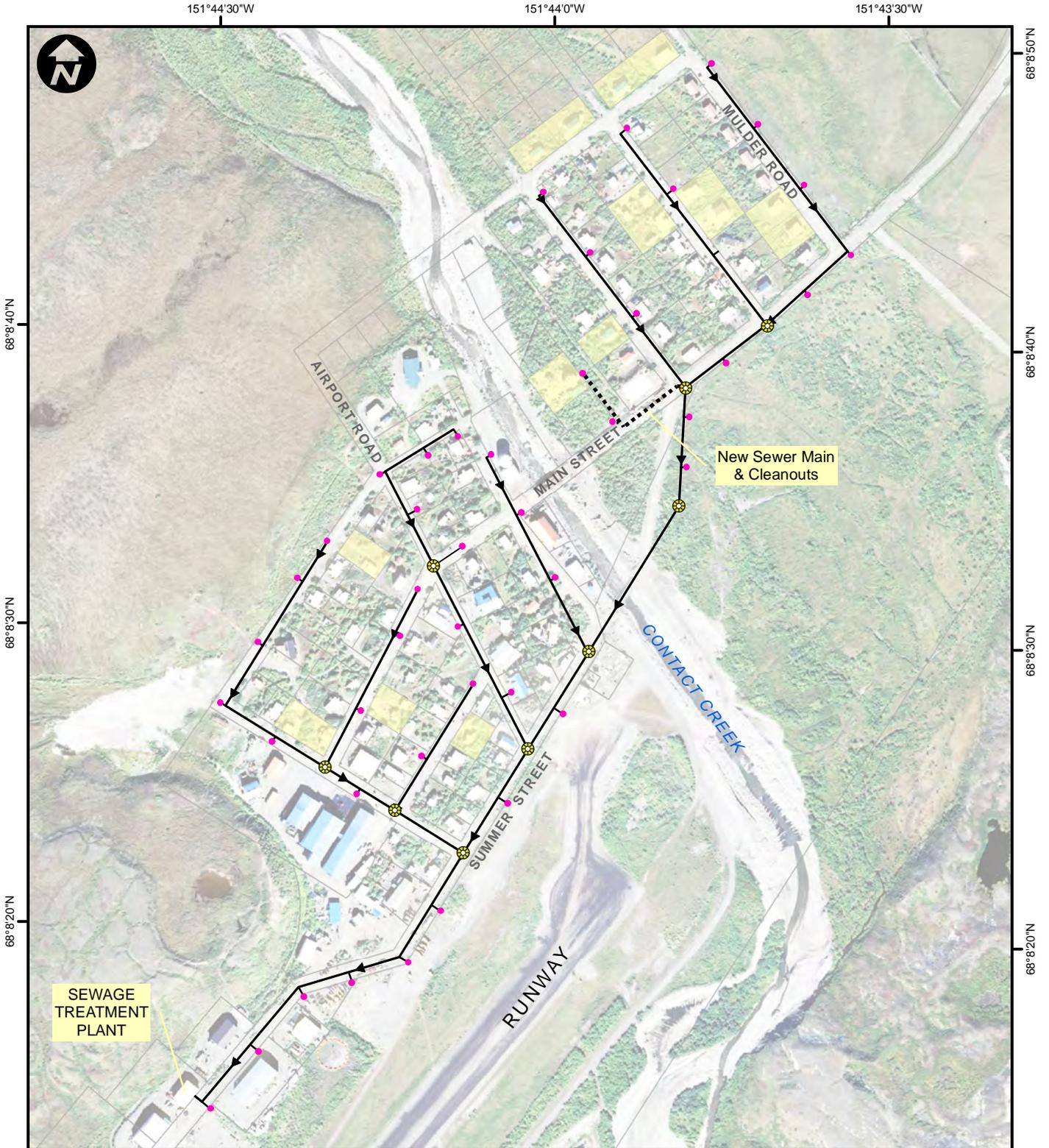
The wastewater plant has two treatment trains. Recent revisions to the process in 2012 increased the permitted flow from 11,000 GPD to 20,000 GPD. Two trains allow for one to be shut down for annual or emergency maintenance activities. The average flow allows for the train maintenance by using one process train and turning the second off for the duration of maintenance. There is an 85% removal of effluent before discharge from the plant and all treated effluent is discharged into the leech field, located at the south end of Access Road. Considering no external system changes and only wastewater plant modifications, the 20,000 GPD permit level has been exceeded 4 times during the same period, or 0.002%.¹⁵⁰ A Notice of Violation has not been issued for this plant to date.

After comparing the same high growth rate to 2025 and 2035, the wastewater treatment plant will be nearing capacity rates during peak flow periods. The estimated wastewater usage per capita is 25.8 GPDPC as discussed earlier in this section. With a peak factor calculated at 1.6 times the average daily flow equates to 16,223 GPD, which is well under the wastewater plant capacity of 20,000 GPD.

Table 12: Estimated Wastewater Generation/Treatment, High Growth Rate of 1%

Forecast Year (High Growth Rate -1%)	Population Count (Each)	Daily Generation Peak Flow 1.6 times (Gal/Per person/Per day)	Treatment Plant Capacity
2015	393	16,223	20,000
2025	434	17,916	20,000
2035	480	19,814	20,000

¹⁵⁰ North Slope Borough. 2014. *Project Analysis Report: Anaktuvuk Pass Water & Sewer Connections –Phase 1*. April 28, 2014. Prepared by UMIAQ



NAD 83 State Plane Zone 4

- Sewer Main
- Sewer Cleanout
- Manhole
- Proposed Connections
- Parcels - NSB / GIS

IMAGERY: August 21, 2013 DCCED

DISCLAIMER
For informational purposes only.

**ANAKTUVUK PASS, ALASKA
SEWER**

Scale:
0 200 400 600 800 1,000
Feet

Map:
8

This page is intentionally left blank

8.2 Power Generation and Fuel Storage

The current Anaktuvuk Pass Power Plant was originally constructed in 1994 and is located on the south side of town on Access Road. The building is solely used for power generation and is owned and maintained by the NSB. The power plant was upgraded in 2003 with the decommissioning of an existing 3406 Caterpillar generator, and the addition of two new 3512 Caterpillar generators. In 2013, the NSB Public Works department submitted a Capital Improvement Program (CIP) Project Analysis Report Request (PARR) to investigate the plant controls and switchgear, because they were considered obsolete and outdated. There are other deficiencies noted in the request such as cranes, radiators and pumps, but the plant does not need a major re-build. The report has not been finalized; it anticipated to be complete in 2017. An additional upgrade is included in the NSB 6-Year Plan for 2015, with an approximate start date of 2018. Two million dollars in funding is anticipated in 2018 and six million dollars anticipated in 2019.¹⁵² The work will likely include repair and upgrade to controls and switchgear and other upgrades to infrastructure within the plant itself. The scope will become more defined once the Project Analysis Report (PAR) is complete.

The Anaktuvuk Power Plant operates using the five generator units listed below:

Figure 17: Anaktuvuk Pass Power Plant ¹⁵¹



Table 13: Existing Power Generators

Unit	Make/Model	Capacity	Serial Number	Installed
1	Caterpillar 3412	330 kilowatt (kW)	81Z15588	1994
2	Caterpillar 3412	330 kW	81Z15583	1994
3	Caterpillar 3412	330 kW	81Z15586	1994
	Caterpillar 3406	170 kW	Decommissioned	
4	Caterpillar 3512	910 kW	67Z2043	2003
5	Caterpillar 3512	910 kW	02042	2003

¹⁵¹ Alaska Department of Commerce, Community and Economic Development. 2008. Division of Community and Regional Affairs. Community Photo Library. *Power Plant*. www.commerce.alaska.gov/dcra/dcrepoext/Pages/PhotoLibrary.aspx

¹⁵² North Slope Borough. 2015. *Six Year Plan*.

There are no known deficiencies and all five engines are in good working order. With the current demand loads the power plant is able to supply and meet the village needs by running one Caterpillar 3512 generator at a time. This generator has a maximum output capacity of 910 kilowatt hours (kWh). Optimum operating rate recommended by Caterpillar is 85%, for an output of 775 kWh. The current normal peak winter load during winter months are about 650-700 kWh, and requiring the 3512 to run at about 70 percent.

During summer months the demand drops to 200-250 kWh per day. According to NSB Light and Power personnel, the two 3512 generators are run alternatively, for 1000 hour intervals.¹⁵³ After 1,000 hours of operation, the non-operating 3512 generator is started to allow the operating one to be shut down and serviced. With regular and continuous maintenance and recommended intermittent major overhauls, the generator life of the 3512 is expected to be well over 100,000 hours of operation. There are 8,760 hours in one year, and it could be estimated that each generator is available to operate for over 11 years. The generators were installed in 2003, and with both expected to operate a total of 22 years, that the power plant is well equipped to meet the demand until 2025.¹⁵⁴

Table 14: Estimated Future Power Usage, High Growth Rate of 1%

Forecast Year	Population Count (Each)	Daily Peak Usage (kW/Per day)	Average Winter Usage (kW/Per day)
2015	393	700.4	550.2
2025	434	781.2	607.6
2035	480	864.0	672.0

For purposes of forecasting future peak use with future anticipated population growth, a rate of 1.8 kW per person/per day is used. This rate of usage was calculated from the estimated peak usage in winter at 700 kW and a population count today of 393. For average winter load calculations, we have used 550 kW, and the population count for today, for a rate of 1.4 kW per person/per day.

With a reserve of generators in Anaktuvuk Pass, other power options would be available. For example, with higher demands two smaller units could be run concurrently or during summer months, just run one. Power and Light has reported though, that the smaller 3412 generators use more fuel than the larger 3512, and running two 3412s will only yield about 300 kW. Power and Light personnel speculated that a preferred alternative to the low demands in the summer months past 2025, would be the purchase of a new 500 kW generator to provide the continuous, range of demands prevalent in Anaktuvuk Pass.

¹⁵³ Mueller, Kim. 2016. North Slope Borough Power and Light. Personal Communication. Feb. 2, 2106.

¹⁵⁴ Ibid.

The cost of fuel, now and likely in the future, warrants an analysis of the potential for local, renewable energy sources for electric power generation, such as wind power.

Energy. Anaktuvuk Pass purchases between 450,000 and 500,000 gallons of diesel fuel annually according to the NSB.¹⁵⁵ Diesel fuel is used to heat homes in Anaktuvuk Pass and fuel the generators in the power plant. The power plant uses approximately 300,000 gallons per year, leaving approximately 200,000 needed for home fuel needs.¹⁵⁶ The power plant uses about 32 gallons per hour to produce the needed electricity in the village.

Anaktuvuk Pass was one of the 184 Alaskan communities that participated in the Alaska Energy Authority's (AEA) Power Cost Equalization (PCE) program in 2014. The goal of the program is to provide economic assistance to customers in rural areas of Alaska where the kilowatt-hour charge for electricity can be three to five times higher than the charge in more urban areas of the state. The PCE subsidizes 30 percent of each customer's electric utility cost. In Anaktuvuk Pass, electricity costs a flat rate of \$15 for up to 100 kWh, for 101 to 600 kWh the cost is an additional 15 cents per kWh, and 35 cents per kWh for use over 600 kWh. Elders and disabled residents only pay full costs when usage exceeds 600 kWh.

Fuel Storage. Anaktuvuk Pass has fuel storage capacity for 300,000 gallons and that capacity never gets fully utilized due to the cost of shipping. Based on information from the NSB Fuel Division, 584,480 gallons of fuel has been flown into Anaktuvuk Pass in fiscal year 2015. The current price is \$4.52 a gallon and this includes the freight and fuel charge. It was reported that fuel was invoiced 47 times over the course of fiscal year 2015, but it is unclear as to the exact number of flights that occurred or the amount of fuel flown in on each. Everts Fuel delivers heating fuel by plane every couple of weeks and usually brings three 4,500 gallon loads per day for two or three days on delivery weeks. Unleaded fuel arrives as needed from Fairbanks, which typically is a 3,000 to 3,300-gallon delivery about once per month. Propane is also delivered by Brooks Aviation on an as-needed basis at about ten bottles per delivery.

Residential heating fuel is subsidized by the NSB at no cost to the user; and the \$1.55/gallon price is to cover the cost of delivery which is set by the Nunamiut Corporation because it has the contract to deliver fuel. There is an elder discount of a \$1.00/gallon.¹⁵⁷

The Nunamiut Corporation has a 52,500-gallon fuel storage capacity.¹⁵⁸ There are also numerous smaller fuel storage tanks throughout the village. A buried fuel line runs from the fuel tank farm located near the north end of the runway to an exterior 5000 gallon tank located by the power plant. The fuel is then transferred by fuel line to a 500 gallon day tank inside the power plant facility for fueling the generators.

¹⁵⁵ North Slope Borough. 2014. *Project Analysis Report: Anaktuvuk Pass Seasonal Overland Route*. Prepared by Hattenburg, Dilley and Linnell. Feb. 5, 2014

¹⁵⁶ Ibid.

¹⁵⁷ Burris, Lawrence. 2016. North Slope Borough Liaison. Personal Communication. Feb. 2, 2106.

¹⁵⁸ North Slope Borough. 2005. *North Slope Borough Comprehensive Transportation Plan*. Prepared by ASCG Inc. August. www.north-slope.org/your-government/comprehensive-plan. Accessed Jan. 14, 2016.

Table 15: Anaktuvuk Pass 2015 Utility Costs*

Utility	Cost
Fuel	
Residential Heating fuel delivery cost	\$1.55/gallon
Commercial Diesel cost	\$8.60/gallon
Propane Bottle (100 pounds)	\$300.00
Gasoline	\$7.60 gallon
Electricity (Residential)	
0-100 kWh	\$15 minimum
0-600 kWh	\$0.15
601 kWh plus	\$0.35
Aged or handicapped (Seniors over 60)	
0-600 kWh	No Charge
601 kWh plus	\$0.35
Electricity (Commercial)	
0-75 kWh	\$15 minimum
0-1000 kWh	\$0.20 per kWh
1,001-10,000 kWh	40.30 per kWh
Water/Sewer Piped or Delivered (commercial and residential)	
0-3000 gallons per month (residential)	\$69.00 flat rate
0-3000 gallons per month (Seniors)	\$14.00 flat rate
After 3000 gallons	\$0.02/gallon
Commercial Rate	\$0.08/gallon
Sewer	free

*current as of February 2015

8.3 Solid Waste and Recycling

The landfill in Anaktuvuk Pass, located approximately two miles northeast of the community at the terminus of the landfill access road, is categorized as a Class III landfill and is owned and maintained by the NSB (See Map 9). It is permitted under the State of Alaska 18 AAC 60 regulations. The classification requirement for a Class III landfill is that the landfill accepts less than 5 tons/day of municipal solid waste, based on an annual average. The Anaktuvuk Pass landfill was constructed in 2003/2004, but did not start receiving waste until 2005. Since 2005, the landfill has served as the disposal site for municipal wastes, septage, and dried sewage solids for Anaktuvuk Pass. The landfill then received about 0.75 ton per day of solid wastes based on per capita waste generation rates from the 1996 NSB Solid Waste Management Plan.¹⁵⁹ This amount has increased to just under 1 ton per day.

¹⁵⁹ North Slope Borough. 1996. *North Slope Borough Solid Waste Management Plan*.

The landfill was last surveyed in August of 2015 as part of the Alaska Department of Environmental Conservation (ADEC) Class III permit renewal on behalf of the North Slope Borough. Before that a survey completed in September 2010 was completed for an earlier permit submittal. This current permit application will permit all NSB landfills under one Master Permit including the Anaktuvuk Pass Landfill. The earlier permit for the Anaktuvuk Pass Landfill (SW3A080-15) expired in December of 2015. Both the 2015 and the 2010 surveys provide the waste limits of the stored volumes and site configurations at the time of the survey. For the preparation of this plan, the surveys are used to verify calculations completed to determine landfill volumes, rate of placement and landfill capacity for use in this plan.

The landfill is surrounded by security fencing and access gates, and the gates are locked when NSB personnel are not on site to prevent public access. The landfill is not attended with regular hours and dumpsters are provided in the village for use by the public for day to day disposal needs. In Anaktuvuk Pass, the following municipal waste is permitted for disposal:

- Municipal Solid Waste
- Inert or Construction & Demolition (C&D) Waste
- Non-Regulated Asbestos Containing Material (non-RACM)
- Honey Bucket Waste or septage

A burn cage on site is also permitted for use. Waste material is separated prior to burning; batteries are shipped out of the community for recycling. Fluids are removed from discarded vehicles. All waste streams prohibit the placement of hazardous wastes, and commercial demolition must provide statements to NSB PW that the wastes being disposed of are inert in nature, friable asbestos and lead as part of the coordination for access to use the landfill. The burns are controlled and sporadic as needed. Residents have expressed concern about impacts on the incineration during caribou migration.

Solid waste disposal in a remote Alaskan village such as Anaktuvuk Pass, is estimated at about 5 pounds of refuse per person per day. At this rate, calculated using the high growth rate of 1% per year, Anaktuvuk Pass will generate about 750,000 pounds of garbage per year or about 1 ton per day. In addition to the increased amount of waste generated by the growing population, solid waste will be generated through construction projects and refuse from additional businesses and public services. This waste stream has not been included in the area calculations to estimate landfill capacity.

The landfill capacity calculations include the following assumptions:

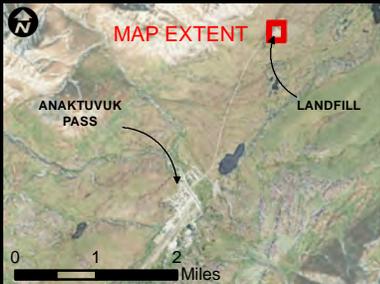
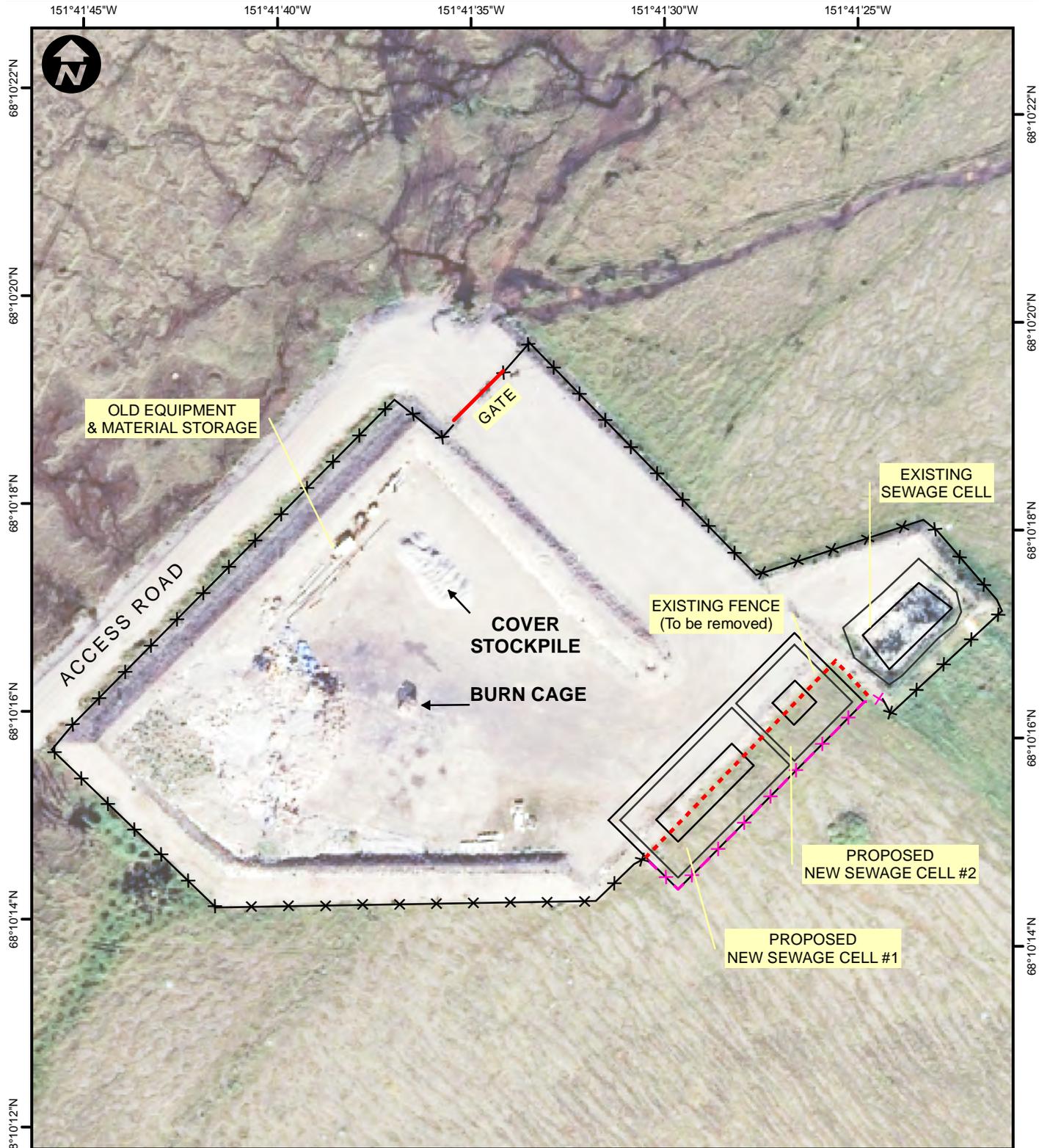
- The High Growth Population Rate of 1% annual increase established in this plan is used.
- A five (5) pound garbage generation rate per person per day is used.
- Two trash hauls are completed each week from the village to the landfill.
- Each trash haul carries one half of the total trash generated in the village per week.
- A reduction factor of thirty (30) per cent is included to compensate for burning of burnable trash deposited.

- A rate of ten (10) per cent of area and volume is included for gravel cover used. Gravel cover is used after compaction and consolidation of each two foot lifts of trash, using a minimum of three (3) inches to maximum six (6) inches of cover between lifts.

Table 16: Estimated Future Solid Waste Disposal, High Growth Rate 1%

Year	Pop.	Tons/day	Tons/Pickup	Yards/Pickup (CY)	30% Burn Reduce (CY)	10% Cover (CY)	x 27 (CF)	Length/Pickup (FT)	Cell Length/Year (FT)
2015	393	1.00	3.51	11	3.24	3.56	96.16	1.60	83
2020	413	1.05	3.69	11	3.40	3.74	101.07	1.68	88
2025	434	1.11	3.87	12	3.58	3.93	106.22	1.77	92
2030	456	1.16	4.07	13	3.76	4.13	111.64	1.86	97
2035	480	1.22	4.28	13	3.95	4.35	117.33	1.96	102

The calculations support the assumption that the landfill will easily meet the disposal needs of the village, even at a high growth rate of 1 per cent per year. Total capacity calculated in area is 462 sf (cumulative) which easily meets the demand requirement estimated for 2035.



NAD 83 State Plane Zone 4

- - - x - - - PROPOSED NEW FENCE
- - - EXISTING FENCE TO BE REMOVED
- - - x - - - EXISTING FENCE

IMAGERY: August 21, 2013 DCCED

DISCLAIMER
For informational purposes only.

ANAKTUVUK PASS, ALASKA
LANDFILL

Scale:
0 50 100 150 200 250 Feet

Map: **9**

This page is intentionally left blank

8.4 Transportation

Airport. The NSB owns and maintains the Anaktuvuk Pass airport. The gravel airstrip is 4,760-foot long by 100-foot wide. The airport provides year-round access to Anaktuvuk Pass. An existing parking apron is located on the northwest side of the runway, near the middle, that offers aircraft passenger and freight loading and unloading. A smaller separate apron and taxiway located on the northern end of the runway near the fuel tank farm, and fuel unloading is done here. The instrument runway (non-precision) is located on a geodetic bearing of 01-19, placed to accommodate the prevailing wind, which covers 99.91% of wind coverage. Approach visibility minimum is one mile.

The navigational aids operating at the airport include runway end identification lights (REILs), a precision approach path indicator (PAPI) system, an Automatic Surface Observation System (ASOS) which includes a weather cam recording “on the ground” weather conditions. There is a rotating beacon, an externally lit wind cone, mounted on a steel tip pole, surrounded by a segmented circle. The segmented circle consists of 55 gallon drums painted orange. The runway lights are medium intensity runway lights (MIRL), medium intensity taxiway lights (MITL) and apron lighting.

The Anaktuvuk Pass airport is classified and designed to accommodate B-II aircraft, which is a classification based on wingspan and aircraft approach speeds. B-II aircraft falls into a wing span of 49 feet up through 78 feet and approach speeds between 91 knots through 120 knots. The airport Layout Plan (ALP) designates an ultimate classification increase to a B-III reference code for planned future airport infrastructure which would allow for larger aircraft to land with wing spans up to 117 feet wide. Airplane wingspan increases would require runway improvements to increase separation criteria and width-related features such as taxiway width, apron size and safety area increases. Approach speeds would require longer runways and runway object free areas, and obstacle free zones.

Two as-of-yet unfunded but desired projects include: (1) construction of a passenger terminal at the airport; and (2) installation of security fencing around the airport property. The community has expressed a long time desire to have an airport terminal building that would allow a warm place to wait for planes in and out of Anaktuvuk Pass. The desired building would include water and sewer connections. Also being considered in the Airport Capital Improvement Plan for the NSB airports is perimeter fencing.

Roads. Anaktuvuk Pass consists of approximately eight miles of developed, gravel roads. In addition, there are approximately three miles of trail leading to the subsistence/recreation area north of the village. The major thoroughfare, Main Street, is a route leading from the school, across Contact Creek Bridge and past the cemetery to the landfill. A winter trail extends beyond the town site and runs the length of the pass. Most roads are constructed on gravelly soils, built up with two to four feet of fill and topped with finer gravel. The roads are generally in fair condition with adequate drainage, although there are occasional problems with rutting and potholes. Unlike most other Borough villages, there is an adequate

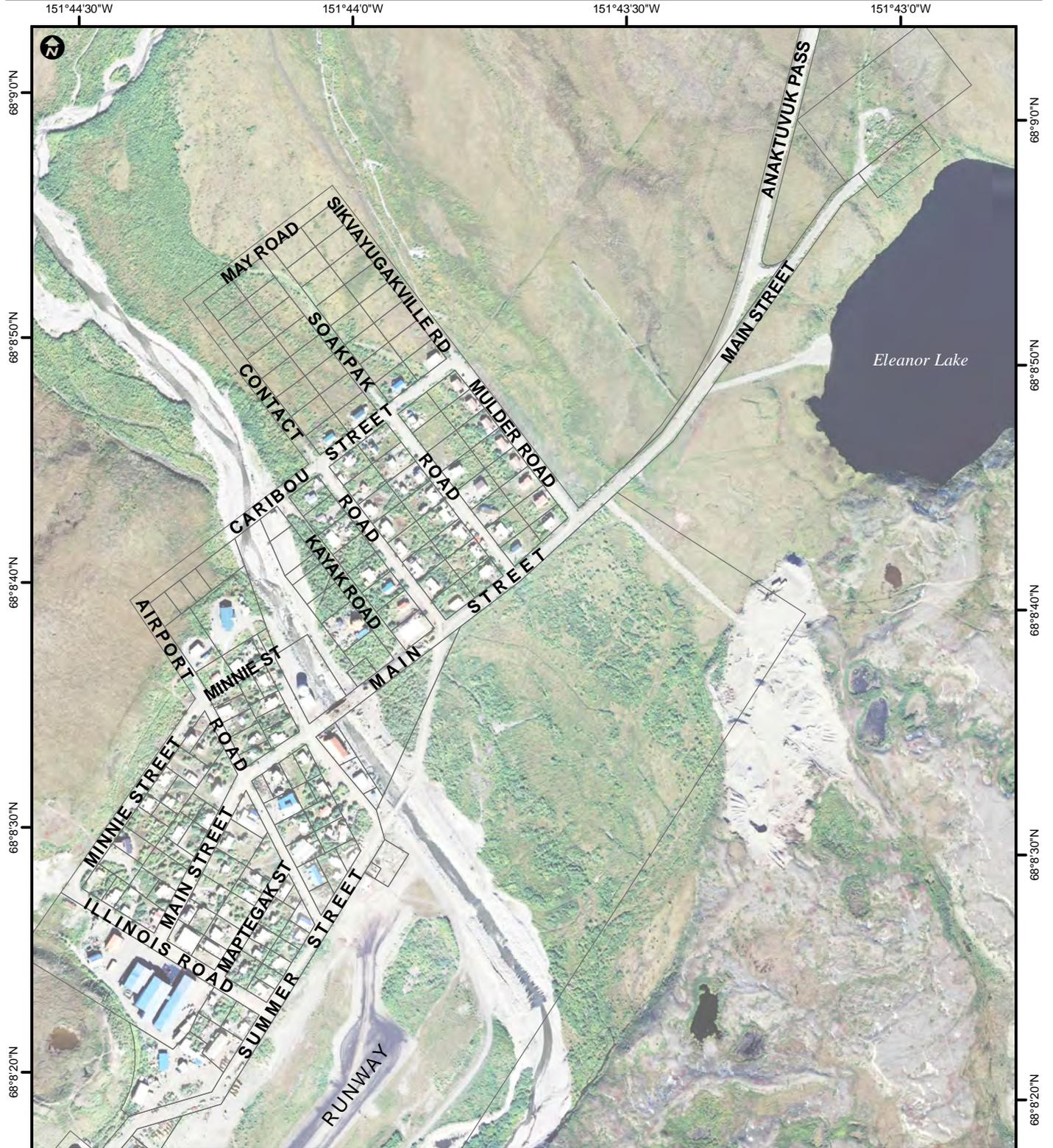
gravel resource of construction grade gravel to meet the needs in the village. Map 10 shows local roads and Map 11 depicts the regional road, trail and airport transportation network.

There are no permanent roads leading to Anaktuvuk Pass, however, “Cat-trains” have historically transported cargo from the Trans-Alaska Pipeline haul road during the winter along the “Hickel Highway” ice road. A PAR completed for the NSB in February 2014, investigated the possibility of constructing and maintaining a seasonal snow road to Anaktuvuk Pass. The objective of such a road would provide a less expensive means of transporting fuel and freight into the community. Additionally, this would also provide a means of personal access for residents to connect to other supporting road systems in Alaska. The PAR researched several routes, including Bettles to Anaktuvuk Pass, Galbraith Lake to Anaktuvuk Pass, and Umiat to Anaktuvuk Pass, assuming that the Alaska Department of Transportation constructed the road from the Dalton Highway to Umiat. The recommendation after completing the report was that constructing and maintaining a road in the Brooks Range would be cost prohibitive, not to mention safety and environmental risks. ASRC was investigating a seasonal road to Anaktuvuk Pass through Galbraith Lake this year, but further study for the project has been postponed until next year. The need for cheaper transportation costs always provide incentive to make an overland route project desirable. During the winter months, hunters travel through the Anaktuvuk Valley by snow machine as far as Itkillik Lake located about 15 miles from the Dalton Highway. This route is also used by backpackers in the summer. Snow machines, trucks and ATVs are used for local transportation. A school bus provides transportation for school children.

Anaktuvuk Pass’s future road transportation priorities focus on improving both pedestrian and driver safety along with improved access within the community and subsistence areas outside of the City limits. The community has long expressed interest in roadway upgrades, new road construction, trail marking and safety shelters along routes to fishing and hunting camps. A major improvement that was completed in 2013 was the replacement of a new bridge over Contact Creek. The new bridge includes separation of vehicle and pedestrian traffic, which has increased over the years since the original bridge was constructed. The community has also expressed interest in developing a new residential subdivision. The 2004 Anaktuvuk Pass’s Transportation Plan, completed by the Native Village of Anaktuvuk Pass and amended in 2005, also indicates a desire for an additional bridge over Contact Creek along Caribou Street for improved access between existing residential areas and as a secondary crossing of Contact Creek.¹⁶⁰

The NSB Public Works Department regularly waters down village roads to suppress dust. Despite this, residents comment that it is difficult to control dust from road traffic in the summer months and that increased dust contributes to respiratory problems and conditions. They cite that Elders and youth are most affected by outdoor dust. The North Slope Borough also provides senior van services for elders.

¹⁶⁰ North Slope Borough. 2005. *2005 Comprehensive Transportation Plan*. Prepared by ASCG Incorporated. August 2005. www.north-slope.org/information/comp_plan/TransportationPlan_Final.pdf .



NAD 83 State Plane Zone 4

IMAGERY:
August 21, 2013 DCCED



 Parcels - NSB / GIS

DISCLAIMER

For informational purposes only. Umiq makes no expressed or implied warranties of merchantability or fitness with regards to character and function of this printed map. Not for navigation

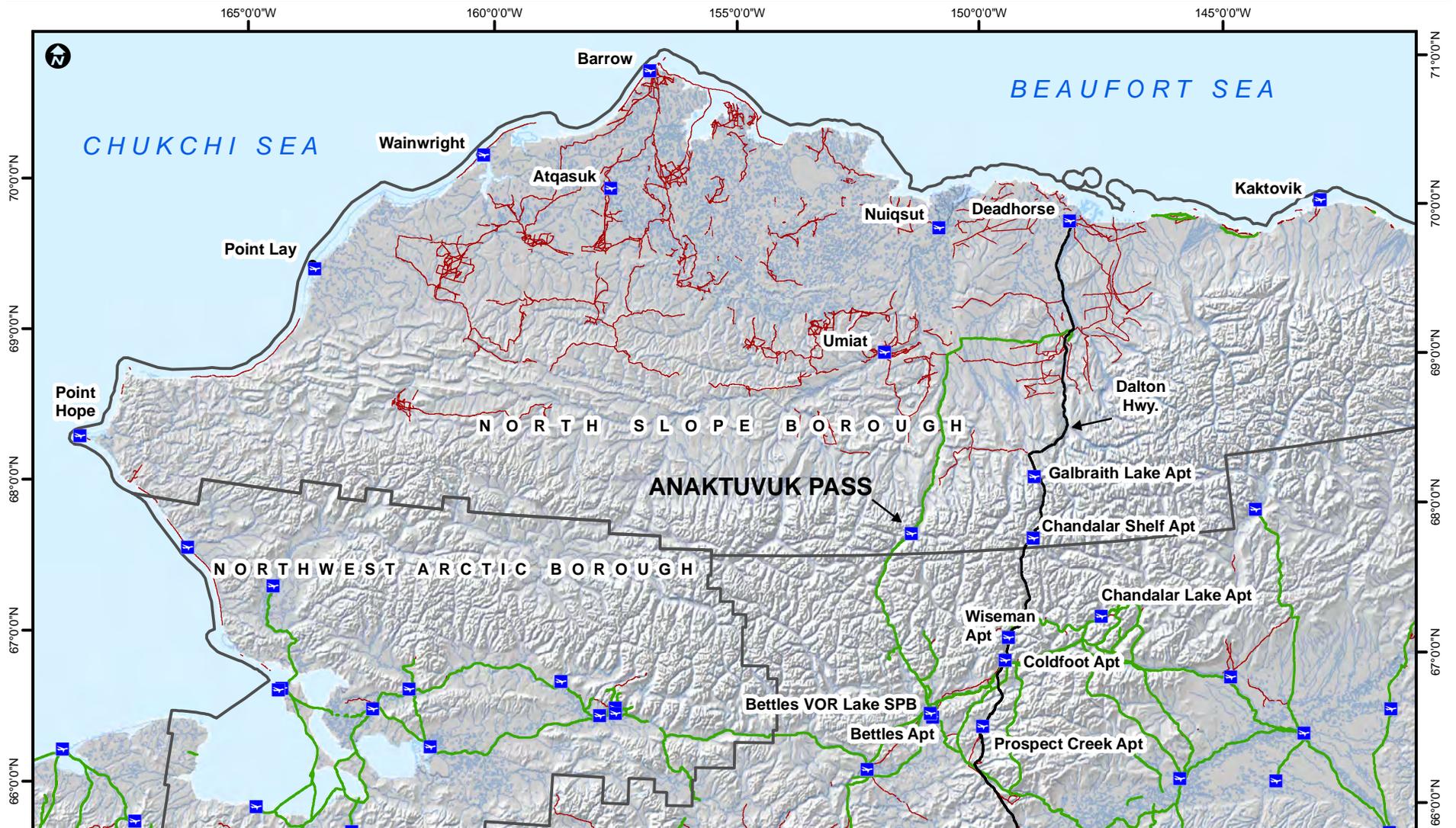
**ANAKTUVUK PASS, ALASKA
LOCAL ROADS**



Map: **10**



This page is intentionally left blank



-  Airports (ADOT)
-  Revised Statute 2477 Trails (ADNR)
-  1:63K Trails (USGS, ADNR)
-  Dalton Highway

Coordinate System:
NAD 1983 Alaska Albers



DISCLAIMER

For informational purposes only. Umiq makes no expressed or implied warranties of merchantability or fitness with regards to character and function of this printed map. Not for navigation

**ANAKTUVUK PASS, ALASKA
REGIONAL TRANSPORTATION**



Map:

11



This page is intentionally left blank

8.5 Gravel

The village of Anaktuvuk Pass is located on the continental divide in the Brooks Range and is the only village within the North Slope Borough with an adequate source of construction grade gravel. There is one material source developed and is located on the north side of the village, illustrated in Map 12. The material site is owned by Nunamuit Corporation, and continues to be the primary source of the gravel needed in the area. A Material Sale Agreement exists between Nunanuit Corporation and the NSB allowing the NSB to extract and mine up to 80,000 cubic yards of material. The NSB will pay a \$4.00 per cubic yard royalty, on top of an initial and annual fee. The contract will expire in August of 2016. A stockpile that was created for the construction of the landfill in 2000 continues to provide material necessary for the maintenance and small project needs for the NSB. NSB Public Works has confirmed that a pit run stockpile is available for local maintenance use. It is reported that approximately 80,000 cubic yards of material is available. The site continues to provide a 3 inch minus (with some sand and silt) construction gravel.

This page is intentionally left blank



NAD 83 State Plane Zone 4
 IMAGERY:
 August 21, 2013 DCCED

DISCLAIMER
 For informational purposes only.



**ANAKTUVUK PASS, ALASKA
 GRAVEL PIT**



Map:

12



This page is intentionally left blank

8.6 Education

The NSB School District operates Nunamiut School, the only school in Anaktuvuk Pass, which provides education from early childhood through grade 12. It is located at 114 Illinois Street near the intersections of Maptegak and Main streets.

In addition to providing education services for children in Anaktuvuk Pass, the School District provides a number of services, including:

- Sports programs for students, including basketball, volleyball, cross country and swimming lessons;
- Academic and extracurricular clubs and activities, including an astronomy club, shop classes, sewing and language classes through the IHLC and a student advisory council (SAC);
- Bus service for students;
- An early childhood education program for three- and four-year old children that operates five hours each weekday;
- Iñupiaq classes and a focus on the community's unique culture; and
- A culture camp each fall.

Although the village population grew by 111 persons between 2000 and 2015, enrollment at Nunamiut School grew by only 15 students during that period. During the 2000/01 school year, there were 82 students enrolled, including preschool students, and during the 2014/15 school year, there were 97 students. The school year 2012/13 witnessed the largest enrollment at Nunamiut School, at 104 students. It has since dropped by five students. Nunamiut's enrollment between the 2000/01 and 2014/15 school years is depicted in Figure 19.

Figure 18: Nunamiut School ¹⁶¹

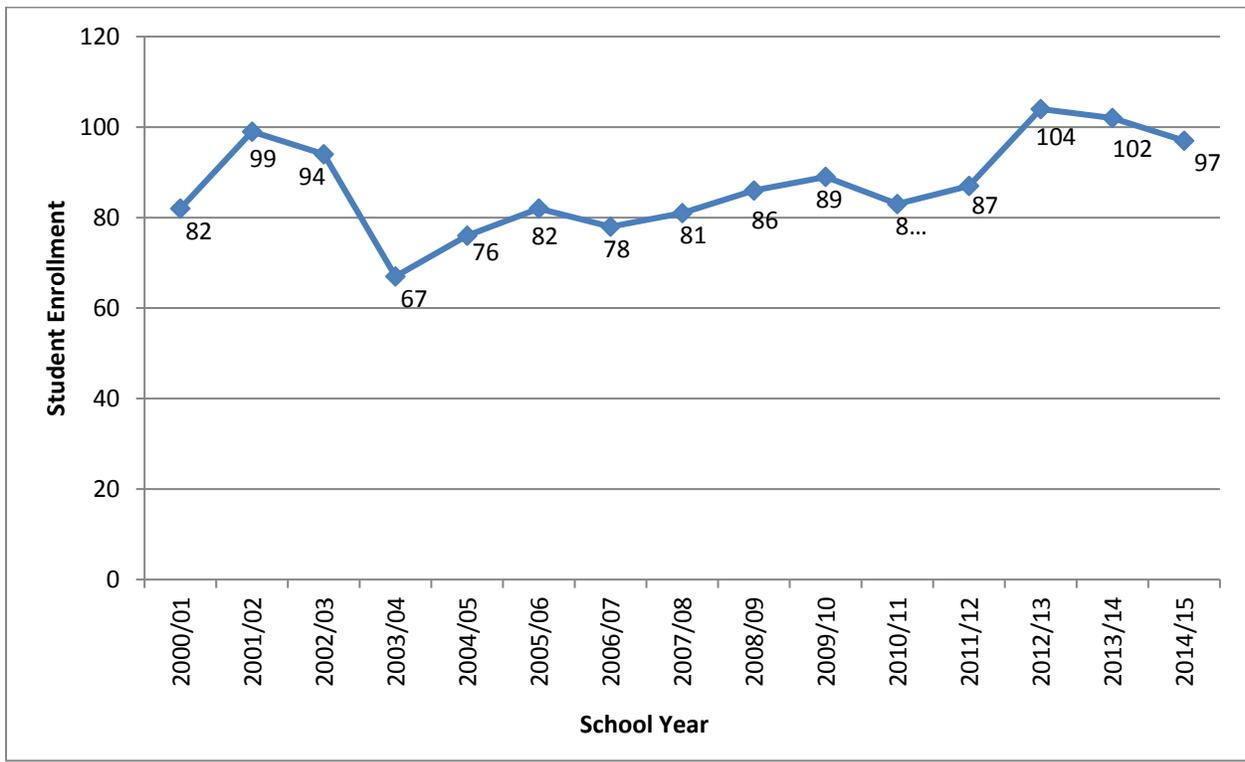


In 2013, the Borough completed a \$9.92 million upgrade of the school buildings that included addressing structural deficiencies, window and door replacements, pool room renovations and upgrades to both the mechanical and electrical systems.

Iļisaġvik College maintains a satellite computer station at the NSB Village Coordinator's Office that offers a variety of online courses for community residents.

¹⁶¹ Nunamiut School. 2015. Facebook. www.facebook.com/Nunamiut-School-1376009715964133. Accessed Feb. 5, 2016.

Figure 19: Nunamiut School Enrollment ¹⁶²



8.7 Other Public Facilities

Public Health Facilities. Anaktuvuk Pass has a NSB-operated Health Clinic staffed by three health aides. It is open weekdays and during an emergency. The Fire Department operates an ambulance that serves the clinic. Eye doctors come to the village twice a year in May and July, and dentists and medical doctors visit the village about every three months for a one-week stay. Tanana Chiefs Conference also provides some health services. The NSB-operated health clinic currently meets the village’s needs, but upgrades may be needed in the near future. The NSB vet clinic also visits the village twice a year.¹⁶³

Public Safety. The NSB Police Department staffs a 24-hour police station with two officers. There are two jail cells within the Anaktuvuk Pass police station.

Search and Rescue Service: The NSB Search and Rescue Department visits Anaktuvuk Pass every quarter to meet and discuss needs. The NSB Search and Rescue Coordinator lends personal locator beacons to hunters and others traveling outside of the village. If a beacon is activated in an emergency, an alert is sent to the local search and rescue volunteers. If needed, a helicopter is dispatched from the NSB Search

¹⁶² Alaska Department of Education and Early Development. 2015. *Report Card to the Public*. https://education.alaska.gov/Alaskan_Schools. Accessed September 9, 2015.

¹⁶³ Brower, Jennifer. 2016. North Slope Borough. Personal Communication. Feb. 6, 2016.

and Rescue headquarters in Barrow. Local volunteers and NSB maintain vehicles and equipment to locate residents in need, including four-wheel drive vehicles, snow machines and boats. Local search and rescue equipment is usually funded by grant money, namely the NPR-A, which has been helpful for purchasing vehicle parts and infrastructure the villages. Local Search and Rescue volunteers are enthusiastic about providing support to the community during emergencies.

Fire Suppression and Emergency Medical Assistance Service: The NSB Fire Department operates a fire station in Anaktuvuk Pass that includes fire response equipment and an ambulance. The Fire Department provides a pumper apparatus capable of pumping 1,250 gallons per minute (GPM) of water and a pumper/water tender apparatus capable of pumping 750 GPM for a total of 2,000 GPM. There are 31 fire hydrants in the community. The Fire Department provides 24-hour emergency medical assistance to residents.

Figure 20: Anaktuvuk Pass Fire Department ¹⁶⁴



Recreational Facilities: Some recreational facilities include an outside basketball court, a community playground and the school gymnasium, pool and library. These facilities are open to the public at certain hours, but many of the spaces are shared across different events and activities. The gymnasium and pool are only open during the school year; during the summer these two facilities are closed for maintenance. An area of concern may be a lack of recreational activities available for young people when these spaces are closed or occupied by other community events. A properly equipped, dedicated facility that would provide adequate space for activities outside regular school hours and on weekends, as well as a safe place for the youth to gather has been long sought after by the community. Although other facilities have been used to offer youth activities, issues with space and facility availability have been barriers to providing programs.

Telecommunications. Telecommunications services in Anaktuvuk pass include a digital local exchange telephone system, broadband internet service, cellular telephone, cable television and public radio broadcast. Interconnection with the regional and global telecommunications network is via satellite circuits. The Arctic Slope Telephone Association Cooperative provides in-state and long-distance telephone service. AT&T Alascom, Alaska Cellular Service, and GCI provide long-distance telephone service. GCI provides internet service.

¹⁶⁴ Alaska Department of Commerce, Community and Economic Development. 2008. Division of Community and Regional Affairs. Community Photo Library. *Fire Station*. www.commerce.alaska.gov/dcra/dcrepoext/Pages/PhotoLibrary.aspx.

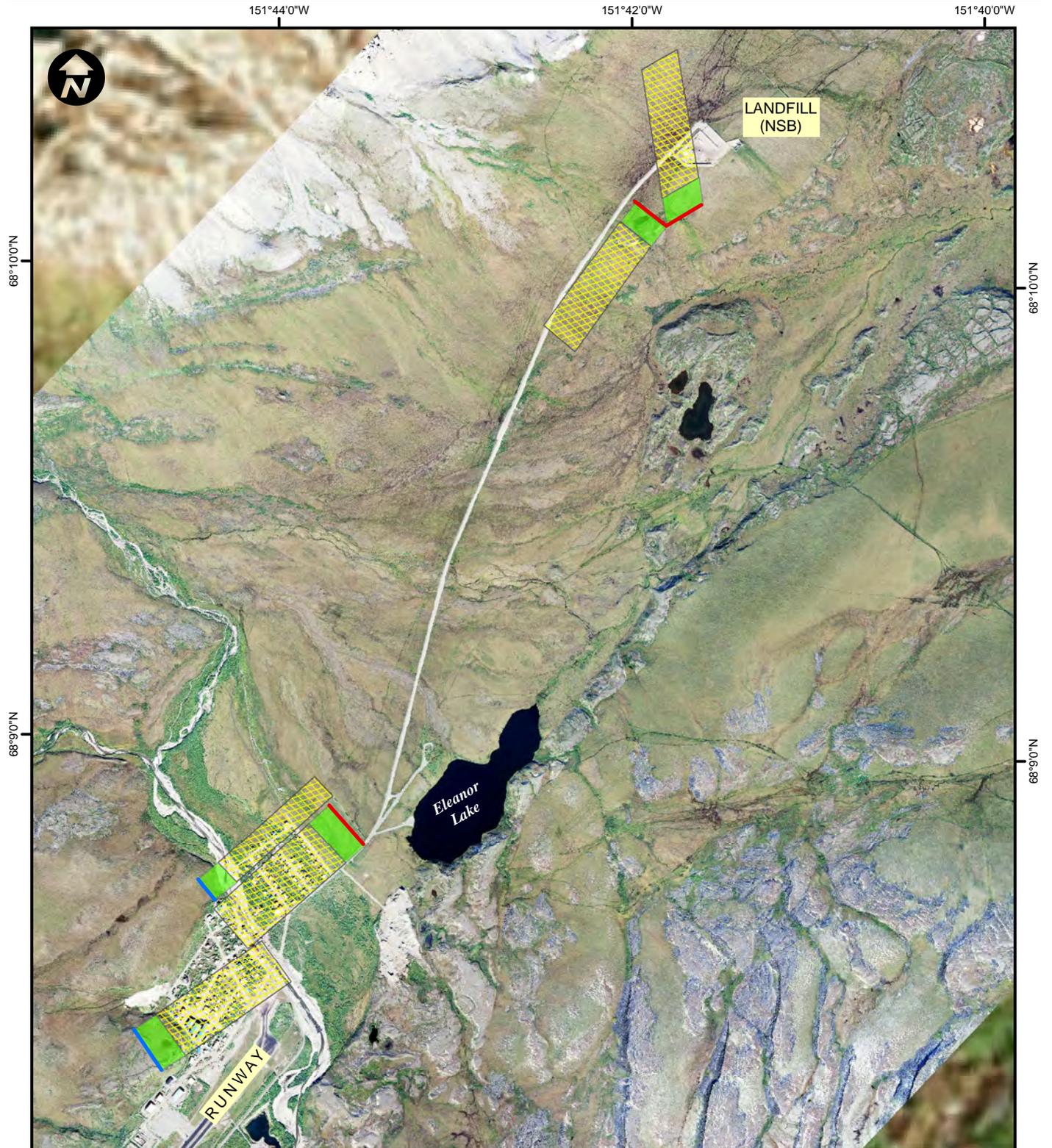
Quintillion, an Alaska company formed for the purpose of building, owning and operating terrestrial and submarine fiber optic cables in Alaska, is proposing to develop a subsea communication network linking six Alaska communities to provide high-speed internet and communication capabilities. The Quintillion Fiber Optic Project will consist of a main trunk line offshore following the northern and western coast of Alaska between Prudhoe Bay and Nome with branch lines extending to the communities of Nome, Kotzebue, Point Hope, Wainwright, Barrow, and Oliktok Point (Prudhoe Bay). There are no plans to connect Anaktuvuk Pass but is an ultimate goal of the project.

Snow Fences. The North Slope Borough maintains snow fences in seven of its eight communities. There are three snow fences in Anaktuvuk Pass which provide snow coverage from prevailing winds. All three are the lay down design type; they can be laid down flat when not needed. The lay down fence is no longer used because maintenance costs are generally greater than pile supported fences. Two of the existing fences are located near the landfill and provide snow protection over a portion of the landfill road and the landfill gate area. The snow fence south of the landfill is missing slats and requires repair. The third fence is located north of Sikvayigak Road on the north side of town. This fence underwent repairs in 2010 and is still in acceptable condition. All of the fences are designed and constructed to protect an area of approximately 2,000 feet behind the fence from collecting blowing snow.

A project analysis report (PAR) was completed for the NSB in February 2011 that investigated the need for additional snow fences in Anaktuvuk Pass. The PAR also examined tundra degradation that results from accumulated snow behind the fence. Not only does the accumulated snow damage the tundra, it can also gradually causes damage to permafrost.

The PAR identified two areas that need additional snow drift protection, as shown in Map 13. Southwesterly winds cause drifting snow at the intersection of Caribou Street and Kayak Road. Snow drifts form due to a combination of topographical features. Contact Creek and a small hill are southwest of the intersection. Both of these features and their change in elevation cause drifting. Southwest winds also deliver snow drifts to the area around Nunamiut School and the western side of Illinois Road. While the PAR recommends additional snow fences, funding is subject to recommendation by the NSB Assembly and approval by voters.¹⁶⁵

¹⁶⁵ North Slope Borough. 2011. *Project Analysis Report: Areawide Snow Fence and Tundra Degradation*. Prepared by UMIAQ. Feb. 9, 2011



EXISTING SNOW FENCE (Red line)

PROPOSED SNOW FENCE (Blue line)

SNOW ACCUMULATION AREA (~350 FT.) (Green shaded area)

SNOW COVER PROTECTION AREA (~2000 FT.) (Yellow hatched area)

IMAGERY: NAD 83 State Plane Zone 4
 August 21, 2013 DCCED
 UAF-GINA/SDMI <http://alaskamapped.org/bdl>

**ANAKTUVUK PASS, ALASKA
 SNOW FENCES - EXISTING
 AND PROPOSED**



Map: **13**

This page is intentionally left blank



Photo Credit: Department of Commerce, Community and Economic Development; Division of Community and Regional Affairs' Community Photo Library.

Chapter 9. Economy

9.1 Employment and Income

Like other rural Alaska communities, both subsistence activities and cash contribute to the economy in Anaktuvuk Pass. The subsistence contribution to the local economy includes harvesting plants and animals, trade of subsistence resources within and outside of the village, bartering food and services, and sharing food with elders and those who cannot participate in harvest activities. The cash economy involves earned income, dividends, and government payments. This chapter contains an overview of the contribute subsistence makes to the local economy as well as a discussion of employment and other income.

Due to its remote location, economic and employment opportunities are limited in Anaktuvuk Pass. The North Slope Borough and North Slope Borough School District provide most local jobs. The Nunamiut Village Corporation and City of Anaktuvuk Pass also provide some employment for residents. There are also seasonal construction or skilled labor jobs with private construction firms. Hunting and trapping for the sale of skins or making traditional caribou-skin masks or clothing provides income as well.

The State of Alaska also provides employment figures for Anaktuvuk Pass. In 2014, the State reports that 76 percent of residents were employed with 54 percent employed all year. Seventy-four percent of workers were employed in local government and 26 percent were employed in the private sector and one

percent was employed by the State government, as illustrated in Figure 21.¹⁶⁶ Table 17 provides details on the labor force and income for 2003, 2010, and 2015 from the NSB Census. The number of residents with full-time employment increased over the twelve-year period by 15 percent and 6.6 percent since 2010. The number of people that are unemployed and either employed seasonally or part-time both decreased since 2010. Since 2003 and 2010, both the average household income and the per capita income have increased greater than inflation, assumed at a steady two percent per year.

Anaktuvuk Pass has seven business licenses held by Aaniyak Senior Housing, Lela’s Store, Nunamiut Corporation, Nunamiut Corporation Store, City of Anaktuvuk Pass, N C Quick Stop, and Continuity. Some residents guide hunters for income as well.¹⁶⁷

The Nunamiut Corporation Store sells groceries, general merchandise, propane, diesel fuel, and gasoline. Roughly 20 percent of households receive income from craft sales within the community including caribou-skin masks, jewelry, and clothing items.¹⁶⁸

Table 17: 2003, 2010, and 2015 Employment and Income Characteristics¹⁶⁹

Employment Characteristics of Labor Force	2003	2010	2015
Full time employment	34.9%	43.4%	50.0%
Temporary / seasonal employment	26.6%	7.4%	13.8%
Part-time employment	11.2%	9.1%	6.3%
Unemployed	20.1%	34.9%	18.8%
Retired	3.0%	5.1%	11.3%
Income Characteristics	2003	2010	2015
Average household income	\$40,549	\$53,011	\$61,414
Per capita income	\$11,437	\$13,619	\$17,105

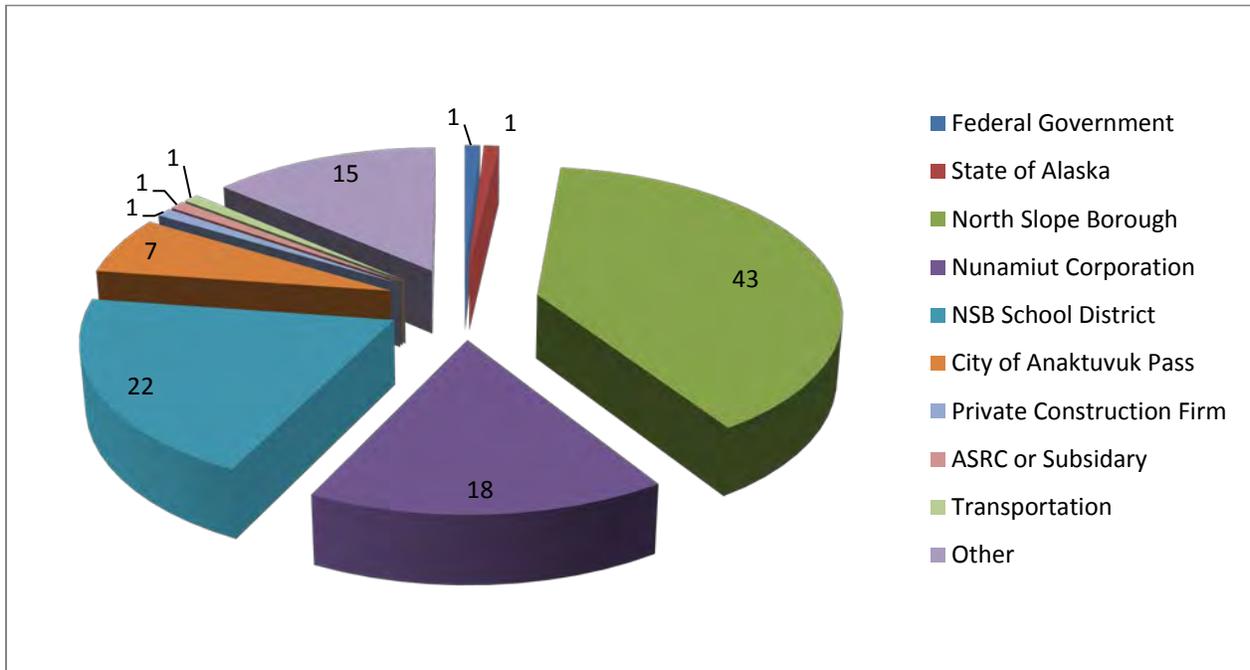
¹⁶⁶ Alaska Department of Labor and Workforce Development. 2014. Division of Research and Analysis. *Alaska Local and Regional Information*. <http://live.laborstats.alaska.gov/alari/>. Accessed Feb. 7, 2016.

¹⁶⁷ Alaska Department of Commerce, Community and Economic Development. 2015. Division of Community and Regional Affairs. *Business License Database*. www.commerce.alaska.gov/CBP/Main/CBPLSearch.aspx?mode=BL. Accessed Jan. 22, 2016.

¹⁶⁸ North Slope Borough. 2010. *North Slope Borough 2010 Economic Profile and Census Report*. Prepared by Circumpolar Research Associates Shepro, C., Maas, C. and D. Gallaway with J. McAnich for the North Slope Borough. www.north-slope.org/your-government/census-2010North Slope Borough.

¹⁶⁹ Ibid.

Figure 21: Anaktuvuk Pass Employers and Number of Employees, 2010¹⁷⁰



9.2 Potential Economic and Employment Influences

Three factors that most affect population change are births, deaths, and migration (both in and out), with migration most likely having the greatest potential impact.¹⁷¹ Migration into and out of Anaktuvuk Pass is influenced by the local economy and the number of employment opportunities as well as by educational and employment opportunities outside of the village. Potential economic influences in the village include tourism, oil and gas, temporary construction jobs, government employment, energy costs, and the availability of subsistence resources.

Tourism. Anaktuvuk Pass is a popular destination for cultural tourists to learn about life in an Alaska village, visit the Simon Paneak Museum, and cross the Arctic Circle. The community is also a destination for hikers and hunters, attracted to the relatively easy access to Brooks Range and Gates of the Arctic National Park and Preserve (GAAR).

Tourist season usually starts about June 1 and ends at the end of September. Tourism is primarily comprised of a small number of backpackers or sport/trophy hunters who travel through Anaktuvuk Pass to the Gates of the Arctic National Park (GAAR). Tours are operated by Northern Alaska Tour Company,

¹⁷⁰ North Slope Borough. 2010. *North Slope Borough 2010 Economic Profile and Census Report*. Prepared by Circumpolar Research Associates Shepro, C., Maas, C. and D. Gallaway with J. McAnich for the North Slope Borough. www.north-slope.org/your-government/census-2010 North Slope Borough.

¹⁷¹ North Slope Borough. 2003. *North Slope Borough 2003 Economic Profile and Census Report*. Prepared by Circumpolar Research Associates Shepro, C., Maas, C. and D. Gallaway.

Trans Arctic Circle Treks and Warbelow Tours, among others. There are also tourists who travel by foot from the Dalton Highway through the Endicott Mountains to Anaktuvuk Pass. Tourists usually visit the Simon Paneak Museum, operated by the North Slope Borough.

Tourism provides little employment opportunities for Anaktuvuk Pass residents. Some visitors purchase items or food at the local store and Native crafts from the Simon Paneak museum. Two factors that could contribute to potential tourism growth are the expansion of the museum which could attract more visitors and an increase in daily fly-in tours. Some residents have indicated that hikers that use Anaktuvuk Pass as a starting point for their trip into GAAR do not contribute to the local economy. There are possible traveler accommodations and amenities that the communities could provide to increase the tourism revenue that could include a campground or restaurant. However, the number of travelers traveling to or through Anaktuvuk Pass would likely not fully support these types of businesses.

Oil and Gas. Economic opportunities could increase from oil and gas development activity. However, with the price of oil falling precipitous low, the immediate future of Alaska’s oil and gas industry is uncertain as are employment opportunities.

The Alaska Department of Transportation and Public Facilities (DOT&PF) has canceled plans for a proposed road from the Dalton Highway to Umiat.^{172 173} The road would have connected to the Dalton Highway north of Anaktuvuk Pass, traveled along a route through the Galbraith Corridor to Umiat to connect with Linc Energy’s Umiat oil field and the proposed Nanushuk coal mine.

The Naqragmiut Tribal Council, by Resolution 2011-02, strongly opposed the development of any coal development in the Nanushuk area due to concerns over subsistence resources, namely caribou migration, and potential environmental damage. The North Slope Borough Fish and Game Management Committee, created in 1979 to assist in developing and implementing management programs for subsistence use animals, passed Resolution 2010-01 to demonstrate their strong opposition to the construction of a road from the Dalton Highway to the Gubik Natural Gas Field and the Umiat Oil Field.

Due to local opposition, the village’s remote location and the resource being located in a National Park, this coal mining may not occur within the 20 year time period of this plan. Thus, employment opportunities within the next twenty years are likely to be limited to potential support services to activity in Umiat.

Temporary construction jobs. Short term employment such as housing projects, local road construction or NSB capital projects contribute to the economy, often hiring local residents for seasonal or part-time

¹⁷² Cole, Dermot. 2015. Alaska Dispatch News. *After \$35 Million, State Pulls Plug on Umiat Road Project.* www.adn.com/article/20150102/after-35-million-state-pulls-plug-umi-at-road-project. Jan. 2. Accessed Jan. 21, 2016.

¹⁷³ Bradner, Tim. 2015. Alaska Journal of Commerce. *Linc Energy Won’t Need Access Road for Umiat Field Project.* www.alaskajournal.com/business-and-finance/2015-01-07/linc-energy-wont-need-access-road-umi-at-field-project#.VqghO_krKbM. January 2015 Issue 2. Accessed Jan. 21, 2016.

work. If government spending on municipal infrastructure increases or decreases, this will have a commensurate impact on temporary construction jobs. Residents have expressed concern that it would be helpful if employers improved their methods to inform residents about job opportunities.

Government jobs. Currently, government jobs are the largest contributors to the local economy. Funding for these positions is dependent on North Slope Borough budgets and could decline if Borough revenues decrease.

Subsistence resources. Maintaining healthy biotic subsistence resources and access to these resources are vital to sustaining the local population which relies heavily on subsistence foods for their daily diet. Should these mammals, fish, bird, and plant wildlife resources decline significantly due to changes in migration patterns or should access to hunting grounds be limited, it could cause extreme hardship resulting in resident out-migration.

Energy costs. Anaktuvuk Pass energy costs are extremely high due to the transportation costs to deliver fuel to the community via airplane. Because Anaktuvuk Pass must fly in all of its goods, high transportation costs result in higher overall cost of living. With proactive investments, the rising energy costs could be offset by the construction of a snow road to deliver fuel and other materials from the Dalton Highway to the village, currently under consideration by ASRC. The community has expressed interest in learning about the availability and viability of natural gas to offset high energy costs.

This page is intentionally left blank



Photo Credit: www.adn.com/article/20130319/airplanes-and-bible-camp-anaktuvuk-pass

Chapter 10. Land Use and Zoning

10.1 Land Ownership

Primary landowners in Anaktuvuk Pass include the North Slope Borough, the Nunamiut Corporation, and the City of Anaktuvuk Pass. The Nunamiut Corporation owns 92,000 acres of surface lands in and around the community. Nunamiut Corporation received title to those lands under the Alaska Native Claims Settlement Act (ANCSA) Section 12(a), the provision for land entitlement to village corporations from the Federal government. Under ANCSA Section 14(c)(3), village corporations must re-convey certain land to the local city government or the State in trust to provide for community use and expansion. The Corporation has not completed its ANCSA 14(c)(3) conveyance. Until the conveyance is completed, the City is limited in its ability to make decisions regarding future land use and development.

The original townsite of Anaktuvuk Pass was surveyed and patented by the Bureau of Land Management (BLM). Many residents have applied to the BLM to keep their land in a restricted status.¹⁷⁴ Restricted deeds are managed for Native land owners by the Federal government. The owners' ability to sell or

¹⁷⁴ Restricted lots were established through deeds enacted pursuant to the Alaska Native Allotment Act of May 17, 1906, formerly codified at 43 U.S.C. §§ 270-1 through 210-3 (1970), repealed with a savings clause for pending applications by the 1971 ANCSA, 43 U.S.C. § 1617, and Alaska Native Townsite Act of May 25, 1926, formerly codified at 43 U.S.C. § 733, repealed by Section 703(a) of the Federal Land Policy and Management Act of October 21, 1976, 90 Stat. 2789.

transfer the property is limited, but since Federal law limits State and municipal jurisdiction over land uses on property held in trust by the U.S. government, restricted lots are not subject to NSB land use regulations nor are they subject to property tax. There are approximately 40 restricted lots in the community, all south of Contact Creek.

The BLM designated a Revised Statute Trail (RST) 2477 to the Alaska Department of Natural Resources (DNR) under the Mining Law of 1866. RST 2477 runs straight through Anaktuvuk Pass, as part of a larger route from Fairbanks to Prudhoe Bay. RST rights-of-ways exist for the purpose of setting aside highway routes to State governments over federally managed public lands. In the late 1960s, RST 2477 was a part of the route promoted by Governor Walter J. Hickel as a way for private companies to reach Prudhoe Bay and benefit from the oil boom. A pioneer road often called the Hickel Highway was constructed, which quickly fell out of use as the maintenance costs were steep and an overland route to Prudhoe Bay was not used by the industry.

The National Park Service (NPS) first began to consider designating a park in the central Brooks Range during the early 1960s. In 1968, an NPS team surveyed a 4.1 million-acre parcel that did not include Anaktuvuk Pass. In the early 1970s, residents decided that designating their lands as a national park might buffer the community from outside development, in part because of the attempt to construct RST 2477 into the Hickel Highway. NPS and Native Corporation officials considered a number of land-ownership and management plans, and when Gates of the Arctic National Park and Preserve was officially established in 1980, Anaktuvuk Pass and the surrounding lands were included as an in-holding within the park boundary.

In 1996, a proposal for a four-way land exchange between NPS, the Arctic Slope Regional Corporation (ASRC), City of Anaktuvuk Pass and the Nunamiut Corporation was passed. The agreement allows continued use of all-terrain vehicles on designated park lands, reconfigures wilderness boundaries, secures conservation easements and development restrictions on more than 100,000 acres of Native-owned lands, and provides public recreation access across nearly 150,000 acres of Native-owned land, among other provisions.¹⁷⁵

10.1 Zoning and Land Use Regulation

A major part of local planning is zoning, the division of areas into land use districts and the regulation of lands within those districts. Zones are designed to accommodate potential uses. Detailed regulations guide how each District can be used. Currently, Anaktuvuk Pass is contained within the NSB's Village District. The surrounding area outside of the municipal boundaries lies within the NSB's Conservation District. See Map 14 for the Village District boundary which coincides with the City limits.

¹⁷⁵ U.S Department of the Interior. 1996. National Park Service. *1996 Land Exchange Summary*.

The NSB creates Districts for all land in the Borough, public and private. However, land in Native Trust status is not subject to NSB's zoning regulations.

The Village District is described in the NSB Municipal Code Title 19 (§ 19.40.060). The intent of the Village District is to accommodate uses which:

- Reinforce traditional values and lifestyles;
- Are in accord with the Borough Comprehensive Plan, Capital Improvements Program and Comprehensive Development Plan for the village; and
- Are in accord with the desires of the residents of the village.

The land uses that are permitted in the Village District include:

For Administrative Approval. The following can be administratively approved by the Borough's Land Administrator without public notice: (1) Placement of fill in a wetland in accordance with the Army Corps of Engineers general permit. The Land Administrator for the Borough is the Director of the Planning and Community Services Department.

For a Development Permit. The following may be permitted upon approval by the Land Administrator after public review:

- 1) Public facilities;
- 2) Commercial development; and
- 3) Any use or structure within the watershed that provides the community's drinking water.

For a Conditional Use Permit. The following are conditional and may be established upon approval of the NSB Planning Commission:

- 1) Resource extraction; and
- 2) Any use "elevated" by the Land Administrator for Commission review by the NSB Land Administrator, pursuant to § 19.50.020.¹⁷⁶

Also within Title 19 (§19.70.020) are Village Policies that are intended to guide the approval of development and uses in the Village District as indicated below:

- Development and uses will not be allowed which grossly violate guidelines on the rate or amount of growth adopted by a village as a part of its Comprehensive Development Plan;
- Development and uses in a village are required to be consistent with the relevant adopted village Comprehensive Development Plan;
- Development and uses are encouraged which provide or materially contribute to lower-cost fuel or power; and
- Development and uses are encouraged which provide local employment in the villages.

¹⁷⁶ Under NSBMC § 19.50.020, the Land Administrator (Planning Director) may elevate an administrative approval or a development permit decision to that of a conditional use process and the permit application for an Anaktuvuk Pass proposal would then be considered for approval by the NSB Planning Commission, based on written findings that the elevation decision satisfied specific criteria noted in Title 19.

The Conservation District is described in Title 19 (§ 19.40.070) and encompasses the undeveloped areas of the Borough. This District is intended to conserve the natural ecosystem for all the various plants and animals upon which Borough residents depend for subsistence. Subject to this overall intent, it can accommodate limited resource exploration and development, but major resource development projects must apply for rezoning to the Resource Development District.¹⁷⁷ Land uses permitted within a Conservation District include:

For Administrative Approval. The following can be administratively approved by the NSB Land Administrator without public notice:

- 1) Temporary use (including fuel storage) of existing gravel airstrips in support of pre-exploration activities;
- 2) Archaeological surveys;
- 3) Tundra travel; and
- 4) Minor alterations to existing development.

For a Development Permit. The following may be permitted upon approval by the Land Administrator after public review:

- 1) Commercial recreation;
- 2) Ice roads and ice pads;
- 3) Exploration, prospecting or limited development in anticipation of resource extraction; and
- 4) Offshore development in compliance with the policies of § 19.70.040.

For a Conditional Permit. The following may be established upon approval of the Planning Commission: All conditional and other development permit applications elevated by the Land Administrator under § 19.50.020.

Title 19 also requires projects to be evaluated by specific policies such as Village Policies (§ 19.70.020), Economic Development Policies (§ 19.70.030), Offshore Development Policies (§ 19.70.040), Coastal Management Policies (§ 19.70.050), and/or Transportation Corridor Policies (§ 19.70.050).

10.2 Current Land Use

The majority of the people in Anaktuvuk Pass live in an area of less than one-half square mile. The older part of town, located south of Contact Creek, contains residential uses, commercial businesses, the church, government facilities, the school, the airport and industrial uses. Residential uses predominate on the north side of Contact Creek. Maps 14 and 15 show the current land uses in and around Anaktuvuk

¹⁷⁷ North Slope Borough. 1990. North Slope Borough Municipal Code Of Ordinances. *Title 19; Zoning. Chapter 19.40: Zoning Districts, § 19.40.070 - Conservation (C) District.* April 12, 1990.

Pass. The Current Land Use map, Map 15, includes mixed use, residential use, industrial use and subsistence use. The intent of each of these uses is identified below.

Mixed Use - Mixed use areas are areas that contain a wide range of commercial and residential uses and exclude industrial and resource development uses.

Residential Use - Residential land use is primarily residential.

Industrial Use - The industrial land use area contains necessary community development such as such as the fuel tank farm, airport, cemetery gravel pits, and landfills.

Subsistence Use - The subsistence Area of Influence for Anaktuvuk Pass hunters is illustrated in Map 5, which shows a generalized location of where the majority of village subsistence activities occur. It includes lands within the vicinity of Anaktuvuk Pass and areas that roughly correspond with the ADF&G Controlled Use Area, as depicted in Map 6.

10.3 Future Land Use

Future land use in Anaktuvuk Pass was discussed at public meetings and in the leadership workshop where participants discussed desired locations of future development. Based on these discussions a review of the Plan goals, and on land use limitations such as National Park Service boundaries or steep terrain, a future land use map was created.

A major part of local planning is zoning, the division of areas into land use districts. At this time, Anaktuvuk Pass is zoned as a Village District by the NSB. The implications and allowed uses in the Village District were described earlier in this Chapter. Anaktuvuk Pass may decide to request the establishment of more specific zoning districts and regulations which would be done through Title 19 rezoning text and zoning map amendments. The future land use map can act as a guide to identify appropriate zoning boundaries. Recommended future land uses are shown in Map 16.

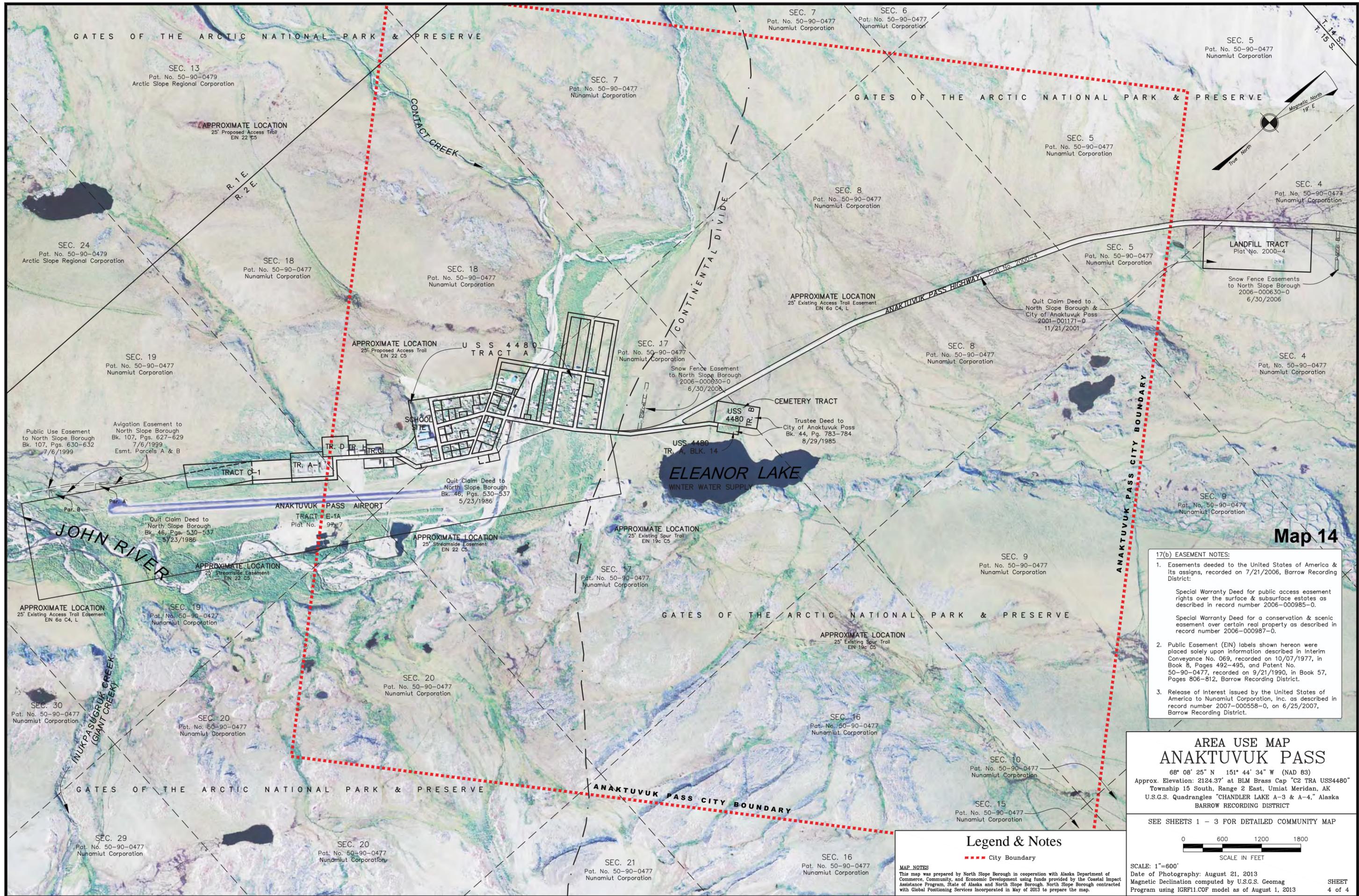
Industrial Districts. The proposed land use map recommends that land currently in industrial use be rezoned as new Industrial Districts. Future expansion of public facilities or new industrial activities should take place within those districts. Currently, the landfill, sewage lagoon cells and half of the landing strip are located outside of the Village District and in a Conservation District. As those facilities were developed prior to the adoption of the first NSB zoning regulations in 1984 they are, therefore, deemed legal, nonconforming uses which are commonly referred to as “grandfathered” uses. However, any expansion or relocation of these facilities would require Conditional Use Permit authorization by the NSB Planning Commission pursuant to Section 19.50.20. It is best that the land encompassing these industrial uses be rezoned to an Industrial Zoning District where these uses and other similar industrial uses or accessory uses are permitted as a principal use needing only Administrative Approval by the Land Administrator or

a Development Permit after a public review and comment period. Land suitable for community-scale wind energy facilities should be rezoned as an Industrial District as well.

Mixed Use Districts. Certain land areas within the village core are suitable for housing, small community-serving businesses and public service facilities. These land areas are recommended in the land use map for rezoning to a tailor-made mixed use district. Village leadership can determine which land use activities within the Mixed Use District should be approved administratively, should require public review for a Development Permit, or should be subject to a public hearing in the village and be authorized by the Planning Commission.

Residential Districts. Areas of the village which are suitable for wholly residential uses are recommended to be rezoned for residential uses. Some areas may be suitable for multi-unit residential development, such as duplex, tri-plex or apartment buildings and, if desired, those higher density areas can be rezoned to a Multi-Unit Residential District. Lands that are not served by public utilities could be rezoned for single-family housing, such as a Suburban Residential District. It should be noted that certain “home occupations” should be allowed in the Suburban and Multi-Unit Residential Districts including small day care home occupations, small repair business, and other small-scale businesses that offer needed services to the community and that do not generate noise, trash or traffic that is out of scale with a residential neighborhood and would not disturb neighbors’ quiet and privacy.

The Future Land Use Map (Map 16), presents mixed density residential use in two areas: Poker Hill, already platted for a residential subdivision, and northwest of Minnie Street. There has not been a consensus on the location of residential development within the community; some residents have expressed concern about disrupting the caribou migration through Poker Hill and prefer to have a future subdivision elsewhere. This issue has not been settled within the community.



Map 14

- 17(b) EASEMENT NOTES:**
- Easements deeded to the United States of America & its assigns, recorded on 7/21/2006, Barrow Recording District:
 - Special Warranty Deed for public access easement rights over the surface & subsurface estates as described in record number 2006-00985-0.
 - Special Warranty Deed for a conservation & scenic easement over certain real property as described in record number 2006-000987-0.
 - Public Easement (EIN) labels shown hereon were placed solely upon information described in Interim Conveyance No. 069, recorded on 10/07/1977, in Book 8, Pages 492-495, and Patent No. 50-90-0477, recorded on 9/21/1990, in Book 57, Pages 806-812, Barrow Recording District.
 - Release of Interest issued by the United States of America to Nunamiut Corporation, Inc. as described in record number 2007-000558-0, on 6/25/2007, Barrow Recording District.

**AREA USE MAP
ANAKTUVUK PASS**
 68° 08' 25" N 151° 44' 34" W (NAD 83)
 Approx. Elevation: 2124.37' at BLM Brass Cap "C2 TRA USS4480"
 Township 15 South, Range 2 East, Umiat Meridian, AK
 U.S.G.S. Quadrangles "CHANDLER LAKE A-3 & A-4," Alaska
 BARROW RECORDING DISTRICT

SEE SHEETS 1 - 3 FOR DETAILED COMMUNITY MAP

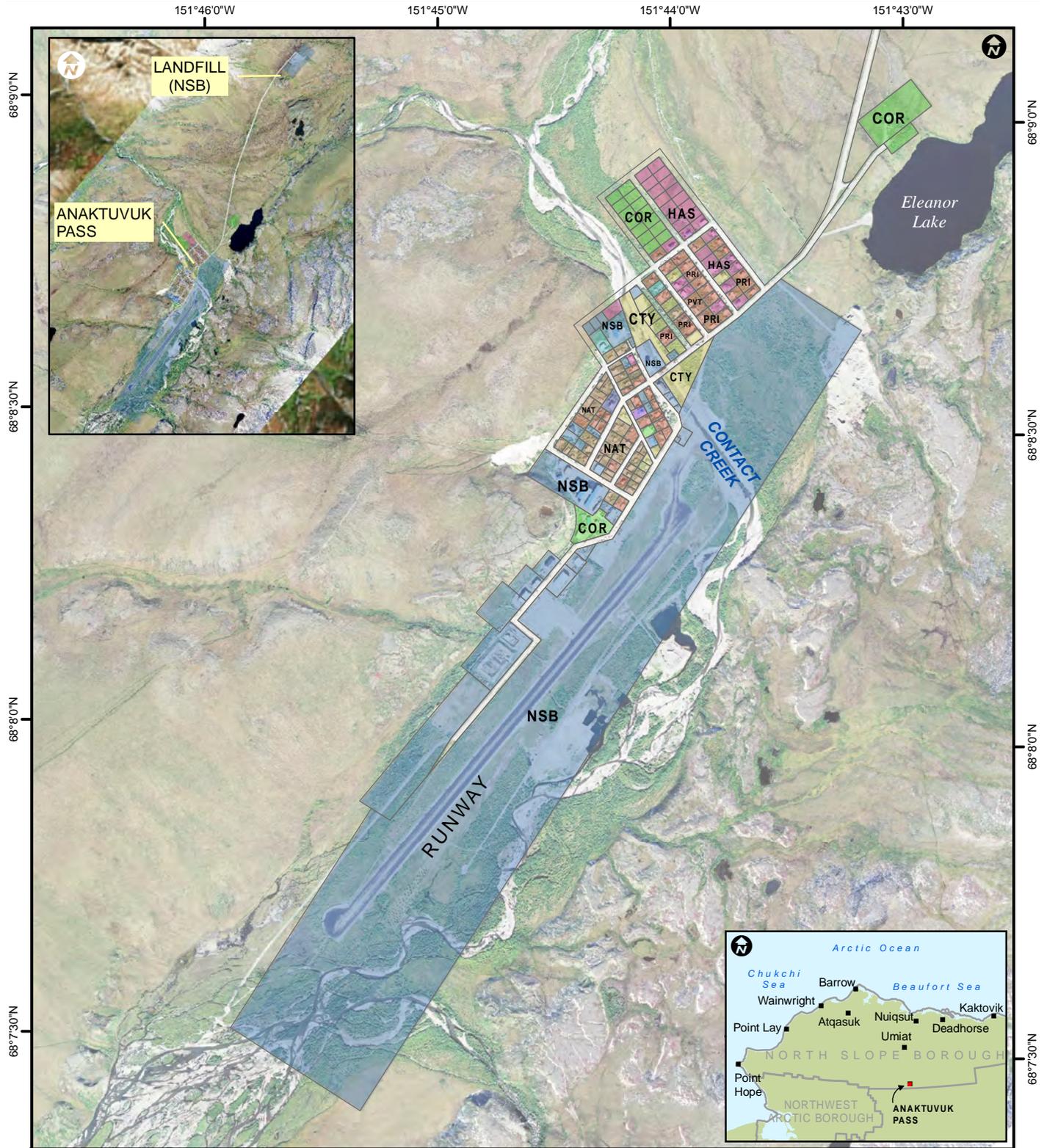


Legend & Notes
 - - - - - City Boundary

MAP NOTES
 This map was prepared by North Slope Borough in cooperation with Alaska Department of Commerce, Community, and Economic Development using funds provided by the Coastal Impact Assistance Program, State of Alaska and North Slope Borough. North Slope Borough contracted with Global Positioning Services Incorporated in May of 2013 to prepare the map.

SCALE: 1"=600'
 Date of Photography: August 21, 2013
 Magnetic Declination computed by U.S.G.S. Geomag
 Program using IGRF11.COF model as of August 1, 2013

This page is intentionally left blank



Corporation (COR)	Housing Authority (HAS)
City (CTY)	Lease (LSE)
Native Restricted (NAT)	North Slope Borough (NSB)
Private (PVT)	Religious (REL)
Federal (FED)	

IMAGERY: NAD 83 State Plane Zone 4
 August 21, 2013 DCCED
 UAF-GINA/SDMI <http://alaskamapped.org/bdl>

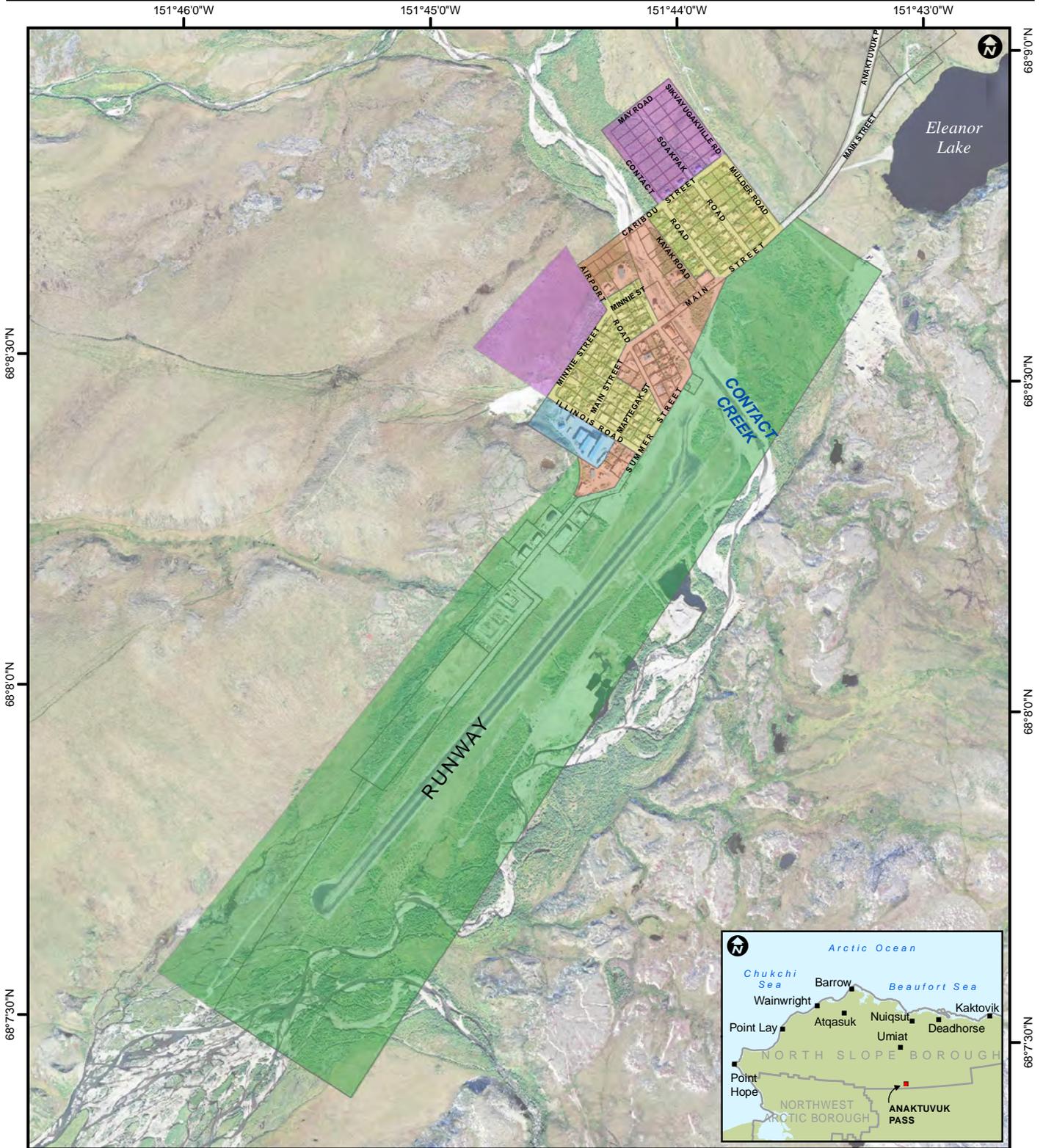
SOURCE: Land Use - NSB/GIS

**ANAKTUVUK PASS, ALASKA
CURRENT LAND USE**

Scale: 0 1,000 2,000 3,000 Feet

Map: **15**

This page is intentionally left blank



NAD 83 State Plane Zone 4

IMAGERY:
August 21, 2013 DCCED

**ANAKTUVUK PASS, ALASKA
FUTURE LAND USE**

FUTURE LAND USE

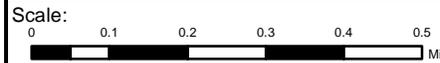
Single Family Residential

Mixed Density Residential

Public

Mixed Use

Industrial



Map:

16



This page is intentionally left blank



Photo Credit: Department of Commerce, Community and Economic Development; Division of Community and Regional Affairs' Community Photo Library.

Chapter 11. Implementation and Plan Revision

11.1 Capital Project Planning

Anaktuvuk Pass has had a number of significant capital projects over the last five years. Nunamiut School received a major renovation, Contact Creek Bridge was upgraded to allow for pedestrian crossing; a major additional and renovation of the Simon Paneak Museum was completed, a secondary access road to the Museum has been funded and is under design; wastewater treatment plant upgrade; water and sewer facility connections; out-of-service fuel tank removal; and old landfill and sewage lagoon closure.

The NSB's revenue is largely dependent on taxes from oil and gas infrastructure, and this revenue diminishes as facilities age. This revenue also affects the Borough's bonding rating (i.e., the interest rate on borrowing money). Since bonds are the primary funding source for NSB capital projects, it is increasingly important that Anaktuvuk Pass seek alternative funding for capital projects when possible.

Table 18 provides a list of potential capital projects that may be needed or desired in Anaktuvuk Pass over the next 5-, 10-, or 20-year period. It is assumed that current NSB facilities, such as buildings and large vehicles or equipment, will continue to receive normal maintenance and upgrades by NSB to ensure safe

and efficient operations for their remaining useful life. While the projects are not prioritized and may require greater detail, including cost estimates, the requesting or sponsoring entity will develop additional information when necessary. This list does not include vehicles or rolling stock such as graders, water trucks, or buses. Some of the facilities and assets identified in the table would likely be sponsored and funded by NSB general obligation bonds, while others could be sponsored and funded wholly or in part by other entities. Funding for research and capital projects identified in this plan would likely come from state and federal funding sources, the Regional Native Corporation, the NSB Capital Improvement Program (CIP), and other grant sources.

Annually, the NSB meets with each village's city council to provide updates on capially-funded projects. Staff also request a priority listing of projects from each community for potential inclusion and consideration in the annual capital funding cycle. In 2014, the City of Anaktuvuk Pass prioritized the following capital projects by resolution for funding by the North Slope Borough Capital Improvement Program:

- 1) Washeteria;
- 2) NSB Admin Office Upgrade;
- 3) Expand Landfill;
- 4) Snow Fence Improvement;
- 5) Daycare;
- 6) Multi-Use Congregational Hall;
- 7) Old Fuel Tank / Equip Removal; and
- 8) Demolish Old School Duplex.

11.2 Potential Future Capital Needs

Table 18: Potential Capital Projects over a 5, 10 and 20-Year Period

Type of Facility	1 to 5 Year Period	6 to 10 Year Period	11 to 20 Year Period
Water	Connect to new homes on the existing utility system		Evaluate long-term drinking water supply capacity, water quality, treatment and distribution needs
	Consider alternative water well locations to supplement existing well		
Sewer	Connect new homes to the existing utility system	Evaluate system capacity upgrades to accommodate system expansion	
Power Generation	Research and construct feasible alternate energy systems	Evaluate diesel generators for potential replacement	
Roads / Trails	Trail marking and hardening	Construct road(s) to open new subdivision lots	
	Research and implement dust control measures		
Housing	Assess extent of overcrowding		
	Rehabilitate existing vacant housing for occupancy providing energy-efficient systems		
	Construct new energy-efficient homes		
	Retrofit existing housing with energy-efficient systems		
Airport	The airport's navigational aids have exceeded their anticipated useful life and should be evaluated for replacement	Evaluate the feasibility of a heated airport terminal or shelter	
	Install bathroom facilities at the airport for weekend and holiday use when the NSB office is closed		
Health Clinic		Provide upgrades and construct addition to include exam rooms, storage, emergency room, pharmacy and additional office space	

Type of Facility	1 to 5 Year Period	6 to 10 Year Period	11 to 20 Year Period
Recreational Facilities	Develop an outdoor ball field to accommodate sports such as football, softball, and soccer		
	Develop indoor recreational facilities, especially for youth		
	Provide an outdoor playground for children		
Community Buildings	The NSB Administration office may need to be relocated because it is located on airport property		
	USDW building may need to be considered for replacement		
	Upgrade and expand the City Community Hall		
Clean-up Contaminated Sites and Abandoned Buildings	The former power plant site and nearby creek should be evaluated for contamination; the power plant building should be repurposed or demolished; surplus power poles should be relocated for safety		
	The two-story housing unit located between Nunamiut School and Nunamiut Corporation / Camp should be removed		
	ADEC clean-up efforts should continue for two contaminated sites: NALEMP Chandler Lakes Research Camp and NPS Anaktuvuk Pass Chandler Lakes Research Camp		

11.3 Plan Implementation

The Anaktuvuk Pass Comprehensive Plan is intended to be a living document. Because situations change, the Objectives tables in Chapter 11 have been designed to be updated to reflect current priorities and opportunities. The community leadership and the NSB may wish to update the tables each year as part of the joint process to develop an annual work plan and priorities for capital projects.

This Plan is a guide that provides direction for the village leadership when collaborating with NSB, state, and federal agencies, and other organizations. For example, individual land use proposals can be evaluated against the future land use maps. Such proposals may include a residential subdivision, transportation projects, recreational facilities, sanitation facilities, or other infrastructure. The designations in the future land use maps can also be reviewed when Title 19 is updated to determine if amendments are warranted to the types of zoning districts and the actual designations on the official zoning map. Generally, community comprehensive plans have a 20-year outlook, and ideally, they are reviewed every two years and updated every five years. Regularly updating the Objectives tables in Chapter 11 will make it easier to complete the next update of the entire plan.

This page is intentionally left blank



Photo Credit: UMIAQ Photo Library

Chapter 12. Goals, Objectives and Implementing Strategies

The following goals and objectives are intended to (1) reflect the values of the community; (2) respond specifically to the Strengths, Weaknesses, Opportunities and Threats (SWOT) expressed by the community in meetings hosted by the North Slope Borough (NSB) Planning Department during development of this Plan; and (3) and positively address village-related issues presented in the NSB 2005 Comprehensive Plan. The goals express community values and/or highlight specific desired actions as articulated by residents in community planning sessions.

Goals are broad statements that describe long-term desired outcomes.

Objectives provide more specific information of what can be done to achieve a goal.

Implementing Strategies describe specific steps that will be taken to reach an objective.

Each goal is accompanied by one or more objective that describe how to achieve the intent and substance of the goal. Each objective is followed by an Implementing Strategy/Action or Actions that describe how the policy would be implemented, and by whom. Implementation Actions may establish how a specific course of action is to be accomplished by Village residents, Village leadership, NSB Administration and staff, NSB legislators, various development permitting and funding agencies, and/or other entities. Village leadership participating in the formation of the Plan goals and objectives include members of the City Council, the Naqsrarmiut Tribal Council, Village Elders, hunters, NSB School District on-site personnel, NSB staff members providing services in the

village, and the Native Village Corporation Board Members. However, in reference to the following Implementation Actions, village leadership refers to the Anaktuvuk Pass City Council, Naqragmiut Tribal Council, and the Nunamiut Corporation.



Comprehensive Plan Goals

Goal 1: Protect subsistence resources and activities.

Goal 2: Establish future land use designations within Anaktuvuk Pass and its environs to manage growth and ensure appropriate location of housing, commerce, services, and facilities.

Goal 3: Support additional, good quality housing and the incorporation of energy-efficient elements in existing housing.

Goal 4: Facilitate economic development activities.

Goal 5: Support the development and maintenance of essential social services and public infrastructure, facilities, and the transportation network.

Goal 6: Protect historical and cultural resources.

Goal 7: Foster meaningful community and intergovernmental cooperation.

Table 19: Goal 1 - Protect Subsistence Resources and Activities

Goal 1 - Protect Subsistence Resources and Activities	
Objectives	Implementing Strategies
<p>1.1. Continue to provide healthy and vigilant stewardship of the land, waters and subsistence resources within the village Area of Influence.</p>	<p>a) 1Association of the Nunamiut (UCAN) to enhance communication and coordination with research organizations to identify best available technologies and management practices to sustain healthy subsistence wildlife resources. Applicable staff members work in the Planning and Community Services, Law, Wildlife Management, and Health departments. Coordination should also occur with non-Borough entities such as the NSSI, U.S. Fish and Wildlife Service (USFWS), Alaska Department of Fish and Game (ADF&G), University of Alaska researchers, and others.</p>
	<p>b) Village leadership, UCAN, and NSB staff will seek effective documentation of local and traditional knowledge of wildlife habitat, migratory patterns, weather, currents, ice conditions, and the like, and will communicate that knowledge to state and federal resource management agencies and to staff of public and private science projects and programs.</p>
	<p>c) When changing conditions warrant, village leadership and UCAN will work with the NSB staff to formulate adaptive land and resource management practices, measures and permit stipulations to ensure adequate stewardship of land, water, and wildlife resources.</p>
<p>1.2. Ensure trapping, hunting, and fishing rights for Anaktuvuk Pass residents now and for generations to come.</p>	<p>a) NSB Wildlife Management Department staff will coordinate with Village leadership and UCAN to ensure that NSB and local hunters' voices are present at all relevant Federal (particularly the USFWS) and State (particularly ADG&F) agency meetings to assure continued subsistence hunting of wildlife within the Anaktuvuk Pass Area of Influence, particularly within the Gates of the Arctic National Park and Preserve (GAAR).</p>
	<p>b) NSB Land Management Division will not issue commercial recreation permits for outfits operating within the caribou migration route unless and until the herd has passed by and through the Anaktuvuk Valley and Anaktuvuk Pass residents have completed their harvest for the season. The NSB Wildlife Management Department will urge State and Federal hunting permit agencies to also adopt a moratorium on hunting permits during this season and for this area.</p>
	<p>c) Village leadership, UCAN, and NSB officials will monitor and, when necessary, intervene in proposed Federal and State government agency changes in (1) hunting regulations that may be applied to residents such as the number, price and length of permits, changes in "bag limits", (2) access regulations, and other new restrictions or the lessening of access that may occur as a result of changes to wildlife population numbers or behaviors, and (3) will seek to ensure that all regulations are consistent with both scientific principles and Iñupiaq traditional and current knowledge.</p>

Goal 1 - Protect Subsistence Resources and Activities	
Objectives	Implementing Strategies
(continued) 1.2. Ensure trapping, hunting, and fishing rights for Anaktuvuk Pass residents now and for generations to come.	d) Village leadership and UCAN will collaborate with NSB Wildlife Management Department staff to provide current information on wildlife populations to Federal and State agencies in order to support the continued hunting of subsistence wildlife within the Anaktuvuk Pass Area of Influence.
	e) Anaktuvuk Pass leadership, UCAN, and NSB officials will coordinate with Federal and State officials and participate in the GAAR General Management Plan Amendment and other Federal and State planning processes to ensure that regulations within the Area of Influence do not restrict access to traditional subsistence resources and activities.
	f) Anaktuvuk Pass leadership and UCAN will communicate regularly with National Park Service (NPS) officials (including the summer on-site staff), particularly about any subsistence or subsistence access concerns and will provide them with any information that could lead to improved management of traditional subsistence resources and activities.
1.3. Monitor and minimize negative impacts to air, land or water resources caused by tourism, sport hunting, scientific research, or mineral development-related activities within the subsistence Area of Influence that may disturb wildlife, particularly during sensitive or critical periods such as migration, calving, breeding, nesting, or harvesting periods.	a) Village leadership, UCAN, and the NSB Wildlife Management Department will continue to work with NPS GAAR Subsistence Resource Commission to develop and distribute information on safe and “good neighbor” hiking and camping etiquette for travelers.
	b) Village leadership and UCAN will identify appropriate camping areas and lodging for visitors and for campers, will provide adequate sanitation facilities during visitor-travel seasons.
	c) Village leadership, UCAN, and residents will continue to be observant of aircraft (floatplanes) and boats to ensure that they do not pollute lakes and rivers with fuel and oil discharge and will report incidents to the NSB Planning Department immediately if they occur.
	d) Village leadership, UCAN, and NSB grant-writing staff will seek technical advice and funding to develop campground and sanitation facilities for hikers and other visitors.
	e) Village leadership, UCAN, and residents will be observant of the use of helicopters and low-flying aircraft that are not operating in a way that minimizes disturbance to wildlife. Such activity will be reported to the NPS and NSB Wildlife Management and Planning Departments to coordinate follow up enforcement action.
	f) For permits issued outside of any moratorium season and area, NSB staff, UCAN, and Village leadership will collaborate to ensure that tour operators or hunt outfitters have valid NSB Commercial Recreation Land Use Permits and will monitor tour operator activity to ensure they comply with the stipulations in the permits.

Goal 1 - Protect Subsistence Resources and Activities	
Objectives	Implementing Strategies
<p>1.4. Support needed scientific research in the Village and its Area of Influence and seek to avoid duplication and disturbance to area wildlife, land, and waters.</p>	<p>a) The NSB Planning Department and the research applicant will advise community leadership of permitted field research activities prior to their commencement.</p>
	<p>b) The NSB Planning Department will require research applicants to provide results and findings of scientific research and share relevant information with Village leadership and the NSB Wildlife Management Department, such as research about wildlife, their habitat and human health and well-being.</p>
	<p>c) The NSB Wildlife Management Department will continue to monitor findings of scientific research and share relevant information with Village leadership, such as research about wildlife, habitat and human health and well-being.</p>
	<p>d) On an on-going basis, residents and the NSB will formulate adaptive land and resource management practices, measures and permit stipulations to assure proper stewardship of land, water and wildlife resources.</p>
	<p>e) Village leadership, UCAN, and grant-writing staff will seek technical advice and funding to develop a watershed management plan in cooperation with the Native Liaison/Cultural Resources Coordinator at the U.S. Department of Agriculture - Natural Resources Conservation Service.</p>
	<p>f) Village leadership will continue to document traditional and contemporary knowledge of wildlife habitat, migratory patterns, weather, currents, ice formations and the like and will share that knowledge with local (such as the NSB Fish and Game Management Committee and UCAN), State and Federal (such as the NPS and the GAAR Subsistence Resource Commission) resource management agencies and other relevant public and private science projects and programs.</p>
<p>1.5. Promote healthy life ways by involving youth in subsistence activities on traditional lands.</p>	<p>a) Encourage the school to offer classes and training in hunting, fishing and gathering of subsistence resources on traditional lands. These classes should be led by village Elders skilled in these activities.</p>

Table 20: Goal 2 – Establish Future Land Use Designations

Goal 2 - Establish future land use designations within Anaktuvuk Pass and its environs to manage growth and ensure appropriate location of housing, commerce, services, and facilities.	
Objectives	Implementing Strategies
<p>2.1. Designate adequate land within the village proper, maximizing existing capital investments in water, sewer and roads for additional residential and community-serving commercial land uses.</p>	<p>a) The NSB in cooperation with the village leadership and residents will develop zoning regulations for the village that will encourage and facilitate in-fill development on vacant or underused lots where utilities exist by allowing a mixture of uses, higher densities, lower parking requirements and flexible setbacks, where appropriate.</p>
	<p>b) The NSB will ensure that new development maximizes the use of existing infrastructure and minimizes inefficient development. The NSB will require all applicants who decide to develop land outside of utility service areas to pay their fair share of the cost of extending the utilities to their property.</p>
	<p>c) The NSB, in cooperation with village leadership and residents, will identify land areas and waters within its Area of Influence that are deemed as critically important subsistence areas. Once identified, specific regulations and/or conservation programs will be adopted by the NSB Assembly to protect these areas.</p>
	<p>d) Using the Comprehensive Plan Future Land Use Map as a guide, the Nunamiut Corporation, City of Anaktuvuk Pass, Tribal Council, and residents will work with NSB staff to complete the 14(c)(3) process to clear title of lands for present and future public land uses.</p>
	<p>e) Seek community consensus on the best location for a future residential subdivision as depicted in the Future Land Use Map.</p>
<p>2.2. Facilitate the establishment of community-serving businesses and services. Ensure that the community is well-served by commercial development in appropriate locations that meet the day-to-day needs of its residents and visitors.</p>	<p>a) The NSB will provide flexible zoning and development standards for community-serving uses such as: youth and adult recreational facilities like ball fields; appliance and vehicle repair shops; greenhouses; day care; and various tourism-related facilities and services such as lodging, restaurants and tours.</p>

Goal 2 - Establish future land use designations within Anaktuvuk Pass and its environs to manage growth and ensure appropriate location of housing, commerce, services, and facilities.	
Objectives	Implementing Strategies
2.3. Designate land in appropriate locations for renewable energy electric power generation, storage and distribution systems to facilitate the community's efforts towards greater energy independence.	a) The NSB in cooperation with village leadership and residents will rezone areas in or near the village to allow community-scale wind energy systems when deemed economically feasible to facilitate greater energy independence.
	b) The NSB will amend the Title 19 land use regulations to allow wind generators and solar panels on homes, businesses and community facilities as a principal allowable use when located in a safe and quiet distance from other uses.
2.4. Restrict development on village historical and cultural resources such as sod homes and cemetery.	a) The NSB and village leadership will establish an inventory of cultural resources to preserve and protect. The City and Tribal Council will seek grants and other funding to work with the owner of such assets to protect these asset, including installing appropriate signage, fencing and/or shelter structures to protect the resource from weather damage,

Table 21: Goal 3 – Support Additional Housing

Goal 3 – Support additional, good quality housing and the incorporation of energy-efficient elements in existing housing.	
Objectives	Implementing Strategies
<p>3.1. Support efforts by the Village, Tagiugmiullu Nunamiullu Housing Authority (TNHA), other non-profit organizations, and private parties to provide safe, sanitary, affordable and energy-efficient housing of all types within the Village; this may include the redevelopment of older, vacant homes.</p>	<p>a) Village leadership and NSB staff will identify lots within the existing utility grid that are vacant or could be redeveloped for in-fill housing and will encourage the development of a program for these lots to be used for housing.</p>
	<p>b) The City of Anaktuvuk Pass and NSB planning staff will work together to develop zoning regulations for NSB Assembly adoption that facilitates the redevelopment of unusable, non-residential structures to higher-density housing in areas served by water, sewer and other utilities.</p>
	<p>c) Village leaders and homeowners in Anaktuvuk Pass will work with TNHA and other developers to develop new, affordable, energy-efficient housing using the latest construction methods for sustainable, cold climate homes.</p>
	<p>d) Village leadership and NSB grant-writers will seek funds to support retrofit weatherization efforts like the former RELI (Residential and Employment Living Improvement) program, passive ventilation systems (Qingok), and other alternative building techniques to reduce energy consumption in existing houses and reduce costs.</p>
	<p>e) The NSB School District will seek funding to provide adequate housing for teachers to facilitate their long-term retention in the community and to avoid competition for housing with existing residents</p>
	<p>f) Lands in platted subdivisions that are not served by a water distribution system, sewer system, or roads will be developed with wholly contained systems maintained by each landowner. If water, sewer and roads are to be extended to a new subdivision, the land could be developed at a minimum density of two dwelling units per lot when services are extended to those lots.</p>
	<p>g) Encourage and support efforts to construct apartments and other multi-family buildings to alleviate the current overcrowding conditions</p>
<p>3.2. Develop cooperative agreements between the Village leadership and NSB to maximize the efficient use of public infrastructure when roads and utilities are expanded for housing.</p>	<p>a) Village leadership will work with NSB to identify developable lots served by the water distribution system, sewer system and roads.</p>

Table 22: Goal 4 – Facilitate Economic Development Activities

Goal 4 – Facilitate Economic Development Activities.	
Objectives	Implementing Strategies
<p>4.1. Designate land and provide adequate infrastructure in appropriate locations for additional community-serving commercial activities to support private sector investment resulting in year-round, long-term employment opportunities and services for residents.</p>	<p>a) Village leadership and residents will work with NSB staff to establish zoning regulations that facilitate tourism-related activities (lodging, campgrounds, visitor related transportation services, trails, sanitary and shower facilities, food service, tours/excursions, arts and crafts); alternative energy systems; and other commercial enterprises (day care facilities, shops, restaurants, telecommunications, etc.).</p>
<p>4.2. To the extent practical, avoid economic development activities or non-subsistence activities that could alter or disturb wildlife habitat or migratory patterns.</p>	<p>a) To the greatest extent possible, NSB land use permits will require Applicants seeking new or expanded commercial or industrial development to minimize the “footprint” of their operation if located within the village area of influence and will ensure that access to subsistence resources is not limited or restricted.</p> <p>b) To the greatest extent possible, NSB land use permits will require applicants to avoid noise-generating activities before and during the fall caribou migration period</p> <p>c) Village leadership, with assistance from NSB grant-writing staff, will seek funds to develop an economic development plan and program to identify new business, job and career opportunities for residents based on local resources that can be sustained without subsidies</p> <p>d) Village leadership will seek Arctic Slope Regional Corporation (ASRC), State, and grant funds for training, apprentice programs and funds to support viable start-up businesses.</p> <p>e) Village leadership will inform contractors that are often working in Anaktuvuk Pass the preferred methods of keeping residents informed of potential employment opportunities.</p>

Table 23: Goal 5 – Maintain Efficient Social Services and Public Infrastructure

Goal 5 - Support the development and maintenance of essential social services and public infrastructure, facilities, and the transportation network.	
Objectives	Implementing Strategies
<p>5.1. Continue to maintain water, sewer, electric power, and communication infrastructure in good operating condition, expand infrastructure as needed, and seek to increase their energy efficiency over time.</p>	a) Seek funds to provide water and sewer connections that those homes that have not yet been connected.
	b) The NSB will identify utilities and community facilities that may be vulnerable to damage caused by climate-related impacts including melting permafrost, fire, erosion, and/or flooding. The NSB will conduct an analysis of the threat that these impacts may pose to the current location of these facilities, or to the entire village over the next 20 years or more and will take appropriate action.
	c) Community leadership will seek ways to improve telecommunication services, including cell phone and internet service, and investigate a village-wide Wi-Fi system.
	d) NSB and village leadership will form and maintain an active Local Emergency Planning Committee (LEPC) to manage hazard mitigation planning and preparedness. The Committee will update and implement the Hazard Mitigation Plan prepared by the North Slope Borough to prepare for, and respond to, flooding, fires, pests and other hazards.
	e) The NSB will restrict development on erosion-prone or vulnerable slopes and bluffs and will designate those areas as hazard zoning districts or overlay districts within which appropriate restrictions and/or building code standards will apply.
	f) The NSB will locate, design and construct needed community facilities, such as snow fences or landfill sites, in such a way as to avoid conflicts with caribou migration periods and patterns.
	g) The NSB will avoid noise-generating activities, such as the import of fuel supplies, before or during fall caribou migration periods.
	h) Standardize burn times during the day and year to minimize impacts during caribou migration periods.
<p>5.2. Facilitate research in the feasibility, design and operation of local renewable energy sources such as wind and solar power and protect the location of those sites.</p>	<p>a) The City and NSB will identify land suitable for alternative energy systems and will pursue funding for design, development and operation of a community-scale renewable energy powered electric generation facility.</p>

Goal 5 - Support the development and maintenance of essential social services and public infrastructure, facilities, and the transportation network.	
Objectives	Implementing Strategies
5.3. Continue to maintain and improve the transportation network.	a) The NSB will work with village leadership to seek a long lasting, cost-effective dust control system to mitigate dusty roads during summer months.
	b) The NSB will continue to maintain and upgrade the landing strip and will provide access and internal roads, sanitation, shelter, lighting, energy and other infrastructure and services to support airport-related uses.
	c) The NSB will examine road areas where safety could be improved through signage and will install signs where needed.
	d) Village leadership will work with the NPS to identify and implement trail improvements.
5.4. Facilitate the development of facilities that provide opportunities for sustaining culture and improving health.	a) Village leadership with assistance from NSB staff will seek funding for gymnasiums, trails, outdoor playground equipment, ball fields and other facilities that can provide residents with opportunities to increase their exercise.
	b) The NSB will support community gatherings, cultural activities and active recreation by assisting Village leadership in seeking funding to provide places for residents to gather. These may include an open field, outdoor recreation area, traditional trading center, or improvements or expansion to the community center and/or gym.
	c) The NSB will encourage applicants for new or expanded industrial development within the village area of influence will conduct a Health Impact Assessment (HIA), acceptable to the NSB Health Department, to identify potential impacts of the proposed new development on village residents and wildlife and their habitat within the village area of influence and will incorporate appropriate mitigation measures into the project design and operating procedures.
	d) Village leadership will coordinate with the NSB Health & Social Services Department Health Department to facilitate reestablishing a health hotline with Iñupiaq speakers.
	e) Village leadership will negotiate with both ASNA and TCC regarding medical travel benefits and expansion of existing hostel space and / or dedicated Anaktuvuk Pass health lodging, respectively.
5.5. Remediate contaminated sites within the community and its area of influence.	a) Seek funding to demolish and remove former teacher housing duplex.
	b) Coordinate with the State of Alaska on outstanding contaminated sites in the Anaktuvuk Pass area and seek remediation funding from a variety of sources, especially for the former Power Plant and the remaining clean-up for NALEMP Chandler Lakes Research Camp and NPS Anaktuvuk Pass Chandler Lakes Research Camp.

Table 24: Goal 6 - Protect Historical and Cultural Resources

Goal 6 - Protect Historical and Cultural Resources.	
Objectives	Implementing Strategies
5.6. Adopt and widely distribute etiquette guidelines and signage for visitors to instruct them on how to avoid disturbance to wildlife or cultural resources.	a) Village leadership, the NPS and NSB will collaborate on identifying a design for signage and maps for visitors to orient themselves to the Village, environs, and tourist destinations. Once a design is established, the NSB will install and maintain those signs.
	b) The City of Anaktuvuk Pass and NSB will install bi-lingual Iñupiaq and English signage in public spaces throughout the village to encourage the learning and use of the Native Iñupiaq language as a means of preserving the language and the cultural values it expresses.
5.7. Ensure that important cultural and traditional resources and activities located within proposed resource development areas are avoided and protected or, if disturbed or damaged, are properly mitigated.	a) The NSB will continue to require Traditional Land Use Inventory review and clearance for resource development and scientific research projects within the village area of influence. If resources are found within the proposed development area, adequate mitigation measures will be required as conditions of permit approval.
	b) Remaining historic sod homes located within the village will be preserved and incorporated into the Museum’s program as part of a self-guided walking tour for visitors. Village leadership and NSB staff will collaborate to seek agreements with the owners of these sod homes to purchase or otherwise secure visual easements or similar permissions so that visitors may observe the homes but not enter them, as part of an historic tour of the village.
5.8. Provide substance abuse education and prevention.	a) Implement a community-based drug and alcohol prevention program focused on positive decision-making, such as “keepin’ it REAL (a D.A.R.E program) or similar program.

Table 25: Goal 7 – Foster Meaningful Cooperation

Goal 7 – Foster meaningful community and intergovernmental cooperation	
Objectives	Implementing Strategies
<p>7.1. Promote formal and informal intergovernmental cooperation and agreements between the City and Naqsrarmiut Tribal Council, Nunamiut Corporation, NSB, the State and Federal governments (particularly NPS) for accomplishing common goals, providing a service or solving mutual problems.</p>	<p>a) The City, NSB, and the Tribal Council will continue to recognize the need to coordinate with Federal and State government agencies conducting business in Anaktuvuk Pass to accomplish government-to-government consultations, as required by Alaska Administrative Order No. 186.¹⁷⁸</p>
	<p>b) The NSB, in coordination with the Anaktuvuk Pass City and Tribal governments, will communicate with Federal and State agencies with jurisdiction for surface and subsurface resources within the Anaktuvuk Pass area of influence area and with industries seeking to develop new or to significantly expand an existing development project, asking them:</p> <ol style="list-style-type: none"> 1) To provide detailed information to residents in a form and manner understandable by residents pertaining to proposed projects or planned actions affecting local resources at the earliest possible time in advance of final decision making; 2) To provide generous allotment of time for local review, consideration and comment by community leadership on the proposed development or action; and 3) To schedule a follow-up community meeting with a representative of the industry or agency to inform the community if, and specifically how, their comments were considered in the final project design or agency action.
	<p>c) Village leadership will work together with NSB staff to provide training and support to ensure that the above-described local meaningful engagement, review, and comment occur. These trainings should include, but not be limited to, making sure representatives from each of the various political subdivisions in Anaktuvuk Pass leadership understand regulatory agencies’ roles and functions and understand how best to coordinate community comment on permit applications and communicate those comments to the reviewing agencies.</p>
	<p>d) Village leadership will work together with NSB staff to ensure that village leaders participate to the greatest extent feasible in the timely review and update of land use, cultural resource, wildlife resource plans and programs, and the review and comment on land use permit applications.</p>
	<p>e) Village leadership will work together with NSB staff, permittees and funding agencies and appropriate health professionals to conduct baseline studies documenting current health conditions and characteristics of village residents. Such studies will measure and analyze both outdoor and indoor air quality.</p>

¹⁷⁸ Administrative Order No. 186, Governor Tony Knowles, September 29, 2000.

Goal 7 – Foster meaningful community and intergovernmental cooperation	
Objectives	Implementing Strategies
(continued) 7.1. Promote formal and informal intergovernmental cooperation and agreements between the City and Naqragmiut Tribal Council, Nunamiut Corporation, NSB, the State and Federal governments (particularly NPS) for accomplishing common goals, providing a service or solving mutual problems.	f) Applicants for new or expanded industrial development within the village area of influence will be required, through permit stipulations, to conduct a HIA of village residents and will identify and mitigate potential impacts of the new development.
	g) The NSB will encourage relevant government agencies and industry representatives to adopt and apply best available technologies (BATs) and best management practices (BMPs) to their operations to minimize adverse impacts of industry to valued resources within the Anaktuvuk Pass area of influence. These entities are also encouraged to adopt standards and guidelines for mitigation measures to remediate disturbance or damage to these resources.
7.2. Encourage a better understanding of land use planning and related public processes in order to facilitate community and intergovernmental cooperation.	a) The NSB and the City should encourage youth and other residents to attend meetings where governance, land use planning and land use permitting is discussed and should facilitate outreach and training components for village youth to learn and practice leadership skills. Community planning could be included in the Nunamiut School curriculum as one way to bridge the communication gap between the younger generation and elders.
	b) The NSB School District and NSB Planning and Community Services Department should collaborate to develop curricula for middle and high school students to understand land use, planning, and the relationship of federal, state, and local regulatory agencies to their community’s current and future health and well-being.
	c) Implementation of this plan needs to include elders, youth, and all segments of the population to ensure effective plan implementation over the long-term.

References

- Adaptation Advisory Group to the Alaska Climate Change Sub-Cabinet. 2010. *Alaska's Climate Change Strategy: Addressing Impacts in Alaska*. Alaska Department of Environmental Conservation. www.climatechange.alaska.gov.
- Alaska Department of Commerce, Community and Economic Development. 2016. *Community Database Online*. Accessed Jan. 28, 2016. <http://commerce.state.ak.us/cra/DCRAExternal>.
- _____. 2016. Community and Regional Affairs. Research and Analysis. Population Adjustment. www.commerce.alaska.gov/web/dcra/ResearchAnalysis/PopulationAdjustment.aspx.
- _____. 2015. Division of Community and Regional Affairs. *Business License Database*. www.commerce.alaska.gov/CBP/Main/CBPLSearch.aspx?mode=BL. Accessed Jan. 22, 2016.
- _____. 1996 and 2008. Division of Community and Regional Affairs. Community Photo Library. Photos: *City View; Snow Fence; Power Plant; Winter View; Fire Station; Church*. www.commerce.alaska.gov/dcra/dcrepoext/Pages/PhotoLibrary.aspx
- Alaska Department of Education and Early Development. 2015. *Report Card to the Public*. https://education.alaska.gov/Alaskan_Schools. Accessed September 9, 2015.
- Alaska Department of Environmental Conservation. 2015. Division of Spill Prevention and Response, Contaminated Sites Program. <http://dec.alaska.gov/Applications/SPAR/PublicMVC/CSP/Search>. Accessed February 5, 2016.
- Alaska Department of Fish and Game. 2015. *New Caribou Hunting Rules in Effect*. Caribou Trails. Summer 2015; Issue 15. http://westernarcticcaribou.org/wp-content/uploads/2015/07/CT2015-FINAL-06_15_15_lowres-1.pdf
- _____. 2014. *Alaska Fish & Wildlife News* www.adfg.alaska.gov/index.cfm?adfg=wildlifeneews.view_article&articles_id=678. August. Accessed Jan. 8, 2016.
- _____. 2014. *Western Arctic Herd Declines*. Caribou Trails Magazine. Summer 2014; Issue 14.
- Alaska Department of Labor and Workforce Development. 2014. Division of Research and Analysis. *Alaska Local and Regional Information*. <http://live.laborstats.alaska.gov/alari/>. Accessed Feb. 7, 2016.

- Alaska Department of Natural Resources. 2014. Division of Oil & Gas. *Alaska Peninsula Current Best Interest Finding, Current and Projected Uses*.
<http://dog.dnr.alaska.gov/leasing/BestInterestFindings.htm>. Accessed Feb. 3, 2016.
- Alaska Department of Revenue. Permanent Fund Dividend Division. *Annual Reports*.
<https://pfd.alaska.gov/Division-Info/Annual-Reports>. Accessed Feb. 2, 2016
- Alaska Geographic. 1981 *Alaska National Interest Lands*. In Alaska Geographic Society magazine. Volume 8. No. 4.
- Alaska Housing Finance Corporation. *2015 Construction Costs Survey*.
<http://laborstats.alaska.gov/housing/constcost.pdf>. Accessed Feb. 7, 2016.
- Aljazeera America. 2015. *Permafrost: What Lies Beneath. Frozen Soils Contain Clues about a Changing Climate and Other Surprises*. <http://america.aljazeera.com/watch/shows/techknow/articles/2015/12/21/permafrost-what-lies-beneath1.html>. Jan. 4. Accessed Mar.23, 2016.
- Anaktuvuk Pass. 2016. Tri-lateral Meeting. Feb. 11, 2016.
- Bergerson, Jason. 2016. North Slope Borough Policy Analyst. Personal Communication. Jan. 26, 2016.
- Bradner, Tim. 2015. Alaska Journal of Commerce. *Linc Energy Won't Need Access Road for Umiat Field Project*. www.alaskajournal.com/business-and-finance/2015-01-07/linc-energy-wont-need-access-road-umiat-field-project#.VqghO_krKbM. January 2015 Issue 2. Accessed Jan. 21, 2016.
- Brower, H.K. and R.T. Opie. 1996. *North Slope Borough Subsistence Harvest Documentation Project: Data for Anaktuvuk Pass, Alaska for the period July 1, 1994, to June 30, 1995*. Technical Report. Department of Wildlife Management. North Slope Borough. Barrow. Revised version.
- Brower, Jennifer. North Slope Borough. Personal Communication. Feb. 6, 2016 and May 31, 2016
- Burris, Lawrence. North Slope Borough Liaison. Personal Communication. Feb. 2, 2106.
- Chakuchin, H. Jobe. NEPA Specialist, Park Planner. National Park Service. Personal communication during public comment period. May 31, 2016.
- Cold Climate Housing Research Center. 2012. *Sustainable Northern Shelter: Anaktuvuk Pass*.
www.cchrc.org/sites/default/files/docs/AKP_factsheet2012.pdf. Accessed Feb. 6, 2016.
- Cole, Dermot. 2015. Alaska Dispatch News. *After \$35 Million, State Pulls Plug on Umiat Road Project*.
www.adn.com/article/20150102/after-35-million-state-pulls-plug-umiat-road-project. Jan. 2. Accessed Jan. 21, 2016.
- Dau, Jim. 2014. Alaska Department of Game & Fish. *Alaska Fish & Wildlife News*.
www.adfg.alaska.gov/index.cfm?adfg=wildlifeneews.view_article&articles_id=678. August. Accessed Jan. 8, 2016.

- Garoutte, Claude. 2016. TNHA Construction Services Project Manager. Personal Communication. March 24, 2016.
- Gerlach, Craig S. and Philip A Loring. 2015. *Rebuilding northern foodsheds, sustainable food systems, community well-being, and food security*. Aug. 5. www.ncbi.nlm.nih.gov/pmc/articles/PMC3748440. Accessed Feb. 2, 2016.
- Gibson, David. Research Analyst II. Alaska Bureau of Vital Statistics. Jan. 28, 2016.
- Gofundme.com. 2016. Gardens in the Arctic. <https://www.gofundme.com/k7nloc>. Accessed Feb. 2, 2016.
- Hassol, Susan Joy. *Alaska Climate Impact Assessment. Impacts of a Warming Arctic*. University of Alaska, Fairbanks, 2004. www.amap.no/documents/download/1058.
- Hild, C. 2002. *Contaminants In Alaska: Is America's Arctic At Risk?* In *The Status of Alaska's Oceans & Watersheds*. Pp.97-110.
- Hodges Snyder, Elizabeth and Ken Meter. 2015. *Food in the Last Frontier: Inside Alaska's Food Security Challenges and Opportunities*. Environment. May-June. www.environmentmagazine.org/Archives/Back%20Issues/2015/May-June%202015/alaska_full.html. Accessed Feb. 2, 2016
- Hollesen, Jorgen, Henning Matthiesen, Anders Bjorn Moller, Bo Elberling. 2015. *Permafrost Thawing in Organic Arctic Soils Accelerated by Ground Heat Production*. Nature Climate Change. Volume 5. June. www.nature.com/nclimate/journal/v5/n6/full/nclimate2590.html. Accessed Mar. 23, 2016.
- Jandt, R.R., E.A. Miller, D.A. Yokel, M.S. Bret-Harte, C.A. Kolden, M.C. Mack. 2012. Findings of Anaktuvuk River Fire Recovery Study, 2007-2011. www.frames.gov/files/9613/9881/3547/Anaktuvuk_River_Fire_Study_FINAL_6-21-12.pdf. Accessed Jan. 15, 2016.
- Joly, Kyle, Randi R. Jande, Cynthia R. Meyers, Martha J. Cole. 2006. *Changes in Vegetation Cover or Western Arctic Herd Winter Ranges from 1981 to 2005: Potential Effects of Grazing and Climate Change*. www.fs.fed.us/pnw/pubs/journals/pnw_2006_joly001.pdf
- Kraemer et al. 2005. *The Potential Impact of Climate on Human Exposure to Contaminants in the Arctic*. International Journal of Circumpolar Health. Vol. 64, Section 5.
- Mondor, Colleen. 2013. Alaska Dispatch News. *Airplanes and Bible Camp in Anaktuvuk Pass*. www.adn.com/article/20130319/airplanes-and-bible-camp-anaktuvuk-pass. Mar. 19. Accessed Jan. 21, 2016.

- Montana, Susana. *2010 Major Subsistence Season Harvests for Anaktuvuk Pass*. Prepared with Lawrence Burris and in coordination with Anaktuvuk Pass hunters. July 2011.
- Mueller, Kim. North Slope Borough Power and Light. Personal Communication. Feb. 2, 2106.
- National Research Council, Institute of Medicine. *The Arctic Aeromedical Laboratory's Thyroid Function Study*.
- North Slope Borough. 2016. Department of Wildlife Management. *State of Alaska Oil and Gas Leases*. www.north-slope.org/departments/wildlife-management/other-topics/oil-and-gas-activity/state-of-alaska-oil-and-gas-activities. Accessed Jan. 2, 2016
- _____. 2016. *Our Communities: Anaktuvuk Pass*. www.north-slope.org/our-communities/anaktuvuk. Accessed Jan. 13, 2016
- _____. 2015. *North Slope Borough Municipal Code. Land Management Regulations, Title 19, Chapter 19.20.020.67*. www.municode.com/library/ak/north_slope_borough/codes/code_of_ordinances. Accessed Jan. 6, 2016.
- _____. 2015. *North Slope Borough Hazard Mitigation Plan*.
- _____. 2015. *Six Year Plan*.
- _____. 2015. Unpublished. Draft *North Slope Borough 2015 Economic Profile and Census Report*. Prepared by Circumpolar Research Associates Shepro, C., Maas, C. and D. Gallaway for the North Slope Borough.
- _____. 2014. *Project Analysis Report: Anaktuvuk Pass Seasonal Overland Route*. Prepared by Hattenburg, Dilley and Linnell. Feb. 5, 2014
- _____. 2014. *Project Analysis Report: Anaktuvuk Pass Water & Sewer Connections –Phase 1*. April 28, 2014. Prepared by UMIAQ.
- _____. 2013. *Project Analysis Report: Atqasuk and Nuiqsut Water and Sewer Connections*. Feb. 22, 2013. Prepared by UMIAQ.
- _____. 2012. Department of Health & Social Services. *Baseline Community Health Analysis Report*. www.north-slope.org/departments/health-social-services/baseline-community-health-analysis-report. Accessed Jan. 21, 2016.
- _____. 2011. *Project Analysis Report: Areawide Snow Fence and Tundra Degradation*. Prepared by UMIAQ. Feb. 9, 2011

- _____. 2010. *North Slope Borough 2010 Economic Profile and Census Report*. Prepared by Circumpolar Research Associates Shepro, C., Maas, C. and D. Gallaway with J. McNich for the North Slope Borough. www.north-slope.org/your-government/census-2010North Slope Borough.
- _____. 2005. *North Slope Borough Comprehensive Plan*. Prepared by URS Corporation for the North Slope Borough. October. www.north-slope.org/your-government/comprehensive-plan.
- _____. 2005. *North Slope Borough Comprehensive Plan. Anaktuvuk Pass Village Profile*. Prepared by URS Corporation for the North Slope Borough. October 2005.
- _____. 2005. *North Slope Borough Comprehensive Transportation Plan*. Prepared by ASCG Inc. August. www.north-slope.org/your-government/comprehensive-plan. Accessed Jan. 14, 2016.
- _____. 2004. *City of Anaktuvuk Pass Local All Hazard Mitigation Plan*. Prepared by Joe Stankiewicz, North Slope Borough Risk Management Division.
- _____. 2003. *North Slope Borough 2003 Economic Profile and Census Report*. Prepared by Circumpolar Research Associates Shepro, C., Maas, C. and D. Gallaway.
- _____. 1990. Commission on the Iñupiat History, Language and Culture. *Anaktuvuk Pass Land of the Nunamiut*.
- _____. 1996. *North Slope Borough Solid Waste Management Plan*.
- _____. 1989. *NSB Coastal Management Program, Areas Meriting Special Attention, Phase 1 Report*. June.
- _____. 1983. *Background for Planning: City of Anaktuvuk Pass*. Prepared by Alaska Consultants Incorporated.
- _____. n.d. *Heritage Event Programs*. www.north-slope.org/assets/images/uploads/heritage_event_programs.pdf
- _____. n.d. Department of Iñupiat Heritage, Language and Culture. *Simon Paneak Memorial Museum*. www.north-slope.org/departments/inupiat-history-language-and-culture/simon-paneak-memorial-museum.
- North Slope Borough School District. n.d. Nunamiut School. www.nsbsd.org/ns.
- Norwegian Polar Institute. 2016. The Arctic System. *The Amount of UV Radiation to the Arctic is Increasing*. www.arcticsystem.no/en/outsideworld/sunlight/increasing-UV.html. Accessed Jan. 13, 2016.
- Nunamiut School. 2016. Facebook. www.facebook.com/Nunamiut-School-1376009715964133. Accessed Feb. 5, 2016.

- Office of Disease Prevention. 2015. Dietary Guidelines Advisory Committee. *Dietary Guidelines 2015-2020*. <http://health.gov/dietaryguidelines/2015/guidelines/executive-summary>. Accessed Feb. 3, 2016.
- Rausch, R. 1951. *Notes on the Nunamiut Eskimo and Mammals of the Anaktuvuk Pass Region, Brooks Range, Alaska*. Arctic Magazine: 4(3), December.
- Rogers, Jillian. 2015. Alaska Dispatch News. *As Food Costs Soar, Arctic Gardeners Flourish*. www.adn.com/article/20150803/food-costs-soar-arctic-gardeners-flourish. Accessed Feb. 2, 2016.
- Science Daily. 2008. *Warming Climate May Cause Arctic Tundra To Burn*. www.sciencedaily.com/releases/2008/03/080304200902.htm. March 5. Accessed Jan. 13, 2016.
- Solari, Claudia D. and Mare, Robert D. 2012. *Housing Crowding Effects on Children's Wellbeing*. Social Science Research 2012 Mar; 41(2): 464-476. www.ncbi.nlm.nih.gov/pmc/articles/PMC3805127. Accessed Apr. 1, 2016.
- Tagiugmiullu Nunamiullu Housing Authority. 2015. Unpublished white paper. *North Slope Borough Housing: A Brief Analysis of Issues and Options with Budgetary Quotes*.
- UMIAQ. 2011. Photo library. Simon Paneak Memorial Museum.
- U.S. Department of Commerce. 2014. U.S. Census Bureau. *2010 – 2014 American Community Survey 5-Year Estimates – Anaktuvuk Pass City, North Slope Borough, Alaska State*. <http://factfinder.census.gov>. Accessed Jan 22, 2016.
- _____. 2010. U.S. Census Bureau. *2010 Census*. Accessed 2 February 2016. www.census.gov/2010census
- _____. 2000. *Alaska: Summary Population and Housing Characteristics*. www.census.gov/prod/cen2000/phc-1-3.pdf. Accessed Jan. 7, 2016.
- U.S. Department of Housing and Urban Development. 2016. *Affordable Housing*. http://portal.hud.gov/hudportal/HUD?src=/program_offices/comm_planning/affordablehousing. Accessed Feb. 2, 2016.
- U.S. Department of the Interior. 2016. Fish and Wildlife Service. *IPaC Information for Planning and Conservation*. <http://ecos.fws.gov/ipac>. Accessed Jan 8, 2016.
- _____. 2016. National Park Service. *Gates of the Arctic National Park & Preserve: Significant Value of Gates of the Arctic*. www.nps.gov/gaar/learn/significant-values-of-gates-of-the-arctic.htm. Accessed Jan. 8, 2016.
- _____. 2016. National Park Service. *Photo Gallery: Mammals*. Photo by Christopher Houlette. www.nps.gov/media/photo/gallery.htm?id=8298B53A-1DD8-B71C-0746418F1A71DA34

- _____. 2015. Fish and Wildlife Service. *Western Arctic Caribou Herd Working Group*. www.fws.gov/refuge/Selawik/what_we_do/caribouworkinggroup.html. Accessed Jan. 10, 2016.
- _____. 2015. Fish and Wildlife Service. *What Is the Difference Between Endangered and Threatened?* www.fws.gov/midwest/wolf/esastatus/e-vs-t.htm. Accessed Jan. 6, 2016.
- _____. 2013. Bureau of Land Management. www.blm.gov/style/medialib/blm/ak/aktest/planning/ne_npra_final_supplement.Par.28170.File.dat/npra_final_chapter3.pdf. Accessed Dec. 16, 2015.
- _____. 2011. Bureau of Land Management. *NPR-A Climate Change Analysis: An Assessment of Climate Change Variables in the National Petroleum Reserve in Alaska*. SNAP: Scenarios Network for Alaska and Arctic Planning. University of Alaska. www.snap.uaf.edu/attachments/NPRA_Climate_Change_Analysis_2011.pdf. Accessed December 22, 2015.
- _____. 1996. National Park Service. Land Exchange Summary.
- U.S. Environmental Protection Agency. 2015. *Climate Impacts in Alaska*. www3.epa.gov/climatechange/impacts-adaptation-renamed/alaska.html. Accessed Jan. 13, 2016.
- Walladmit, Daniel. 2013. A Day at Anaktuvuk Pass. <http://northierthanthou.com/2013/01/25/a-day-at-anaktuvuk-pass/#jp-carousel-3140>. Accessed Feb. 2, 2016.
- Wagner, Greg. Communication with NSB Water/Sewer Utility System Specialist Employee. Jan. 14, 2016.
- Wiltse, N., Madden, D., Valentine, B., Stevens, V. 2014. 2013 Alaska Housing Assessment. Cold Climate Housing Research Center. Prepared for: Alaska Housing Finance Corporation. www.ahfc.us/efficiency/research-information-center/housing-assessment. Accessed Mar. 31, 2016.
- Wolfson, Mariel and La Jeunesse, Elizabeth. *Challenges and Opportunities in Creating Healthy Homes: Helping Consumers Make Informed Decisions*. Harvard Joint Center for Housing Studies. www.jchs.harvard.edu/research/publications/creating-healthy-homes. Accessed Apr. 1, 2016.

This page is intentionally left blank

Appendices

Appendix A: SWOT Analysis Results - November 10, 2009

Appendix B: Summary of Concerns and Issues Expressed by Community Leaders in 2010

Appendix C: Response to Public Comments

Appendix D: Adaptation Strategies for Climate Change Impacts

Appendix E: Resolutions of Support

This page is intentionally left blank

Appendix A: SWOT Analysis Results - November 10, 2009

At the beginning of the Comprehensive Plan planning process in November 2009, 37 community members participated in a public meeting where the planners facilitated a Strengths, Weaknesses, Opportunities and Threats (SWOT) analysis. Information from the SWOT analysis provided the basis for the vision statement included in the next section.

At a November 2009 three-hour workshop, planners discussed the purpose of the comprehensive plan, the type of information typically included in comprehensive plans and how a plan is intended to be used. After hearing about these topics, the community completed three different visioning exercises during which they drew pictures of activities they like to do in Anaktuvuk Pass, wrote down elements of their vision for Anaktuvuk Pass in 20 years and identified future land use needs.

Participants at the November 2009 meeting shared their perceptions of Anaktuvuk Pass's strengths, weaknesses, opportunities and threats, outlined below.

The strengths and assets identified at the public meeting:

- An exceptionally scenic alpine environment with abundant wildlife
- Fresh, clean and pristine water
- Unique culture; the only inland Nunamiut Eskimos
- Strong, traditional values
- Teshepuk and Central Arctic Herd migrate through the area
- Strong vibrant people that value family and elders
- A museum that helps to preserve the culture
- Park Service designation provides some protection from outside development
- Teacher turnover rate is low due to the desirable location
- Mask making

Weaknesses identified:

- High transportation costs which contribute to the high costs of fuel and goods
- High propane costs and high prices of food at the store
- Overcrowded housing
- Lack of recreational opportunities and opportunities for youth
- Changing caribou migration patterns
- Proximity to Gates of the Arctic Park limits summer subsistence options due to Park Management restrictions
- High unemployment
- Community divided by creek with one inadequate bridge
- Dusty roads in summer

- Individual hikers not contributing to economy
- When working adults leave the village to seek employment, Elders are left without family care and assistance, requiring village residents to care for them
- The Health Clinic emergency room is small and could not accommodate increased service calls due to additional growth or development

Major potential opportunities identified:

- Alternative energy could reduce heating and electricity costs
- Expand tourism market
- Promote local businesses
- Improve cell service and develop a community wide Wi-Fi system
- Provide a youth center and a multi-cultural center
- Teach young people the language
- Give youth a sense of ownership and respect for our lands
- Develop modern, energy efficient 'sod' homes
- Provide a recycling center
- Provide more housing
- Create our own airline
- Start a water bottling company
- Have our own tourism place and hotels
- Winter road to Umiat could reduce transportation costs [if Umiat is connected to the Haul Road]

Potential threats identified:

- Climate changes threatens our subsistence lifestyle
- Outside hunters compete for limited resources and thwart hunting by taking the first migration of the season
- Road to Umiat could bring outside hunting pressure on our caribou and could allow people to bring airboats onto the Colville River
- Resource development impacting caribou migration
- Increased transportation costs leading to increased goods and fuel prices
- Flooding
- Language extinction

Planners also discussed how zoning can be used as a tool for land use planning and identified some potential zones that might apply to Anaktuvuk Pass. To identify future land use needs, groups drew areas on maps that they want to use for future development and areas that they want to protect. Those suggestions are noted in the future land use map shown as Map 16.

Appendix B: Summary of Concerns and Issues Expressed by Community Leaders in 2010

Local leaders from the Native Village and Nunamiut Corporation were invited along with Borough Planning staff to participate in a draft plan workshop in Fairbanks. Participants included the Anaktuvuk Pass Planning Commissioner, Native Village President, President of Nunamiut Corporation and local village liaison. Planners reviewed the previous workshop results, lead participants through a discussion of issues, goals, policies, current and future land use maps and a review of the draft plan. Corrections and additions were incorporated into the final draft plan which was provided to the local leaders for review.

Anaktuvuk Pass's issues for consideration in this plan were gathered through public input, comments at the workshops, targeted interviews, review of past planning efforts and research. Identifying the issues helps to focus the Plan on the concerns of the people of Anaktuvuk Pass. Note that issues beyond the scope of this Plan to correct or mitigate adverse impacts of development are included. These issues are noted below.

Environmental

Climate change poses new threats to the community of Anaktuvuk Pass. These threats could impact the migration of the caribou, which the community depends on for subsistence.¹⁷⁹ An increasing number of lightning strikes, a result of warmer temperatures, appear to be responsible for recent fires in the area, including one in 2007 which burned a 10-mile by 40-mile area destroying habitat and causing caribou to alter their traditional migratory route further distant from the village. The lasting impacts from that fire are still unknown.

It is believed that watersheds and wetlands are not always adequately protected. One example is Eleanor Lake which is believed by residents to be polluted, primarily from float plane fuel. The Native Village of Anaktuvuk Pass (the Naqsrarmiut Tribal Council) plans to clean up the lake, perhaps in the summer of 2011.

ATV use on and off trails damages the tundra, causes erosion and potentially channels water between lakes disrupting the wetlands.

There is concern that potential adverse human health impacts are not always considered when projects are reviewed, even when the National Environmental Policy Act (NEPA) process is used to review project alternatives before issuance of federal permits.

¹⁷⁹ North Slope Borough. 2004. Risk Management Division. *City of Anaktuvuk Pass Local All Hazard Mitigation Plan*. Prepared by Joe Stankiewicz, Joe, North Slope Borough Risk Management Division.

Land Ownership and Land Use

The Village Corporation has not settled its 14(c)(3), land transfer¹⁸⁰ to the city.

There are concerns about a lack of local control over nearby lands and resources. Some community members would like greater say in how land uses are regulated.

Community members said that most young people are unfamiliar with the arrangement of different property ownership, the location of property boundaries, and the specific details of ownership responsibilities for the different parcels of land surrounding Anaktuvuk Pass.

Transportation – Airport and Roads

Several transportation proposals, identified by the community during the development of their Transportation Plan have not been fully funded, such as Contact Creek Bridge replacement and construction of an airport terminal building.¹⁸¹

Contract Creek Bridge needs replacing because of the lack of pedestrian access and the lack of sight distance (the distance needed to safely stop or take corrective action to avoid an accident). This project has been designed by the NSB and the Tribe proposes to include it in their Bureau of Indian Affairs (BIA) Reservation Roads Program. The bridge has been designed and the NSB has developed a funding strategy which includes NSB resources, Denali Commission and Bureau of Indian Affairs funding. Project funding should be secured in 2011 and construction should be complete in August or September 2012.

It is expensive to transport freight into Anaktuvuk Pass as it must arrive by aircraft. The lack of road access drives up transportation costs and thus costs for goods and services.

There is concern about the Alaska Department of Transportation and Public Facilities' (DOT) ongoing "Road to Resources" proposal to build a road from the Dalton Highway to Umiat. The fear is three-fold: 1) such a road would attract sport hunters to the area who may kill off the first part of the herd which would scare off the rest of the caribou; 2) the road would allow people to bring airboats onto the Colville River and the noise would scare away wildlife and fish; and 3) the road could allow easier and more devastating importation of alcohol and drugs to the village. Notwithstanding these threats, some community members support year-round road access for residents to the Dalton Highway and Fairbanks. Community Facilities

The community would like to improve community facilities but funding is limited. There are several community facilities that need improvements or expansion but funding for capital projects is limited and

¹⁸⁰ Section 14(c)(3) of the Alaska Native Claims Settlement Act [ANCSA] (43 U.S.C. § 1613(c)(3)) requires each village corporation to convey land for present and future public land uses to the municipal corporation in the village or to the state in trust.

¹⁸¹ North Slope Borough. 2015. *North Slope Borough Anaktuvuk Pass Village Profile*. Prepared by URS Corporation. October 2005.

these must compete with other priorities. Examples of deficient facilities include the community hall, Tribal offices, the cemetery, piped water and sewer to all homes, and outdoor recreational facilities such as ball fields.

Energy and Technology

The cost of energy in Anaktuvuk Pass is very high. Heating fuel, gasoline and propane are delivered to Anaktuvuk Pass by plane. The lack of ground transportation alternatives drives up the costs.

Housing

A concern was expressed that there are not enough homes in Anaktuvuk Pass to relieve overcrowding.¹⁸²

Community members indicated that the homes that do exist are said to be overcrowded and poorly equipped to handle the harsh climate conditions.

Cultural Resources

The number of people who are fluent in Iñupiaq is said to be small.

It is a challenge to maintain traditional activities and cultural values between generations.

Economics

Community members said there is a lack of jobs in Anaktuvuk Pass.

Lack of day care facilities makes it difficult for some to work outside the home.

Health and Social Services

Social issues such as domestic violence and drug and alcohol abuse are higher than the national average and according to residents are not being adequately addressed.

There are concerns about radiation experiments conducted on some residents' thyroid glands by the U.S. Air Force's Arctic Aeromedical Laboratory in 1956 and 1957. Studies show that because of radiation experiments conducted on community members during that period, residents have up to 10 times the national average incidents of cancer, particularly thyroid cancer.¹⁸³

There are only limited veterinarian services available to treat pets.

Development projects do not always consider health impacts.

¹⁸³ National Research Council, Institute of Medicine. 1996. *The Arctic Aeromedical Laboratory's Thyroid Function Study*.

There is a lack of recreational facilities.

Subsistence Resources

Community members are concerned about protection of land-based subsistence resources. Some state that changes in the caribou migration patterns are making it difficult to hunt caribou. It was observed by some that ever since the fire in 2007, the caribou seem to be avoiding the Pass and traveling more to the east.¹⁸⁴

There is concern about the possibility of a road to Umiat and how that might bring non-local sport hunters that could take animals before they reach Anaktuvuk Pass.

Residents want sustainable development that allows future generations to continue their subsistence lifestyle.

Capital Improvement Planning

There is a lack of long term planning for capital projects. The NSB is developing a six year capital improvements plan (CIP) which, if regularly updated, will serve as a viable planning tool.

¹⁸⁴ Anaktuvuk Pass Tribal Council. 2009. Personal Communication. May 28, 2009.

Appendix C: Response to Public Comments
Response to Public Review Comments

Draft Page	Comment	Final Page	Action
Susan Mekiana Morry Administrative Draft, March 2, 2016			
41 Table 3	The old power plant site is not cleaned up. The abandoned building still stands. This location is a hot spot in the spring and summer for kids to play around. There is a small creek that flows, it seems contaminated as well: It may smell of diesel and has a rainbowie look to it. This is a very unhealthy environment to be around. Removal and Clean up should be a priority. Also the power poles should be relocated. They are too close within the village, kids see this as a place to climb and play around.	42	This text was added to the plan, two paragraphs above the contaminated sites table: <i>"The Anaktuvuk Pass Tri-lateral Committee has indicated that although the Alaska Department of Conservation indicates that the former Anaktuvuk Pass Power Plant clean-up is complete, the small creek that runs adjacent to the plant appears contaminated and that the former power plant, now abandoned, should be demolished. Additionally, the Tri-lateral Committee identified a surplus of power poles located on the former power plant site as a safety hazard, especially for children that are known to play in the area."</i> Also added ADEC Contaminated Sites table is that the community does not believe that clean-up is complete: <i>"Cleanup Complete (the community has stated that the site needs additional clean-up)."</i>
137 Future capital needs	Include Clean up of contaminated sites and abandoned buildings: The old powerplant, and the old 2 story housing in-between the school and the Nun Corp.	42 159 146	The following has been added to Section 3.8 Contaminated Sites: <i>"Additionally, a former teacher duplex, located between Nunamiut School and Nunamiut Corporation has not been used in many years and should be demolished and the site remediated as needed."</i> The Implementing Strategies under Goal 5 - Maintain efficient public infrastructure, community facilities and transportation systems include cleaning-up contaminated sites: <i>"a) Seek funding to demolish and remove former teacher housing duplex" and "Coordinate with the State of Alaska on outstanding contaminated sites in the Anaktuvuk Pass area and seek remediation funding, especially for the former Power Plant, NALEMP Chandler Lakes Research Camp, and NPS Anaktuvuk Pass Chandler Lakes Research Camp."</i> These sites are included as potential capital projects over the next 20 years: <i>"The former power plant site and nearby creek should be evaluated for contamination; the power plant building should be repurposed or demolished; surplus power poles should be relocated for safety" and "The two-story housing unit located between Nunamiut School and Nunamiut Corporation/Camp should be removed" and "ADEC clean-up efforts should continue for two contaminated sites: NALEMP Chandler Lakes Research Camp and NPS Anaktuvuk Pass Chandler Lakes Research Camp."</i>

Draft Page	Comment	Final Page	Action
Susan Mekiana Morry Administrative Draft, February 2016 (continued)			
24	Somewhere in this comp plan possibly page 24 Community History include: Along with what’s already mentioned about school and improved air service, include > the Nunamiut also considered settlement in the Anaktuvuk valley to ensure a secured subsistence lifestyle with the migrating caribou through this valley.	24	The first sentence under 2.4 Community History now reads: "The area of Anaktuvuk Pass began to be settled in the 1940s. Motivated by the desire to obtain schooling for children, take advantage of improved air service, <i>and ensure a sustained subsistence lifestyle from the caribou migrating through the valley</i> , families who had spread out along river drainages of the region relocated to the Anaktuvuk Valley."
NA	Our people were taught by past generations to refrain from hunts up north to ensure the migrating caribou to come through. Especially in the months of Late July through September. (I wouldn’t know where to put this statement but I think since outsiders would read this Comp Plan it should be noted)	53	Section 4.3 AKP Subsistence Harvest. The last sentence of the first paragraph reads: " <i>Nunamiut are taught by past generations to refrain from hunting in the north to ensure that the migrating caribou come though the Anaktuvuk Pass valley. This is especially important from late July through September.</i> "
Chapter 12	Chapter 12 Include. The DARE Program or something to that effect. DrugAbuseResistanceEducation. This was a good tool to raise awareness to our youth for the dangers of Drugs and alcohol. Especially at this day and age.	160	Changes were made to Goal 5 to allow for an implementing strategy: "Goal 5 - Support the development and maintenance of essential <i>social services</i> and public infrastructure, facilities, and the transportation network". The new Objective 5.8 reads " <i>Provide substance abuse education and prevention</i> " with an implementation strategy " <i>a) Implement a community-based drug and alcohol prevention program focused on positive decision-making, such are "keepin’ it REAL (a D.A.R.E program) or similar program.</i> "

Draft Page	Comment	Final Page	Action
National Park Service Public Review Draft, May 2016 (continued)			
<p>53</p>	<p>Last sentence in the last paragraph – “Residents of Anaktuvuk Pass are unable to boat to resources during the summer, and summertime off-road vehicle use is restricted to designated trails in the Gates of the Arctic National Park by the National Park Service (NPS) to designated trails in the Gates of the Arctic National Park.”</p> <p>Reword to: “Due to the absence of large river systems in the area, residents of Anaktuvuk Pass are unable to boat to resources during the summer. Additionally, summertime off-road vehicle (ORV) use is limited to areas within the boundaries of the Anaktuvuk Pass Land Exchange.”</p> <p>After the park was established in 1980, ORVs in the park wilderness had to be resolved so the Anaktuvuk Pass Land Exchange was crafted between the Nunamiut Corporation, the City of Anaktuvuk Pass, the Arctic Slope Regional Corporation and the National Park Service.</p> <p>The 1992 Final Legislative Environmental Impact Statement on All-Terrain Vehicles for Subsistence Use in Gates of the Arctic and Record of Decision, ratified by Congress in 1995, authorized an exchange of federal park and wilderness land with native regional and village corporations. This exchange was completed in 1996, but a complete survey of the lands was only finished recently.</p> <p>This agreement allows All-terrain Vehicles (ATV) access by Anaktuvuk Pass residents to pursue caribou and</p>	<p>53</p>	<p>The last two paragraphs in Section 4.3 now read “The area north of Anaktuvuk Pass encompassing the Chandler and Anaktuvuk River drainages is important for subsistence activities. Residents of Anaktuvuk Pass are unable to boat to resources during the summer, and summertime off-road vehicle use is restricted to designated trails in the Gates of the Arctic National Park by the National Park Service (NPS) to designated trails in the Gates of the Arctic National Park. Due to the absence of large river systems in the area, residents of Anaktuvuk Pass are unable to boat to resources during the summer. Additionally, summertime off-road vehicle use is limited to areas within the boundaries of the Anaktuvuk Pass Land Exchange.</p> <p>After the park was established in 1980, issues regarding off-road vehicle (ORV) use in the park wilderness needed to be resolved. The Anaktuvuk Pass Land Exchange was crafted between the Nunamiut Corporation, the City of Anaktuvuk Pass, the Arctic Slope Regional Corporation, and the National Park Service. The 1992 Final Legislative Environmental Impact Statement on All-Terrain Vehicles for Subsistence Use in Gates of the Arctic and Record of Decision, ratified by Congress in 1995, authorized an exchange of federal park and wilderness land with Native regional and village corporations. This agreement allows ATV access by Anaktuvuk Pass residents to pursue caribou and other subsistence resources within the Anaktuvuk Pass Land Exchange boundaries and also provides broad public access easements through ASRC and Nunamiut lands. This exchange was completed in 1996, but a complete survey of the lands was only finished recently. To allow for ATV access, the exchange deauthorized some park wilderness and designated new wilderness areas that were formerly ASRC and Nunamiut lands. The ATV as defined by the agreement, is a six or eight wheeled off-road vehicle with low-pressure tires and weighing a maximum 1,200 pounds empty or 2,000 pounds fully loaded. The Argo is a popular brand of ATV used by Anaktuvuk Pass residents.”</p>

Draft Page	Comment	Final Page	Action
National Park Service Public Review Draft, May 2016 (continued)			
	<p>(continued) other subsistence resources within the Anaktuvuk Pass Land Exchange boundaries and also provides broad public access easements through ASRC and Nunamiut lands. To allow for ATV access, the exchange deauthorized some park wilderness, and designated new wilderness areas that were formerly ASRC and Nunamiut lands. The ATV as defined by the agreement, is a six or eight wheeled off-road vehicle with low-pressure tires and weighing a maximum 1,200 pounds empty or 2,000 pounds fully loaded. The Argo is a popular brand of ATV used by the residents of Anaktuvuk Pass.</p>		
58-59 GAAR Restrictions	<p>First paragraph – “After GAAR was established in 1980, NPS prohibited motorized vehicles on parklands.” Reword it to: After the park was established, NPS officials imposed a ban on all-terrain vehicle (ATV) use on park lands. Anaktuvuk Pass residents needed access to the wildlife on which they depend for food and the ban limited their travel on traditional lands.</p>	58	<p>The text now reads “After GAAR <i>the Park</i> was established in 1980, NPS officials prohibited motorized vehicles on parklands <i>imposed a ban on ATV use on park lands. Anaktuvuk Pass residents needed access for subsistence hunting but the ban limited travel on traditional lands.</i>”</p>
58-59 GAAR Restrictions	<p>In response to the need for ATV and snowmachine access... Reword to: In response to the need for ATV access to subsistence resources within the park, in the late 1980’s, the residents of Anaktuvuk Pass began negotiating an agreement between the NPS, the Arctic Slope Regional Corporation (ASRC), the City of Anaktuvuk Pass and the Nunamiut Corporation for a four-way land exchange to...</p>	59	<p>The suggested change has been made.</p>

Draft Page	Comment	Final Page	Action
National Park Service Public Review Draft, May 2016 (continued)			
59 First paragraph	Reword to: All hunters within GAAR require a state hunting license from the Alaska Department of Fish and Game (ADF&G). This includes residents within GAAR. Licensed sport hunters are allowed to hunt within Itkillik and Kobuk Preserves, but not in the main part of the park. Title VIII of the Alaska National Interest Lands Conservation Act (ANILCA) allows rural Alaskans to pursue subsistence uses on public lands except when the National Park Service, acting on behalf of the Secretary of the Interior, deems such activity to be limited as necessary for public safety, administration, or to assure the continued viability of a particular fish or wildlife population. Currently, Federal subsistence wildlife regulations limit the number and season for taking moose, caribou, musk ox, sheep, bear, coyote, fox, lynx, wolf, wolverine, and ptarmigan.	59	The text now reads “All hunters within GAAR require a hunting license. Residents within the GAAR area require a subsistence hunting license from the Alaska Department of Game and Fish (ADG&F), <i>including residents with GAAR</i> . Licensed sport hunters are allowed to can hunt only within the Itkillik and Kobuk Preserves but area and not in the main part of the Park any of the Park-classified lands . Title VIII of the Alaska National Interest Lands Conservation Act (ANILCA) allows rural Alaskan to pursue subsistence uses on public lands except when the <i>National Park Service</i> , acting on behalf of the Secretary of the Interior, deems such activity to be limited as necessary for public safety, administration, or to assure the continued viability of a particular fish or wildlife population. Currently, federal subsistence wildlife regulations limits the number and the season for taking moose, caribou, musk ox, sheep, bear, <i>coyote</i> , fox, lynx, wolf, wolverine, and ptarmigan.
152 Goal 1	Implementing Strategies section F – Reword to: Village leadership will continue to document “traditional” and contemporary knowledge of wildlife habitat, migratory patterns, weather, currents, ice formations and the like and will share that knowledge with local (such as the NSB Fish and Game Management Committee, State and Federal (such as the NPS and the GAAR Subsistence Resource Commission) resource management agencies and other relevant public and private science projects and programs.	153	The text now reads “Village leadership will continue to document traditional and contemporary knowledge of wildlife habitat, migratory patterns, weather, currents, ice formations and the like and will share that knowledge with local (such as the NSB Fish and Game Management Committee <i>and UCAN</i>), State (such as the GAAR Subsistence Resource Commission) and Federal (such as the NPS <i>and the GAAR Subsistence Resource Commission</i>) resource management agencies and other relevant public and private science projects and programs.”

Draft Page	Comment	Final Page	Action
Ida Angasan, Comprehensive Planning Stakeholder Committee representing Kaktovik Public Review Draft, May 2016			
158	8.1 is/was this part of Goal 5? If so, 8.1 Part B can also coordinate with RAB air force? – Army Corps of Engineers. Or was AKP ever in military use? Find other sources besides just state for clean-up	159	Goal 5, Obj. 5.4 was incorrectly labeled as 8.1. Obj. 5.4 has been reworded to indicate funding should be sought from a variety of sources: “b) Coordinate with the State of Alaska on outstanding contaminated sites in the Anaktuvuk Pass area and seek remediation funding <i>from a variety of sources, especially for the former Power Plant and the remaining clean-up for NALEMP Chandler Lakes Research Camp and NPS Anaktuvuk Pass Chandler Lakes Research Camp.</i> ”
NA	Thought all homes at AKP had water and sewer connections. How have they adapted without water and sewer? Do they still use honey buckets? Why! And How soon will they have water/sewer hooked up? Or has the work already started or begun?	92	There are currently 22 homes that still use honey buckets or sewage holding tanks; 17 of these homes will be connected to below grade water and sewer service in 2017. The remaining five homes are not being connected for a variety of reasons, including occupancy status, lack of a permanent foundation, and structural shortcomings.
NA	Communications with all NSB directives associated with AKP health, water and sewer, power plants have got to listen to community when requested. Also NSB village employees <u>have</u> to respond to their telephone needs as soon as possible or that day if emergency. Call them back. If can't be done that day. <u>COMMUNICATE</u>	NA	The NSB is aware of this issue and is looking for ways to facilitate avenues for voicing community concerns and complaints.

Draft Page	Comment	Final Page	Action
Ida Angasan, Comprehensive Planning Stakeholder Committee representing Kaktovik Public Review Draft, May 2016 (continued)			
NA	NSB offices have got to listen to what is happening at AKP when community asks for help of all sorts, listen to the concerns. Follow-ups from NSB needs to be answered back to the requester (AKP). AKP also has to follow up with their requests to see if it has been heard by NSB. AKP Comprehensive Plan has many good goals. NSB Comp Plan, QIT [Quality Improvement Team – or Comprehensive Planning Stakeholders] will TRY our best to respond with best results. Let's all work together to make sure (we) villages learn to work with each other, all villages, give your suggestion ideas. It may not sound good to the next person but put it out there for all stakeholders to hear it. Then we can hash or rehash to what the best solution will be for the village. Listen to all people of AKP: Elders, youth; students; even what the little people think of what they want for their village. It's a start, a good start of goals. Let's learn to listen; be positive in the way of giving an answer to a request. Even if we think it's a stinker of an idea, work with it.	NA	With the development of the village comprehensive plans, this process continues to improve. Use of the QIT team and process is one new avenue for the comprehensive plans to reflect the community values and, in turn, serve as a mechanism to voice concerns and make improvements.
Written comments #1 from Community Meeting on May 17, 2016 Public Review Draft, May 2016			
Chapter 4	Subsistence Area, current mappings are current. Controlled Use Area under State that was proposed with NPS and hunting permits for locals 5 per day. Sport hunters aircrafts on Discovery Channel - our community will be impacted in the future for our grandchildren to have these addressed with all entities.	57, 152	The impact of sport hunting aircraft is discussed in 4.5 Subsistence Vulnerabilities and is addressed Goal 1 Objective 1.3 Implementing Strategy e.

Draft Page	Comment	Final Page	Action
Written comments #1 from Community Meeting on May 17, 2016 Public Review Draft, May 2016 (continued)			
NA	Housing shortage for communities has been an issue for long periods that population is expanding.	75, 156	Chapter 6 discusses the housing inventory and needs within Anaktuvuk Pass. In Chapter 12, Goal 3 and all of its objectives and implementing strategies focus on housing issues.
NA	Public facilities such as burnables - incinerator during migration routes has been an issue.	105 158	The following text has been inserted in Section 8.3 Solid Waste and Recycling: <i>"The burns are controlled and sporadic as needed. Residents have expressed concern about impacts on the incineration during caribou migration."</i> The following text has been added to Goal 5, Objective 5.1 Implementing Strategy h: <i>"Standardize burn times during the day and year to minimize impacts during caribou migration periods."</i>
NA	Unemployment has a high rate and the percentages are still the same - no change.	126	The NSB Census indicates that the percent of residents with full-time employment has increased slightly from just over 43% in 2010 to 50% in 2015. Likewise, the NSB Census shows a decrease in unemployment, from nearly 35% in 2010 to 18.8% in 2015. See Table 17 in Chapter 9.
Written comments #2 from Community Meeting on May 17, 2016 Public Review Draft, May 2016			
NA	We have 80% unemployment. As a small village, that's a given. All jobs require red tape. No locals considered for jobs that we can accomplish. For a resource with rich homeland, we are poor, broke and destitute, but others get good jobs, stable homes, food to eat and clothes to wear. We do hand-me-downs. Our subsistence is almost gone. We look for help but none is able to help us in our dire straits. Old McDonald's farm is too far away and if his farm fails, we fail. Thank you.	126	The 2015 NSB Census indicates that unemployment is much lower than 80% (at 18%). However, seasonal/temporary, part-time work and retirement makes up a large part of the labor force's employment status: 31%. Some may have chosen retirement or temporary work when they would have preferred full-time employment but the opportunity didn't exist.

Draft Page	Comment	Final Page	Action
Written comments #2 from Community Meeting on May 17, 2016 Public Review Draft, May 2016 (continued)			
NA	<p>Subsistence is not a Native Term. "Inuniquik" is "a way of life..." that covers all "life ways", "life skills", "life giving", "life taking", concerning all Inupiat People of the Northern region of Alaska. Style is not preferred... "way" is more towards the sum of the parts of the whole. "Life ways - "life skills" - "life taking" - We are so regulated, our future generations will feel it, fortunately they were not caught in the middle, or in our case "the crossroads" where we fade as a 30,000 year old culture, and now we are "poor, broke, and destitute". Subsistence regulated participants of our conquerors. Albeit, no one conquered us, but apparently we are made to feel that way. We are under the scope of a microscope that reveals all wrongs that we have made and done in our new found society that goes against a law made 3,000 miles away. All wildlife in the Northern Region of Alaska have been made to be regulated by BLM, USFWS, AK Board of Game, and due to the State's incomprehensible, unconscionable, alienated dictatorship of our wildlife and plants, waters, sears and lands, we are threatened with trespassing in our 30,000 year old ecosystem that we were a big part of. That is natural regulation with no paper document to say how it was done. It was done according to natural law, not by some Victor Veggie or Frankie Farmer or Sierra Nevader from half a world away. Their feelings only have devastated and destroyed our culture. And the funny thing is they do not feel it. We feel it, and we pay dearly for it, some with our lives. Jesus Christ did not want us regulated like His sheep, we are not sheep. He did not create you to regulate others when you cannot regulate your own stolen country and its original inhabitations, even so, the animals, birds, fish and even insects.</p>	through out	<p>Lifestyle has been replaced with lifeways in Section 1.4 Vision Statement, 2.3 The People, 2.4 Community History, 4.1 Definition of Subsistence, 4.4 Subsistence Economy, 4.5 Subsistence Vulnerabilities – Climate Change, Chapter 7 Community Health introduction, 7.2 Healthy Life Way, 7.3 Healthy Environment, Goal 1 Objective 1.5, It was not changed in the bulleted Strengths, Weaknesses, Opportunities, and Threats that were provided verbally by the community, the results of a health survey reported in 7.1 Recent Health Initiatives, quotation from the NSB Municipal Code in 10.1 Zoning and Land Use Regulation, or in Appendix B.</p>

Draft Page	Comment	Final Page	Action
Written comments from Chris Hugo during Community Meeting on May 17, 2016 Public Review Draft, May 2016			
Chapter 1 - pages 6 and 8	Land ownership and Land Use. Village Corporation has not settled its 14(c)(3) land transfer to the City of Anaktuvuk Pass. What is happening to the Village Corporation of Anaktuvuk? Corporation of AKP needs to get the ball rolling with the <u>help</u> of <u>Regional</u> office in <u>Barrow</u> .	131 154	The lack of completion of the 14(c)(3) transfer is noted in 10.1 Land Ownership: "The Corporation has not completed its ANCSA 14(c)(3) conveyance. Until the conveyance is completed, the City is limited in its ability to make decisions regarding future land use and development." It is also included in Goal 2 Objective 2.1 Implementing Strategy d: "Using the Comprehensive Plan Future Land Use Map as a guide, the Nunamiut Corporation, City of Anaktuvuk Pass, Tribal Council, and residents will work with NSB staff to complete the 14(c)(3) process to clear title of lands for present and future public land uses."
Page v	Why don't the Comprehensive Planning Stakeholder Committee have meetings with tri-lateral entities in AKP? Need more transparency of Comprehensive Stakeholder Committee members.	7	Additional text has been included to clarify the Committee's role: In addition to specific activities to engage residents of Anaktuvuk Pass, the planning team established a Comprehensive Planning Stakeholder Committee, comprised of representatives from each village, to provide guidance to the team on plan contents and engagement efforts. <i>"The Committee meets quarterly to discuss the progress on the comprehensive planning effort. When a community's new plan is under development, the respective comprehensive planning stakeholder's role is to keep the community informed and serve as a contact for planning comments and concerns as well as relay information and concerns back to the Committee members."</i>
NA	Explain to me who is residents of Anaktuvuk Pass and how can you justify they are residents of Anaktuvuk Pass, AK 99721.	NA	Typically residents have physical address in the community, which is usually required for setting up a post office box, submitting a PFD application, etc.
59	Area of Influence - Controlled Use Area in Anaktuvuk Pass area and north of here. Who will <u>enforce</u> the Control Use Areas in/around Anaktuvuk Pass, north east or west of here?	59-60	The following text has been added to 4.5. Subsistence Vulnerabilities – Anaktuvuk Pass Controlled Use Area: <i>"Enforcement of the Controlled Use Area is primarily complaint driven through ADF&G."</i>

Draft Page	Comment	Final Page	Action
<p>Public comments during Community Meeting on May 17, 2016 Public Review Draft, May 2016</p>			
<p>Page 10 Vision Statement</p>	<p>Some words are hard to understand, such as pristine, scenic alpine, etc. The first sentence of paragraph 2 should read: "The people of Anaktuvuk Pass appreciate the environment as God created it." Paragraph 3: Remove the Inupiat from the second sentence. Paragraph 4: Replace "consensus" with "agreement" process.</p>	<p>10</p>	<p>Anaktuvuk Pass is a tightly knit, unique community where residents value families, education, and a strong <i>cultural</i> work ethic; have strong cultural ties to the land; enjoy modern conveniences; and pass on our traditional and community values to each generation.</p> <p>Anaktuvuk Pass residents appreciate the environment as God created it <i>pristine and scenic alpine environment in which we live and practice subsistence activities</i>. We protect that environment from future damage so all who live in and visit Anaktuvuk Pass can continue to enjoy abundant wildlife and plants, clean water and air, and unobstructed views.</p> <p>Anaktuvuk Pass residents value both the importance of the traditional harvest/subsistence lifestyle and the opportunities provided by the modern conveniences. We strive to preserve our Iñupiaq culture while embracing contemporary <i>new</i> ideas that can help us create a sustainable, safe, and affordable community. Protecting healthy and abundant caribou resources and migratory routes near and through the village is of utmost importance.</p> <p>Community members respect each other and understand that by working together we can solve local problems and issues for the betterment of the community as a whole. We instill <i>pass on</i> this sense of community cooperation into all decision making to ensure that orderly, well understood development occurs that honors our traditional consensus <i>agreement</i> process.</p>
<p>NA</p>	<p>Residents expressed frustration at the health care services in and for the community and asked that additional information be included in the plan.</p>	<p>88-89</p>	<p>Section 7.4: Access to Healthcare has been added: "<i>Health services in Anaktuvuk Pass are provided by three different organizations: NSB Health and Social Services Department, Arctic Slope Native Association (ASNA), and Tanana Chiefs Conference (TCC). The services provided by each organization are listed below.</i></p>

Draft Page	Comment	Final Page	Action
Public comments during Community Meeting on May 17, 2016 Public Review Draft, May 2016 (continued)			
		88-89	<p>(Continued)</p> <p><i>NSB Health & Social Services Department services:</i></p> <ul style="list-style-type: none"> • <i>Village health clinic facility and community health aide;</i> • <i>Eye clinic;</i> • <i>Arctic Women In Crisis assistance;</i> • <i>Women, Infant & Children Program;</i> • <i>Children & Youth Services;</i> • <i>Senior Services;</i> • <i>Public Health Office/Veterinary Clinic Services.</i> <p><i>TCC Services:</i></p> <ul style="list-style-type: none"> • <i>Primary health care;</i> • <i>Dental services;</i> • <i>Medical travel;</i> • <i>Screening For Life Services:</i> <ul style="list-style-type: none"> o <i>Office visits</i> o <i>Mammograms and clinical breast exams</i> o <i>Pap tests</i> o <i>Prostate cancer screening tests</i> o <i>Colorectal cancer screening tests</i> o <i>Lung cancer screening tests</i> o <i>Health education</i> o <i>Help with coordinating associated care</i> • <i>Behavioral health services.</i> <p><i>ASNA Services:</i></p> <ul style="list-style-type: none"> • <i>Medical, travel and funeral assistance</i> • <i>Medical housing</i> • <i>Funeral Assistance</i> • <i>Funeral Travel</i>

Draft Page	Comment	Final Page	Action
Public comments during Community Meeting on May 17, 2016 Public Review Draft, May 2016 (continued)			
			<p><i>(continued)</i> <i>Anaktuvuk Pass residents have expressed the need for assistance with the cost of airfare for medical travel as well as meals and lodging expenses while in Fairbanks. Residents have also stated that there is a need for dedicated housing for Anaktuvuk Pass residents when traveling to Fairbanks for medical services. The current hostel in Fairbanks, operated by TCC, is often full. Additionally, having an Iñupiaq-speaking employee that can assist in facilitating health care needs and providing translation services is a much-needed service, as has been available at the Chief Andrew Isaac facility in the past. While ASNA does offer some travel assistance for medical needs, many residents do not qualify due to income limits.</i></p> <p><i>Residents have also expressed the need for a 24-hour medical hotline to address health care needs. Additionally, residents feel that appropriate procedures need to be implemented so that hotline attendants communicate more effectively with other attendants to ensure patient concerns are addressed.</i></p> <p><i>Other health related additions include two Implementing Strategies under Goal 5 Objective 5.4: “d) Village leadership will coordinate with the NSB Health & Social Services Department Health Department to facilitate reestablishing a health hotline with Iñupiaq speakers” and “e) Village leadership will negotiate with both ASNA and TCC regarding medical travel benefits and expansion of existing hostel space and / or dedicated Anaktuvuk Pass health lodging, respectively.”</i></p>
NA	Residents expressed concern that the loss of language has led to a communication gap between generations.	26	The following text has been inserted in 2.5 Inupiaq Values – Inupiaq Language: <i>“The decline in fluent speakers has also lead to a communication gap between elders and youth.”</i>

Draft Page	Comment	Final Page	Action
Public comments during Community Meeting on May 17, 2016 Public Review Draft, May 2016 (continued)			
54	During the public meeting on May 17, 2016, some residents indicated that Table 4 Major Subsistence Season Harvests was not accurate.	53-54	The title of Table 4 has been changed to more accurately reflect the information in the table: “2010 Major Subsistence Season Harvests <i>Activities Calendar</i> .” Italicized text has been added to 4.3 Anaktuvuk Pass Subsistence Harvest: “ <i>While caribou are hunted year-round, the caribou are in their prime condition from August through October, so that is the most important time for hunting. Table 4 depicts Nunamiut hunting seasons. It was developed in 2010 with input from hunters from Anaktuvuk Pass. However, the caribou harvests, especially in late summer and fall, have been very low over the last decade. Residents have reported that there has not been a fall caribou harvest since about 2007. Thus, Table 4 represents typical hunting seasons, not necessarily recently successful ones.</i> ”
NA	Residents expressed concern that they were not made aware of permits for game hunting until after they were issued.	58 153	The following text has been included in Section 4.5 Subsistence Vulnerabilities – Sport Hunters: “ <i>Some residents of Anaktuvuk Pass have expressed concern that the NSB does not notify residents of permits issued for game hunting until after permits are issued.</i> ” This issue was already included in Goal 1 Objective 1.4 Implementing Strategy a: “The NSB Planning Department and the research applicant will advise community leadership of permitted field research activities prior to their commencement.”
NA	Residents at the community meeting indicated that residents have difficulty saving for a down payment.	79	The following text has been inserted in 6.1 Existing Conditions in Chapter 6 Housing: “ <i>Additionally, residents have reported that they have difficulty saving for a down payment.</i> ”
NA	Residents expressed concern that they are not well informed on potential job opportunities from outside employers.	129 157	Additional text has been inserted in Section 9.2 Potential Economic and Employment Influences – Temporary Construction Jobs: “ <i>Residents have expressed concern that it would be helpful if employers improved their methods to inform residents about job opportunities.</i> ” An Implementing Strategy has been included to address this issue under Goal 4, Objective 4.2: “e) <i>Village leadership will inform contractors that are often working in Anaktuvuk Pass the preferred methods of keeping residents informed of potential employment opportunities.</i> ”

Draft Page	Comment	Final Page	Action																																				
Updates and Clarifications by Planning Team																																							
NA	Updates were made to Table 17 and related text in Chapter 9: Economy to reflect updated information from the North Slope Borough Census.	125-126	<p>The italicized text has been added: “The State of Alaska also provides employment figures for Anaktuvuk Pass. In 2014, the State reports that 76 percent of residents were employed with 54 percent employed all year. Seventy-four percent of workers were employed in local government and 26 percent were employed in the private sector and one percent was employed by the State government, <i>as illustrated in Figure 21</i>. Table 17 provides details on the labor force <i>and income</i> for 2003, 2010, <i>and 2015</i> from the NSB Census including labor force size and characteristics of employment. The number of residents with full-time employment increased over the seven <i>twelve</i>-year period by 19 people <i>15 percent</i> and <i>6.6 percent</i> since 2010. The number of people that are unemployed and underemployed either employed seasonally or part-time both decreased since 2010 <i>grew over the same period</i>. Since 2003 and 2010, both the average household income and the per capita income have increased greater than inflation, assumed at a steady two percent per year.”</p> <p>Table 17: 2003, 2010, and 2015 Employment and Income Characteristics</p> <table border="1"> <thead> <tr> <th>Employment Characteristics of Labor Force</th> <th>2003</th> <th>2010</th> <th>2015</th> </tr> </thead> <tbody> <tr> <td>Full time employment</td> <td>34.9%</td> <td>43.4%</td> <td>50.0%</td> </tr> <tr> <td>Temporary / seasonal employment</td> <td>26.6%</td> <td>7.4%</td> <td>13.8%</td> </tr> <tr> <td>Part-time employment</td> <td>11.2%</td> <td>9.1%</td> <td>6.3%</td> </tr> <tr> <td>Unemployed</td> <td>20.1%</td> <td>34.9%</td> <td>18.8%</td> </tr> <tr> <td>Retired</td> <td>3.0%</td> <td>5.1%</td> <td>11.3%</td> </tr> <tr> <th colspan="4">Income Characteristics</th> </tr> <tr> <td>Average household income</td> <td>\$40,549</td> <td>\$53,011</td> <td>\$61,414</td> </tr> <tr> <td>Per capita income</td> <td>\$11,437</td> <td>\$13,619</td> <td>\$17,105</td> </tr> </tbody> </table>	Employment Characteristics of Labor Force	2003	2010	2015	Full time employment	34.9%	43.4%	50.0%	Temporary / seasonal employment	26.6%	7.4%	13.8%	Part-time employment	11.2%	9.1%	6.3%	Unemployed	20.1%	34.9%	18.8%	Retired	3.0%	5.1%	11.3%	Income Characteristics				Average household income	\$40,549	\$53,011	\$61,414	Per capita income	\$11,437	\$13,619	\$17,105
Employment Characteristics of Labor Force	2003	2010	2015																																				
Full time employment	34.9%	43.4%	50.0%																																				
Temporary / seasonal employment	26.6%	7.4%	13.8%																																				
Part-time employment	11.2%	9.1%	6.3%																																				
Unemployed	20.1%	34.9%	18.8%																																				
Retired	3.0%	5.1%	11.3%																																				
Income Characteristics																																							
Average household income	\$40,549	\$53,011	\$61,414																																				
Per capita income	\$11,437	\$13,619	\$17,105																																				
NA	Dated language and charts missing legend information were inadvertently included in the draft plan.	71	<p>5.2 Births and Deaths</p> <p>“The strongest component of population growth is natural increase with more births than deaths. A positive natural increase may account for part of the 106 <i>111</i>-person population growth over the 2000-2010 <i>2015</i> period. Between 2000 and 2009 <i>2015</i>, 84 <i>144</i> residents were born and 25 <i>40</i> persons passed away, for a net increase of 59 <i>104</i> persons based simply on births and deaths. As illustrated in Figure 10, births have been variable over the nine <i>fifteen</i>-year period, ranging from 3 in 2001 to 12 <i>14</i> in 2009 <i>2014</i>; deaths have ranged from 0 in 2000 and 2002 to 4 <i>6</i> in 2009 <i>2015</i>. Each year births have exceeded deaths.”</p> <p>Charts 10, 12, and 13 have been updated.</p>																																				

Appendix D: Adaptation Strategies for Climate Change Impacts

Weather-related physical change	Potential impacts to the village	Adaptive Response Options
<p>Warmer weather causes thinner lake, river and sea ice.</p> <p>Thawing permafrost. Permafrost soils throughout the Arctic contain almost twice as much carbon as the atmosphere. Warming and thawing of these soils increases the release of carbon dioxide and methane through increased decomposition.</p> <p>Thawing permafrost delivers organic-rich soils to lake bottoms where decomposition in the absence of oxygen releases additional methane in these water bodies.¹⁸⁵</p>	<p>Flooding or damage to ice cellars result in food contamination and food insecurity. This forces families to eat non-traditional and less healthy/nutritious packaged “store bought” food flown in at great expense.</p>	<p>Each village establishes a communication system with residents traveling to hunt, fish and gather foods and travelers on the ice are required to carry emergency GPS tracking devices. Village Search & Rescue teams are properly equipped to rescue travelers in trouble.</p>
	<p>Hunters would have to spend greater financial resources and more time, encompassing greater hazards, to find riverine and terrestrial species—beyond the 10 to 15 miles ideal distance—and into unsafe sea ice conditions.</p>	<p>Permit stipulations for Oil & Gas or commercial tourism travel could require a subsistence mitigation fund which would provide funds to hunters to cover the costs to purchase adequate boats, fuel and equipment to find and harvest subsistence resources at the greater distance from their traditional migratory routes.</p>
	<p>Unknown ice thickness creates hazards for hunters and other winter travelers on snow machines. Traditional knowledge cannot be relied upon as the thinner ice conditions change seasonally and can be exacerbated yearly.</p> <p>Warmer water in lakes and streams cause fish to die in nets, fish texture “softer” and drying of fish is more difficult.</p>	<p>Aerial “flyovers” of traditional routes with specialized equipment to measure the depth of ice and then posting and advertising to the village the safest route to take on the ice for hunting expeditions and for traveling to common destinations such as the nearby village.</p>

¹⁸⁵ Hassol, Susan Joy. *Alaska Climate Impact Assessment. Impacts of a Warming Arctic*. University of Alaska, Fairbanks, 2004. www.amap.no/documents/download/1058.

Weather-related physical change	Potential impacts to the village	Adaptive Response Options
<p>(continued) Warmer weather causes thinner lake, river and sea ice.</p> <p>Thawing permafrost. Permafrost soils throughout the Arctic contain almost twice as much carbon as the atmosphere. Warming and thawing of these soils increases the release of carbon dioxide and methane through increased decomposition.</p> <p>Thawing permafrost delivers organic-rich soils to lake bottoms where decomposition in the absence of oxygen releases additional methane in these water bodies.¹⁸⁶</p>	<p>Fresh water drains downward—loss of drinking water supply.</p> <p>Village water lines break, causing loss of service.</p> <p>Methane gas escapes from the permafrost and rises into the atmosphere, the drinking water in lakes, and in rivers which affects the riverine/marine life.</p>	<p>A village-specific adaptation plan would identify specific hazards associated with the thawing of permafrost in and near the village and would identify options for remedying impacts or avoiding these hazards. It would identify options and the costs and benefits of each option. It is noted that all fresh water lakes in the region are underlain by permafrost and, therefore all freshwater drinking supplies are vulnerable/susceptible to the draining of water and the release of methane.</p> <p>A potential option may be to build a water reservoir with an impenetrable cover and then pump fresh water from nearby sources into this man-made lake. This would protect the drinking water source from the thawing permafrost and from the escaping methane.</p>
	<p>Thawing permafrost of the river banks can cause increased sedimentation of the river and stream beds. Boats cannot be launched in shallow streams and tributaries and hunters must travel greater distances to launch.</p>	<p>Villagers can build new boat launch pads and docks where water depth allows use of propellers, along with parking areas for the trucks and roads to the new launch areas.</p>

¹⁸⁶ Hassol, Susan Joy. *Alaska Climate Impact Assessment. Impacts of a Warming Arctic*. University of Alaska, Fairbanks, 2004. www.amap.no/documents/download/1058.

Weather-related physical change	Potential impacts to the village	Adaptive Response Options
<p>(continued) Warmer weather causes thinner lake, river and sea ice.</p> <p>Thawing permafrost. Permafrost soils throughout the Arctic contain almost twice as much carbon as the atmosphere. Warming and thawing of these soils increases the release of carbon dioxide and methane through increased decomposition.</p> <p>Thawing permafrost delivers organic-rich soils to lake bottoms where decomposition in the absence of oxygen releases additional methane in these water bodies.¹⁸⁷</p>	<p>Methane rising to tundra— changes “taste” of lichen, moss, etc. for caribou and other land animals</p>	<p>NSB Wildlife biologists and subsistence hunters should observe the behaviors of tundra-dependent animals to determine if this is a significant problem. If it is, it may be necessary for the NSB to experiment and “grow” lichen and moss seeds and spread them around a traditional caribou migratory route or create a new migratory route with the plant life that they find suitable.</p>
	<p>Less stable ground, subsidence and differential settlement of structures. Sanitation and health problems result from broken sewer and water lines within the villages.</p>	<p>Among other measures, the NSB could assist the villages in procuring gravel to shore up buildings, roads and other infrastructure. It may be fruitful to partner with research universities to create a new material that can be produced locally in each village that functions like or better than gravel.</p>
	<p>Flooding and structural failure of ice cellars. This can result in food contamination and, if ice cellars need to be abandoned, can lead to food insecurity as there is no room in village homes for storage of a freezer. This would lead families to be dependent on “store bought” food which lacks the nutrients of traditional, local foods.</p>	<p>Although culturally difficult to adjust to, it may be necessary for the village leaders to build a community or co-op ice cellar in a convenient location. The location should be convenient to hunters as well as to family members retrieving the foodstuff.</p>

¹⁸⁷ Hassol, Susan Joy. *Alaska Climate Impact Assessment. Impacts of a Warming Arctic*. University of Alaska, Fairbanks, 2004. www.amap.no/documents/download/1058.

Weather-related physical change	Potential impacts to the village	Adaptive Response Options
Early snow melt.	<p>Early snow melt on land exposes the mushy/marshy tundra and reduces the hunting season and tundra travel is too difficult. Early snow melt may alter subsistence species' migratory schedule and routes, causing hunters to travel greater distances to find the resource.</p>	
	<p>Early snowmelt results in reduced days for oil & gas industry to traverse frozen ground for exploration, development or transporting the resource to market. Limited season for ice roads.</p>	
Increased inland rain.	<p>Increased rain on snow events during winter cause a layer of ice to form over tundra vegetation preventing grazing by animals like caribou and muskoxen; this causes die-offs of these animals</p>	
<p>Warmer temperatures on the tundra. Caribou herds will face a variety of climate-related impacts resulting in changes in their migration routes, calving grounds, forage availability and drinking water sources as snow and river ice conditions change, permafrost thawing results in tundra subsidence and methane gas release into fresh water lakes, and warmer weather dries the tundra making it susceptible to wildfires.</p>	<p>Warmer weather inland causes drying of tundra which makes the land susceptible to lightning-caused fires which can spread for many miles. Warmer weather also causes lakes to dry up from evaporation, along with the thawing permafrost and resulting draining.</p>	<p>Increase fire-fighting capabilities for both wild fires and structures.</p> <p>Protect drinking water lakes or develop new reservoirs with lining that protects against leaks and methane releases from underlying permafrost.</p>

Weather-related physical change	Potential impacts to the village	Adaptive Response Options
<p>(continued) Warmer temperatures on the tundra. Caribou herds will face a variety of climate-related impacts resulting in changes in their migration routes, calving grounds, forage availability and drinking water sources as snow and river ice conditions change, permafrost thawing results in tundra subsidence and methane gas release into fresh water lakes, and warmer weather dries the tundra making it susceptible to wildfires.</p>	<p>Drier tundra soil cause berries to ripen early and spoil faster. Warmer weather increase insect harassment for berry harvesters. Intrusion of non-native species that may cause environmental harm; some species such as salmon species and cold-tolerant crab may increase in abundance in arctic waters. This may attract commercial fishing industries to the arctic seas which could diminish subsistence resources.</p>	
	<p>Tundra ecosystems could change to spruce/aspen forests and grasses could be incorporated into the tundra. Shrubs entering the tundra could attract moose while decreasing the lichen for caribou.</p>	
	<p>New plant species could attract new species of pests which could annoy caribou.</p>	
	<p>Declining or shifting wetlands could affect migratory or resident bird species.</p>	
	<p>Industrial development relying on ice roads for access to development sites could be stymied by a reduced supply of water to create the roads.</p>	

Weather-related physical change	Potential impacts to the village	Adaptive Response Options
<p>(continued) Warmer temperatures on the tundra. Caribou herds will face a variety of climate-related impacts resulting in changes in their migration routes, calving grounds, forage availability and drinking water sources as snow and river ice conditions change, permafrost thawing results in tundra subsidence and methane gas release into fresh water lakes, and warmer weather dries the tundra making it susceptible to wildfires.</p>	<p>A drier tundra: Although rain will increase, evapotranspiration and water drainage from cracks in the permafrost will cause a drier tundra that will be susceptible to more numerous and intense tundra fires releasing carbon and contaminants like mercury into the atmosphere.</p>	
	<p>Villages do not have the trained staff or equipment to extinguish wildfires which threaten homes, traditional foods, food sources for wildlife and creates smoke which causes or exacerbates respiratory illness in humans and animals. Wildlife change their migratory routes in subsequent years due to the damage to their foodstuff and nesting/calving lands.</p>	
	<p>Slow recovery of vegetation or vegetative shifts after fires can profoundly affect wildlife. Lichens, a critical winter food for caribou, recover extremely slowly. Loss of food for caribou cause the herd to change routes which may be a greater distance from the village causing economic hardships (gas, equipment repair, time) and hazards (thinning ice) for subsistence hunters.</p>	

Weather-related physical change	Potential impacts to the village	Adaptive Response Options
<p>Acid Rain.</p> <p>Toxins such as DDT, PCBs, dioxin, pesticides and heavy metals are carried by both air and ocean currents thousands of miles to the colder arctic ecosystem. The cold Arctic environment is a “sink” or settling area for these contaminants which circulate around the globe northward in air and ocean currents. They settle out in Arctic waters, sea ice, and land, where they remain for long periods and break down very slowly because of the colder climate. The effects of these toxins are magnified as they are ingested by animals rising up the food chain. This is causing a health crisis among the Inuit people in the Arctic Circle.</p> <p>As a result, both land and sea dwelling animals ingest the toxins. On land the toxins are deposited into the plant life and eaten by Caribou, once source of food for the Inuit. In the water, the toxins are found in plankton, which fish in turn eat. These fish then become a source of food for seals and polar bears.</p>	<p>The North Slope is fortunate that major contaminant transport pathways tend to lead elsewhere, such as Canada and Greenland. The Slope receives some contaminants from Asia but levels are still relatively low. Consumers of subsistence-harvested foods from the North Slope are fortunate that the scientific analysis that the NSB Wildlife Management Department conducts have shown very low levels of POPs to be present in many of the subsistence foods that we eat and are below levels of public health concern.¹⁹¹ Their studies demonstrate that subsistence foods are healthy foods.</p>	<p>The NSB Wildlife Management Department continues to monitor and analyze subsistence animals for human dietary health benefits as well as for potential impacts of consuming toxins.</p> <p>Hunting and harvesting marine and riverine animals and air and terrestrial animals is an important part of the Iñupiaq lifestyle. It is not only an important part of their culture, passed down through the generations, but it also provides food.</p> <p>Traditional subsistence foods provide relatively inexpensive and readily available nutrients, essential fatty acids, antioxidants, calories, protein, and many health benefits. Some of these benefits include protection from diabetes and cardiovascular disease, improved maternal nutrition and neonatal and infant brain development. Severely limiting the consumption of traditional foods may result in harm because reduction of the consumption of foods that have health benefits may increase the consumption of less healthy “store bought” foods.</p>

¹⁹¹ North Slope Borough. 2006. Northern Alaska Subsistence Food Research: Contaminant and Nutrient Ecology in Coastal Marine Mammals and Fish. www.north-slope.org/assets/images/uploads/CIAP%20booklet.pdf.

Weather-related physical change	Potential impacts to the village	Adaptive Response Options
<p>(continued)</p> <p>These toxins are called Persistent Organic Pollutants (POPs) because they are persistent: they travel long distances; they persist long after they are released at their source and move from air and water into soil, plants, animals and humans; they magnify in living organisms and accumulate in fat, organs and muscles; they can reduce the animal's ability to conceive and carry offspring; they decrease the animal's ability to fight off disease; they can impair brain function; and a number of POPs are carcinogenic, causing cancers.</p> <p>Migratory birds can have 100 times higher concentrations of POPs compared to birds that do not migrate.</p> <p>In the Arctic, human exposure to toxins occur primarily through eating of subsistence foods. ^{188 189 190}</p>		

¹⁸⁸ Hild, C. 2002. *Contaminants In Alaska: Is America's Arctic At Risk?* In *The Status of Alaska's Oceans & Watersheds*. Pp. 97-110

¹⁸⁹ Adaptation Advisory Group to the Alaska Climate Change Sub-Cabinet. 2010. *Alaska's Climate Change Strategy: Addressing Impacts in Alaska*.

¹⁹⁰ Kraemer et al. 2005. The Potential Impact of Climate on Human Exposure to Contaminants in the Arctic, *International Journal of Circumpolar Health* Vol. 64, Section 5.

Weather-related physical change	Potential impacts to the village	Adaptive Response Options
<p>Higher levels of ultraviolet (UV) radiation. Due to greenhouse gas effects of the stratospheric ozone temperatures, UV radiation in the Arctic is projected to remain elevated.¹⁹²</p>	<p>Increased UV exposure can cause skin cancer, cataracts, and immune system disorders in humans.</p> <p>Elevated UV can disrupt photosynthesis in plants and can have detrimental effects on the early life states of fish and amphibians.</p> <p>Risks are greatest in the Spring when sensitive species are most vulnerable, and warming-related declines in snow and ice cover increase exposure for organisms normally protected by such cover.</p>	
<p>Multiple Impact Stresses.</p>	<p>Weather-influenced changes to the ecosystem cause overlapping stresses which amplify or exacerbate any one impact.</p>	<p>Vigilance and adaptation to changing conditions are required. Alaskan Native communities have for centuries adapted to scarcity and environmental variability and, thus, have developed deep cultural reservoirs of flexibility and adaptability; this tradition must continue.</p>

¹⁹² Hassol, Susan Joy. *Alaska Climate Impact Assessment. Impacts of a Warming Arctic*. University of Alaska, Fairbanks, 2004. www.amap.no/documents/download/1058.

This page is intentionally left blank.

Appendix E: North Slope Borough Assembly Ordinance

NORTH SLOPE BOROUGH ORDINANCE SERIAL NO. 75-06-67

AN ORDINANCE ADOPTING THE ANAKTUVUK PASS COMPREHENSIVE PLAN

WHEREAS, the Planning Commission is charged under North Slope Borough Code of Ordinances (NSBMC) § 2.12.160(a) and 2.12.160(a)(1) with the responsibility to prepare and recommend to the Assembly a comprehensive plan (Plan) for the systematic development of the Borough; and

WHEREAS, the Planning Commission is further charged under NSBMC § 18.20.020 to establish one or more districts using approved Village Comprehensive Plans as a guideline; and

WHEREAS, the Planning Commission is further charged under NSBMC § 19.040.060 (A)(2) to ensure that the incorporated villages accommodate uses in accordance with both the Borough Comprehensive Plan and Comprehensive Development Plan for the community; and

WHEREAS, the Planning Commission is further charged under NSBMC § 19.70.020 to follow policies intended to guide the approval of development and uses in the village districts consistently with the relevant adopted Village Comprehensive Plan; and

WHEREAS, the common goals of local control and self-determination, the protection of the land, water and subsistence resources, mitigation of the impacts which may occur as a result of oil and gas development and other developments, the maximization of economic benefits and employment opportunities for Anaktuvuk Pass today and into the future are fully shared by all of the organizations working together on this project; and

WHEREAS, the Anaktuvuk Pass Comprehensive Plan was developed with significant public involvement, including public meetings in Anaktuvuk Pass, meetings with stakeholders, and website solicitation for comments; and

WHEREAS, the Naqsrarmiut Tribal Council adopted Resolution 2016-11 on June 8, 2016, recommending approval of the Plan as developed by the North Slope Borough; and

WHEREAS, the City of Anaktuvuk Pass adopted Resolution 2016-01 on June 8, 2016, recommending approval of the Plan as developed by the North Slope Borough; and

Ordinance Serial No. 75-06-67
Page 2 of 3

WHEREAS, the Nunamiut Inupiat Corporation adopted Resolution 16-01 on June 8, 2016, recommending approval of the Plan as developed by the North Slope Borough; and

WHEREAS, the Planning Commission adopted Resolution 2016-10 on July 28, 2016, recommending the Assembly approve of the Plan; and

WHEREAS, the Anaktuvuk Pass Comprehensive Plan is found to be a sufficient guide to future development in Anaktuvuk Pass for the next 20 years; and

Include by annual updates

WHEREAS, under NSBMC § 2.12.160(a)(2), the Planning Commission is charged with preparing and recommending to the Assembly a zoning ordinance to implement the Comprehensive Plans

NOW, THEREFORE, BE IT ENACTED:

SECTION 1. Classification. This ordinance is a non-code ordinance.

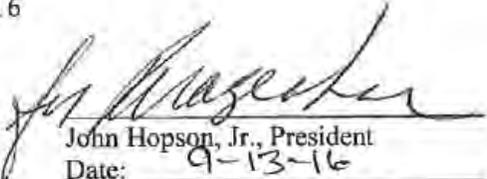
SECTION 2. Severability. If any provision of this ordinance or any application thereof to any person or circumstance is held invalid, the remainder of this ordinance and the application to other persons and circumstances shall not be affected thereby.

SECTION 3. Effectiveness. This code ordinance shall become effective upon adoption.

SECTION 4. Adoption of Comprehensive Plan. The North Slope Borough Assembly hereby adopts the Anaktuvuk Pass Comprehensive Plan, attached as Exhibit B, as recommended by the Naqragmiut Tribal Council, the City of Anaktuvuk Pass, the Nunamiut Inupiat Corporation and the North Slope Borough Planning Commission.

SECTION 5. Attachments Incorporated by Reference. Planning Commission Resolution 2016-10, attached as Exhibit A, and the Anaktuvuk Pass Comprehensive Plan, attached as Exhibit B, are hereby incorporated by reference.

INTRODUCED: September 13, 2016
ADOPTED: September 13, 2016


John Hopson, Jr., President
Date: 9-13-16

Ordinance Serial No. 75-06-67
Page 3 of 3

ATTEST:

Elaine Solomon for
Shelia Burke, Borough Clerk
Date: 9-13-16

Harry Brower, Jr.
Harry K. Brower, Jr., Mayor
Date: 9/13/2016

This page is intentionally left blank.

Appendix E: North Slope Borough Planning Commission Resolution of Support

NORTH SLOPE BOROUGH PLANNING COMMISSION RESOLUTION 2016-10

A RESOLUTION RECOMMENDING TO THE ASSEMBLY APPROVAL OF THE ANAKTUVUK PASS COMPREHENSIVE PLAN

WHEREAS, the Planning Commission is charged under North Slope Borough Code of Ordinances (NSBMC) § 2.12.160(A)(1) with the responsibility to prepare and recommend to the Assembly a comprehensive plan (Plan) for the systematic development of the Borough; and

WHEREAS, the Planning Commission is further charged under NSBMC § 18.20.020 to establish one or more districts using approved Village Comprehensive Plans as a guideline; and

WHEREAS, the Planning Commission is further charged under NSBMC § 19.040.060 (A)(2) to ensure that the incorporated villages accommodate uses in accordance with both the Borough Comprehensive Plan and Comprehensive Plan for the village; and

WHEREAS, the Planning Commission is further charged under NSBMC § 19.70.020 to follow policies intended to guide the approval of development and uses in the village districts consistently with the relevant adopted Village Comprehensive Plan, and

WHEREAS, the common goals of local control and self-determination, the protection of the land, water and subsistence resources, mitigation of the impacts which may occur as a result of oil and gas development and other developments, the maximization of economic benefits and employment opportunities for Anaktuvuk Pass today and into the future are fully shared by all of the organizations working together on this project; and

WHEREAS, the Anaktuvuk Pass Comprehensive Plan was developed with significant public involvement, including public meetings in Anaktuvuk Pass, meetings with stakeholders, and website solicitation for comments; and

WHEREAS, the Naqsrarmiut Tribal Council adopted Resolution 2016-11 on June 8, 2016, recommending approval of the Plan as developed by the North Slope Borough; and

WHEREAS, the City of Anaktuvuk Pass adopted Resolution 2016-01 on June 8, 2016, recommending approval of the Plan as developed by the North Slope Borough; and

WHEREAS, the Nunamiut Inupiat Corporation, adopted Resolution 16-01 on June 8, 2016, recommending approval of the Plan as developed by the North Slope Borough; and

WHEREAS, the Anaktuvuk Pass Comprehensive Plan is found to be a sufficient guide to future development in Anaktuvuk Pass for the next 20 years.

NOW, THEREFORE, BE IT RESOLVED THAT:

The North Slope Borough Planning Commission recommends to the North Slope Borough Mayor and the North Slope Borough Assembly the approval of the Anaktuvuk Pass Comprehensive Plan.

THAT a copy of this Resolution be forwarded to the North Slope Borough Clerk.

INTRODUCED: 07.28.16
ADOPTED: 07.28.16

Caroline P Cannon
Caroline Cannon, Clerk
Date: 7/28/16

Paul Bodfish Sr.
For Paul Bodfish Sr., Chairman
Date: 7-28-16

Appendix E: City of Anaktuvuk Pass Resolution of Support



Anaktuvuk Pass Village Council
P.O. Box 21030
Anaktuvuk Pass, Alaska 99721-1030
Telephone: (907) 661-3617 • (907) 661-3619
Fax: (907) 661-3614
E-mail: cityofanp@al.net • cityofanp@al.net

A RESOLUTION OF THE CITY OF ANAKTUVUK PASS ENDORSING THE ANAKTUVUK PASS COMPREHENSIVE DEVELOPMENT PLAN

Resolution No. 2016-01

WHEREAS, the City of Anaktuvuk Pass is a second class city within the North Slope Borough, and

WHEREAS, the North Slope Borough and its consultants have worked with the community to develop the Anaktuvuk Pass Comprehensive Development Plan; and

WHEREAS, the process to develop the Plan involved a collaborative effort of the City of Anaktuvuk Pass Comprehensive Development Plan; and

WHEREAS, the Plan furthers and common goals of local control and self determination, the protection of the land, water and subsistence resources, and seeks to mitigate the negative impacts of development; and

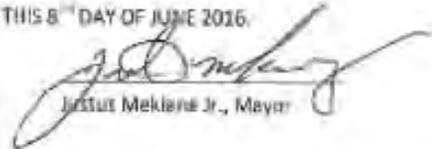
WHEREAS, the Plan provides a vision for the future, identifies current and projected future land uses, and addresses issues important to the community; and

WHEREAS, the Plan establishes goals, objectives and strategies to achieve the community's vision for the future and to improve its quality of life; and

WHEREAS, the City Council has reviewed the Anaktuvuk Pass Comprehensive Development Plan and the North Slope Borough and its consultants ASRC-AES and UMIAQ have incorporated the City's comments into the Final Draft dated June 8, 2016.

NOW, THEREFORE BE IT RESOLVED, the City of Anaktuvuk Pass endorses the June 2016 Final Draft of the Anaktuvuk Pass Comprehensive Development Plan, and recommends approval of the Plan by the North Slope Borough Assembly.

PASSED AND APPROVED BY THE ANAKTUVUK PASS CITY COUNCIL THIS 8TH DAY OF JUNE 2016.


Justice Meklene Jr., Mayor

ATTEST:


Jack E. Williams, Acting City Clerk

This page is intentionally left blank.

Appendix E: Nunamiut Corporation Resolution of Support

A RESOLUTION OF THE NUNAMIUT INUPIAT CORPORATION ENDORSING THE ANAKTUVUK PASS COMPREHENSIVE PLAN

Resolution No. 16-01

WHEREAS, the Nunamiut Inupiat Corporation is the Native Corporation for the village of Anaktuvuk Pass, and

WHEREAS, the North Slope Borough and its consultants have worked with the community to develop the Anaktuvuk Pass Comprehensive Plan (Plan); and

WHEREAS, the process to develop the Plan involved a collaborative effort of the City of Anaktuvuk Pass, the Naqsrarmiut Tribal Council, and the Nunamiut Inupiat Corporation; and

WHEREAS, the Plan furthers the common goals of local control and self-determination, the protection of the land, water and subsistence resources, and seeks to mitigate the negative impacts of development; and

WHEREAS, the Plan provides a vision for the future, identifies current and projected future land uses, and addresses issues important to the community; and

WHEREAS, the Plan establishes goals, objectives and strategies to achieve the community's vision for the future and to improve its quality of life; and

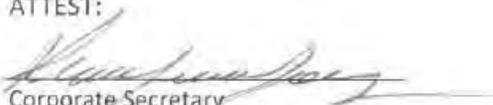
WHEREAS, the Nunamiut Inupiat Corporation Board of Directors has reviewed the Anaktuvuk Pass Comprehensive Plan and the North Slope Borough and its consultants ASRC-AES and UMIAQ have incorporated the Board's comments into the Final Draft dated June 2016.

NOW, THEREFORE BE IT RESOLVED, the Nunamiut Inupiat Corporation endorses the June 2016 Final Draft of the Anaktuvuk Pass Comprehensive Plan and recommends approval of the Plan by the North Slope Borough Assembly.

PASSED AND APPROVED BY THE NUNAMIUT INUPIAT CORPORATION THIS 8TH DAY OF JUNE 2016.


President
Lawrence Burris

ATTEST:


Corporate Secretary
Susan Morry

This page is intentionally left blank.

Appendix E: Village of Anaktuvuk Pass Resolution of Support



**Village of Anaktuvuk Pass
Naqsrarmiut Tribal Council
P.O. Box 21170 * 308 Summer Street
Anaktuvuk Pass, Alaska -99721-
Phone: (907)-661-2575 * Fax: (907)-661-2576**

**A RESOLUTION OF THE NAQSRAGMIUT TRIBAL COUNCIL ENDORSING
THE ANAKTUVUK PASS COMPREHENSIVE DEVELOPMENT PLAN**

Resolution 2016-11

WHEREAS: The Naqsrarmiut Tribal Council is a federally- recognized tribe representing the community of Anaktuvuk Pass; and

WHEREAS: the North Slope Borough and its consultants have worked with the community to develop the Anaktuvuk Pass Comprehensive Development Plan (Plan); and

WHEREAS: the process to develop the Plan involved a collaborative effort of the City of Anaktuvuk Pass, the Naqsrarmiut Tribal Council, and the Nunamiut Corporation; and

WHEREAS: the Plan furthers the common goals of local control and self-determination, the protection of the land, water, and subsistence resources, and seeks to mitigate the negative impacts of development; and

WHEREAS: the Plan provides a vision for the future, identifies current and project future land uses, and addresses issues important to the community; and

WHEREAS: the Plan establishes goals, objectives, and strategies to achieve the community's vision for the future and to improve its quality of life; and

WHEREAS: the Naqsrarmiut Tribal Council has reviewed the Anaktuvuk Pass Comprehensive Development Plan and the North Slope Borough and its consultants ASRC- AES and UMIAQ have incorporated the Council's comments into the Final Draft dated June 2016.

NOW THEREFORE IT BE RESOLVED, the Naqsrarmiut Tribal Council endorses the June 2016 Final Draft of the Anaktuvuk Pass Comprehensive Development Plan and recommends approval of the Plan by the North Slope Borough Assembly.

CERTIFICATION:

Passed on this 8th Day of June, 2016 with a Quorum of 6 For, 0 Against, and 1 absent

APPROVE: 06 AGAINST: 0

ATTEST:

Charles S. Hugo 6/8/16
Charles Hugo, President Date

Alice Ahgook 6-8-16
Alice Ahgook, Secretary Date