

ADOPTED BY THE NSB ASSEMBLY ON NOVEMBER 14, 2017



2017 – 2037

# ATQASUK

ALASKA

C O M P R E H E N S I V E P L A N

All cover photos are courtesy of Doug Whiteman

# Atqasuk Comprehensive Plan

**Adopted by the North Slope Borough on November 14, 2017**

Assembly Ordinance #75-06-71  
North Slope Borough Planning Commission Resolution #2017-11  
City of Atqasuk Resolution #2017-04  
Native Village of Atqasuk Resolution #2017-1  
Atqasuk Corporation Resolution #2017-05



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## Acronyms

AAAQS	Alaska Ambient Air Quality Standards
ACS	American Community Survey
ADEC	Alaska Department of Environmental Conservation
ADF&G	Alaska Department of Fish and Game
AEA	Alaska Energy Authority
AHFC	Alaska Housing Finance Corporation
ANCSA	Alaska Native Claims Settlement Act
ANWR	Arctic National Wildlife Refuge
ASNA	Arctic Slope Native Association
ASOS	Automated Surface Observation System
ASRC	Arctic Slope Regional Corporation
ATV	All-Terrain Vehicle
BIA	Bureau of Indian Affairs
BLM	Bureau of Land Management
C&D	Construction & Demolition
CIP	Capital Improvement Program
CPR	Cardiopulmonary Resuscitation
DCCED	Alaska Department of Commerce, Community and Economic Development
DNR	Alaska Department of Natural Resources
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
ESA	Endangered Species Act
e.g.	for example
F	Fahrenheit
FAA	Federal Aviation Administration
FLPMA	Federal Land Use Policy and Management Act
FY	Fiscal Year
GAAR	Gates Of The Arctic National Park & Preserve
GED	General Educational Development test
GP	General Permit
HDPE	High Density Polyethylene
HUD	U.S. Department of Housing and Urban Development
IAP	Integrated Activity Plan
ICAS	Iñupiat Community of the Arctic Slope
IHLC	Iñupiat History, Language and Cultural [department]
IRR	Indian Reservation Roads

kW	Kilowatt
kWh	Kilowatt hour
MIRL	Medium Intensity Runway Light
MITL	Medium Intensity Taxiway Light
MSW	Municipal Solid Waste
MSWLF	Material Storage Waste Landfill
NAAQS	National Ambient Air Quality Standards
NALEMP	Native American Lands Environmental Mitigation Program
Non-RACM	Non-Regulated Asbestos Containing Material
NRC	National Resource Council
NEPA	National Environmental Protection Act
NOAA	National Oceanic and Atmospheric Administration
NPR-A	National Petroleum Reserve - Alaska
NPRPA	Naval Petroleum Reserves Production Act
NSB	North Slope Borough
NSBMC	North Slope Borough Municipal Code
NSBSD	North Slope Borough School District
NSSI	North Slope Science Initiative
NWI	National Wetlands Inventory
OCS	Outer Continental Shelf
PAPI	Precision Approach Path Indicators
PAR	Project Analysis Report
PCE	Power Cost Equalization
PFD	Permanent Fund Dividend
REIL	Runway End Indicator Lights
RELI	Residential and Employment Living Improvement Program [former NSB program]
ROD	Record of Decision
SDMS	Alaska Spatial Data Management System
SF	Square Feet
SWOT	Strengths, Weaknesses, Opportunities, Threats
SY	School Year
TNHA	Tagiugmiullu Nunamiullu Housing Authority
U.S.	United States
WWTP	Waste Water Treatment Plant

# Executive Summary

## **The Atqasuk Community**

Atqasuk is located at the southern extent of the Arctic Coastal Plain in Alaska, approximately 60 miles south of Utqiagvik. It lies entirely within the boundaries of the National Petroleum Reserve-Alaska. The Atqasuk village municipal boundaries encompass 38.9 square miles of land and 3.5 square miles of water and lies between Imaġruaq Lake and the Meade River, dominate features in the region. Atqasuk is also located near a historic bituminous coal mine that provided fuel for government and private facilities in Utqiagvik during and after World War II.

Although the townsite of Atqasuk was settled relatively recently, the Iñupiat of the Meade River have a strong cultural history on the North Slope, documented through traditional knowledge passed down through generations and through archaeological sites in locations optimal for fishing and hunting along the Meade River and its tributaries. The River has provided the Iñupiat with inland resources of fish, birds, caribou, and berries and has been used a primary source of transportation for subsistence purposes.

The Iñupiat highly regard family, work ethic, the Iñupiaq language, drumming and dancing, and sharing food and knowledge of the environment and its inhabitants. They have a deep respect for the environment in which they live as it provides fresh water, clean air, and subsistence foods. Subsistence activities play a large role in the community. For Alaska Natives of the North Slope, subsistence is a connection to the land and the way the Iñupiat passed down traditional knowledge through generations. Village subsistence users travel great distances to meet their subsistence needs. Atqasuk residents rely on a variety of seasonally abundant resources of terrestrial and, marine mammals, fish, and waterfowl for some or all of their diet. River fishing is important as well as the hunting of migratory waterfowl, particularly geese. Some residents will travel to Utqiagvik to participate in bowhead whale hunts as well as to harvest seal and other marine mammals. Most importantly, Atqasuk residents depend on the caribou of the Western Arctic and Teshekpuk herds as a primary subsistence resource. The range that Atqasuk residents travel for subsistence hunting and fishing can change over time as traditional subsistence land use patterns change based on the availability of animals and fish. The area of influence can be used to determine community stakeholders that may need to be consulted prior to activity that may affect their traditional use of the land.

The U.S. decennial census provides data on the Atqasuk population as far back as 1940, when there was approximately 78 people living along the Meade River. Today, approximately 248 people call Atqasuk home, nearly 90 percent of which are Iñupiat. 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. A linear trend population projection over the next twenty years indicates an increase of six people by 2035.

### **The Atqasuk Comprehensive Plan**

A comprehensive plan is a 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 Atqasuk Comprehensive Plan replaces the Atqasuk community profile in the Borough-wide Comprehensive Plan.

Atqasuk residents participated in the development of this plan through public meetings and workshops. Input was also provided by the Atqasuk Corporation Board Members, Native Village of Atqasuk Tribal Council, and the City of Atqasuk Council Members. 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 Atqasuk:

*As residents of the village of Atqasuk, we will continue to cultivate and value a strong sense of community through an active subsistence lifestyle, traditional knowledge of all ages, and the Iñupiat language and values. Our community leaders and residents will guide land use and development in a coordinated, cost effective, efficient, and environmentally sensitive way that protects not only the community, but also wildlife habitats and the area's abundant natural resources. Quality affordable housing opportunities will relieve overcrowded homes while well-maintained and reliable utilities and other public infrastructure and community facilities will increase residents' quality of life. Our education system will not only prepare our youth through training opportunities and programs that meet the employment needs of our community, but also inspire our youth to become thoughtful and well-informed community leaders. We will have recreational opportunities, especially for families and youth, that facilitate healthy living and an active lifestyle. Community cooperation and resident participation in public policy fosters decision-making for betterment of all village residents.*

Each chapter of the Atqasuk Comprehensive Plan contains an inventory of existing conditions and a discussion of issues as well as factors about Atqasuk that make it unique. Goals were also developed to implement the vision. Implementing strategies address community issues and concerns raised by residents. The analysis of current conditions that support this plan show that Atqasuk faces significant challenges, such as a lack of gravel availability, housing overcrowding, and costly maintenance of existing infrastructure. But Atqasuk also has strong assets: an advantageous location for subsistence activities, a close knit community, strong sense of family and traditional Iñupiat values, substantial investment in physical infrastructure, and much more.

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

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# Atqasuumguuq Taiguaqtit Isumananni Piitchuitchuat

## Atqasuk

Atqasuk, Alaska-mi kiluliñaini silaliniñmi tañium sinaani (Arctic Coastal Plain) ittuq, sammakiaq piñsukipiatun (60) miles kiluliani Utqaiñvium. Iluñaan iñtuq avtaani National Petroleum Reserve-Alaska-mi. Atqasuk nuñaaqirriaq, avatñiqaqtuq 38.9 square miles nunamik suli 3.5 miles immañmik iñtuqsuli akuñani. Imañruaq narvagli suli Meade Kuñña (River) tapkuali nalunainñutanich. Atqasuglu iñtuq inillanagaat uqaluktuaginarañarik aluagukaqtuami kavamaptallu suli allat iñluqpaich uunnagutiginagaat Utqiaviñmilu anñyanñaisalu World War II mi aqulliqsaagmanlu.

Nunaaqi Atqasuk inillakpaalunagaluaqtuq aglaan Iñupiat qañapak iñuuniagñviginagaat taimmanagaña uqaluktuaniñi silaliniñmiut North Slope min, tamatkua nalunaiqsauñaruat Iñupiatun iñuurianinich qañiqsinñaranich kinuñgaaginun suli algaaniqsatigun iñigruaññin iñtchuginarut iqalunñaqtılaañaniglu suli anñunaqtılaañaniglu tamaani Meade Kuññanilu suli kuññinni. Kuñña Meade-gum ilañani iqalunñaktuglu tinñmiañnaktuglu tuttuñnaktuglu suli asirrisuummuq aasii suli igligvigsuugaat kuuk anñunaigamik.

Iñupiatguuq qutchiksuañinaich ukkua: qaunagilugich ilatik, savaaññiñniglu suli avanmun aviktaunñiglu suli iñsimmaañniq nunaurmiñniglu suli, niñrutinillu. Qiqsiqutikañniglu nunamiglu, silamiglu, atakkii piqaqtitkaich imigmiglu, silatuutigralluatamiglu suli niqsaaqtanik naagaa katitchivlutin nautchianik niqsagniglu anñunaiglu tavra kipinñiugñisuugaat nigrutit naagaa tinñmait, nautchiat nalautinmata nunaurañani. Aasiiñ Alaska Nativesguruat North Slope-mi iñuuniaqñinat pituumarruq nunamun suli Iñupiat qañiqsillugu sivulliimiñnun iñuuniagñusiat gañiqsinñaranich kinuñgaaginun. Nunaqiuruat iñunich iñlaupagaqtut unñasiksuamik niqsagñuumavñutin. Atqasunmiyyaat qipiñniuguurut anñusugñutin nunaminlu tañiuminlu nigruitinik, iqalunik, tinñmainik, nigliñnik. Ilañich iñuit allaguurut Utqiaviñmun ataaqtuñiañutin añviqsuqtuanik suli natchiñnik naagga ugrugnik, naagga aiviñnik. Añlaan Atqasunñmiut kipigriugilhauguuniagich tuttuñnich Western Arctic minlu Teshekpak minlu qairuat niqsagñugñutin, Kuuqminlu iqalliqsuumiut. Allagñiiguurut qanuq iñlauninñi nigrutit naagga iqalñuit piñiaqsimmatik katitchisuuvut niqisramiñnik. Avataa atuumarranñat atullagaat qanutun inugaiktılaaññiñnik aasii uqaqtigilluich sivuani qanuq aktiunaiqtılaañnich taamaani nunañanin.

U.S. kavamapta kisirrusiqimata katigrinñarut-Atqasuk qanutun iñuqaqtılaaña 1940 min, 78-nik kiaguuq iñuqañarut iñuuranik kuññañi Meade-gum. Pagmapak sammakiaq 248-nik iñuit Atqasunñmiugunisuurut, aimmaañvinñat Atqasuk, suli 90 tuniñugich Iñupiagurut, ilauruq tallimat piñasuurat nunaaqit North Slope Borough-mi. Avattiqaaqtuq aktılaaña 95,000 square miles tun ikaktuurinaqtuaq silalinigmiñi North Slope gum aasiiñ inatun iñuqaqtuaq 8,075 iñunñnik. Paunñanmuktuag inugaitılaaña sammakiaguuq iñuñiaqsilavsaagniaqpallicsuq itchaksratunlaa iñuiññatun ukiunñini killinñuqpan 2035-mi.



Atqasuḡmiut sivunniugutinich inillainagaat qanuq igliguminḡ pianigukḡugich avanmun nunaqqim takkumnun ittuaḡ suli taikuḡasugruk. Taimna sivunniugutinḡat nalunianḡagich tikisaksrat atugluich uqausiḡianinḡakkanḡich suli aḡliusimaruat suli nunauratigun qanuq maligaugagsrat. Malikḡugich avgutinḡich tapkua: Atqasuum Nunaqqim sivunniugutinich, aullaḡisaḡḡa, kavammapta, inillaaninḡalu, iḡuuniḡḡnimignilu, silalu nunalu, avatinḡich nunaqqim, iḡugiaktillaḡḡalu, qanuq atuḡtuksrauruat nunatigun, igluqpaich, savaurriruat, Iḡuuniaḡtinḡich, Puvvammaḡḡiktillaḡḡich Iḡisaurrinikunlu, Qanuq maniḡḡḡautauruat, Igluḡḡḡilaḡḡich Iḡuich, Savautiksranḡich suli sivunniugutit allanḡuutiksranḡich sivunniugutauruat, Tikisaksrat, Qanuq savaḡḡuniaḡḡilaḡḡich. Nalunaiḡsaḡḡugich pagmapak igliḡtuat, taamna sivunniugun qanuq igliḡḡilaḡḡa savaḡḡipiḡḡmagaan aasii allanḡuḡtuksraukpata savaḡḡilugich.

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# Chapter 1. Introduction

## 1.1 Purpose of the Comprehensive Plan

The Atqasuk Comprehensive Plan is a long-range document intended to guide the development of Atqasuk and its Area of Influence (shown in Map 5) over the next twenty years. The plan is a consolidated, cohesive and coordinated approach to community planning that can guide decision making for preservation, investment and development of future community resources and infrastructure. Community residents, landowners, public officials, and government staff among others have participated in the comprehensive planning process.

Upon adoption, the plan will become the primary land use policy document for Atqasuk and thus provide guidance on a variety of planning issues that are critical to the future of the community. It also contains a vision statement for the future and goals, objectives and strategies that are designed to implement that vision.

In addition, the plan provides useful background information about the community and identifies community assets, which can be referenced when making community development or land use decisions and when applying for grant funding. Specifically, the plan is intended to:

- Guide growth and development of the community;
- Characterize current strengths, weaknesses, opportunities, and threats of the community;
- Describe what the community residents' want for the future of the community;
- Provide anticipated capital needs over a 20 year planning horizon;
- Provide the foundation for development proposals comments, land use planning and regulation, investments in infrastructure, and land use policy decisions.

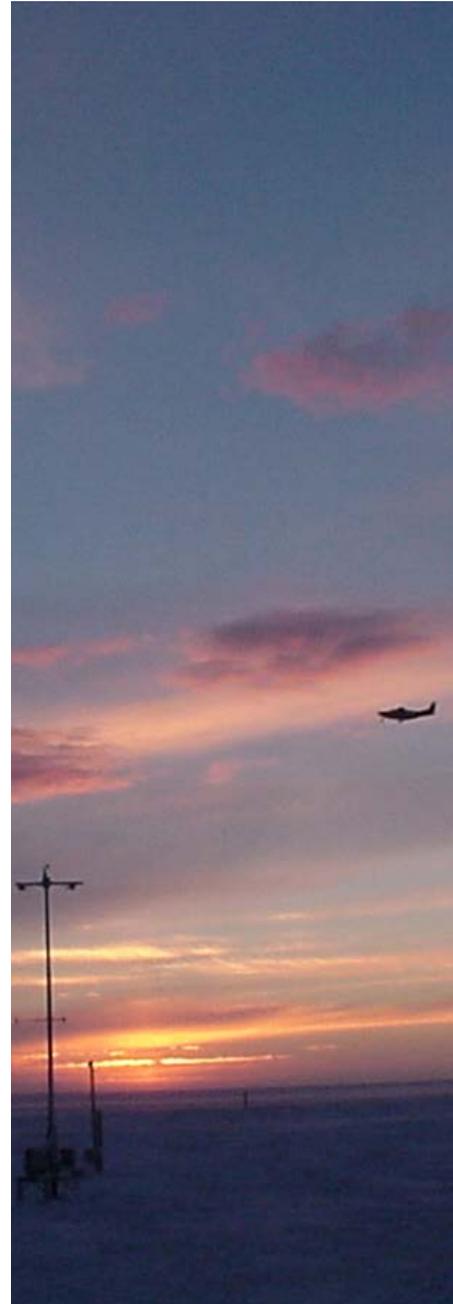


Photo Courtesy of Doug Whiteman

Although the plan has a 20-year planning horizon, conditions, issues, and priorities will undoubtedly shift. Regular review and revision of the plan ensures that the goals and strategies respond to changing circumstances and needs within the village and its area of influence. To remain current and useful, this plan needs to be reviewed every two years for potential updates and revisions. 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.

NSB will use this plan when evaluating land use proposals or actions specific to Atqasuk, including approval of subdivisions, changes to zoning districts, Borough permitting, and capital improvement recommendations. The Borough will also use this 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 this plan to develop mitigation measures as conditions of permit approval.

Federal and state agencies and potential project funding sources are encouraged to use the plan to understand community values, needs, and priorities for investment. Some 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 this 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.

Atqasuk residents 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 Atqasuk is to ensure the traditional way of life, protect marine and wildlife habitats, and protect the community from coastal storms and flooding.

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. NSB 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 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 Community Planning and Real Estate 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 Past Planning Efforts

One of the earliest planning efforts was in 1983 with the development of the City of Atqasuk Background For Planning by Alaska Consultants, Inc. This early planning work provided an inventory of existing conditions within the community and population projects to the year 2000 as well as anticipated capital projects.<sup>1</sup>

More recent community planning work in Atqasuk includes the 2005 North Slope Borough Areawide Plan Atqasuk Community Profile. Like the 1983 background planning report, the 2005 Community Profile provided an inventory of the community and its infrastructure but did not function as an independent planning document for the community.

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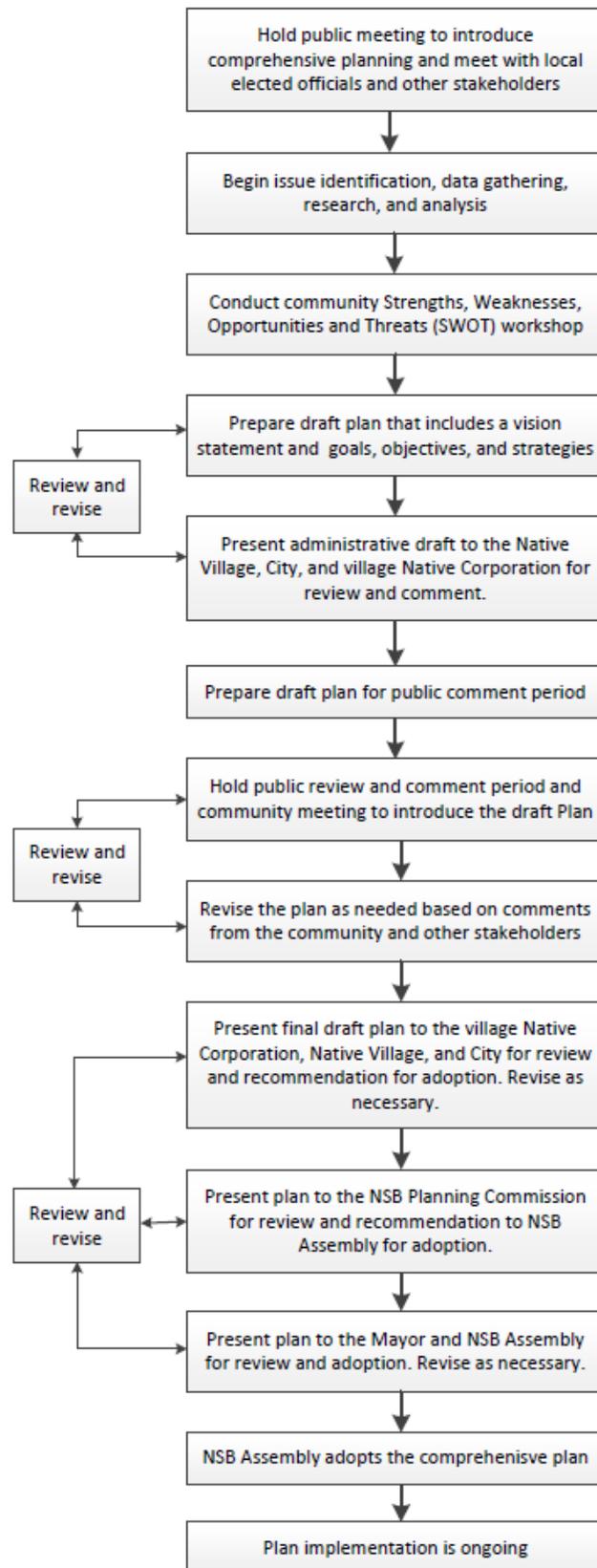
<sup>1</sup> North Slope Borough. 1983. *Background Report for Planning: City of Atqasuk*. Prepared for the North Slope Borough by Alaska Consultants, Inc.

## 1.4 Planning Process and Public Involvement

The comprehensive planning process to develop a comprehensive plan is designed to be transparent and inclusive. The steps for developing this plan are illustrated in Figure 1. It is critical in the development of the Atqasuk Comprehensive Plan that the public have abundant and meaningful opportunities to participate, contribute, and review the draft Plan. The following public participation tools are used in order to obtain input:

- Public notices posted throughout the village providing notification on meeting dates and locations;
- Provision of informational material during meetings, including maps and comprehensive planning background, and process handouts;
- A community workshop, including an introduction to comprehensive planning held on October 25, 2016 and a Strengths, Weaknesses, Opportunities and Threats (SWOT) workshop held on November 21, 2016;
- Presentations and discussions held on February 6, 2017 and February 7, 2017 with village leadership;
- Presentation of the draft plan for community review and comment on April 17, 2017;
- Discussion with students at Meade River School on April 17, 2017 about the future of Atqasuk and how they would like it to develop over the next twenty years;
- Direct contact with community leaders and residents through phone interviews and visits; and
- Meeting and other announcements made on the North Slope Comprehensive Planning Facebook page

**Figure 1: Planning Process Flowchart**



Collaboratively, Atqasuk residents, village leadership, North Slope Borough Planning and Community Services Department staff, and other NSB employees that provide services in the village, developed this plan. Local village leadership includes the Mayor and City Council members, the Native Village of Atqasuk Tribal Council President and Council members, the President and Board members of the Atqasuk Corporation, and the NSB Planning Commissioner and Alternate Commissioner representing Atqasuk.

### 1.5 Strengths, Weaknesses, Opportunities, Threats Workshop

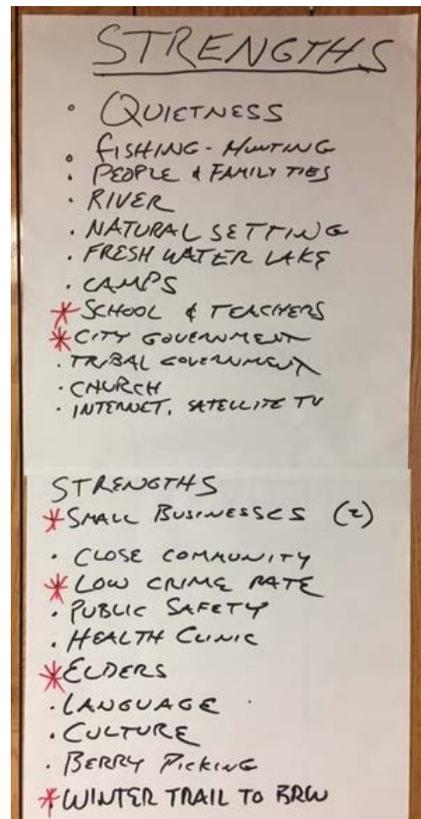
A Strengths, Weaknesses, Opportunities and Threats Analysis (SWOT) exercise guides a community in identifying its strengths and weaknesses as well as opportunities and threats, which assists with both strategic planning and decision-making. The SWOT exercise is also used to develop the community Vision Statement and provides guidance in developing the goals, objectives, and implementing strategies found in Chapter 10.

Below are the results of the 2016 community SWOT exercise that was held in Atqasuk with the community at-large on November 21, 2016. These items were noted on easel paper during the community discussion and reflect the participant’s thoughts about the community. Bulleted items in **bold** are community priorities. Information provided during the SWOT exercise provided the basis for the Vision Statement in Section 1.5.

**Community Strengths:**

- **School and teachers**
- **City government**
- **Small businesses**
- **Low crime rate**
- **Elders**
- **Winter trail to Barrow (Utqiagvik)**
- Quietness
- Fishing and hunting
- People and family ties
- River
- Natural setting; solitude
- Freshwater lake
- Camps
- Tribal government
- Church
- Internet, satellite TV
- Close community
- Public safety
- Health clinic
- Language
- Culture
- Berry picking

**Figure 2: Community strengths provided during Atqasuk public SWOT meeting**



**Community Weaknesses:**

- Lack of gravel
- No banking or ATM
- No washeteria
- Housing maintenance & lack of materials/experience
- Limited recreational facilities; need playground, teen center, day care center, bowling alley
- Housing and Hotel (difficulty to qualify if not employed by NSB; income constraints)
- Need a search and rescue facility and equipment
- River sometimes shallow
- Lack of laundry and running water delivery in some homes
- No water/sewer on north and south of town
- Small grocery store (limited supplies at grocery store)
- Lack of airline competition
- Lack of airport terminal
- Slow internet
- Surface run-off to lake (water source)
- Road access to cemeteries; not easily accessible, inadequate road (lack of gravel)
- Stringent qualifications for home ownership
- Too great of a variety of boilers
- Homes too small to accommodate energy saving improvements
- Lack of transportation alternative to air
- No restaurant
- Limited job opportunity, especially with students/recent graduates
- Lack of dog control
- Homes too close together, also a fire threat

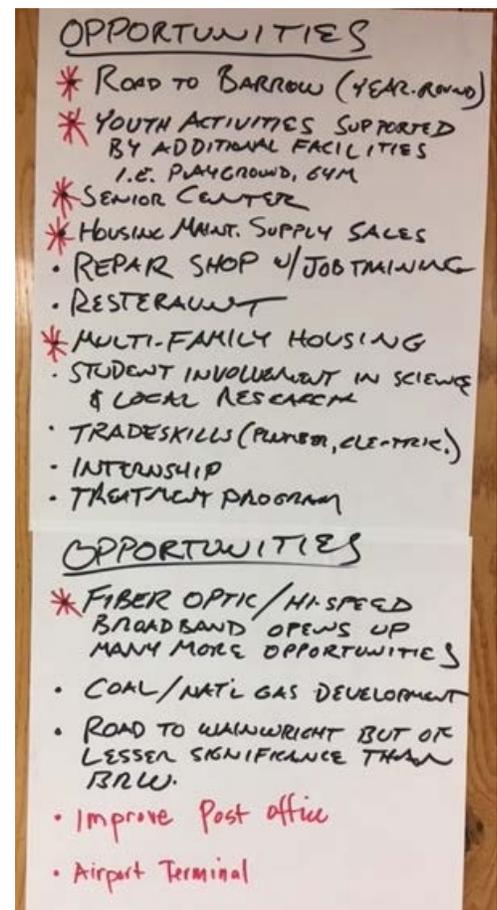
**Figure 3: Community weaknesses provided during Atqasuk public SWOT meeting**



**Community Opportunities:**

- Road to Barrow (Utqiaġvik) (year round)
- Youth activities supported by additional facilities, e.g. playground, sense of belonging and growth with youth/children
- Senior center – respect of elders and assurance they are being taken care of
- Housing maintenance supply sales
- Multi-family housing
- Fiber optic/hi-speed broadband opens up many more opportunities
- Repair shop with job training; coincide with training opportunities
- Need local restaurant
- Student involvement in science and local research; opportunity for employment, use local resources
- Trade skills (plumber/electrician)
- Internship/apprenticeship, NSBSD and Iḷisaġvik outreach
- Expansion of health facility
- Treatment program
- Road to Wainwright but of lesser significance than Barrow (Utqiaġvik) road; opportunity to contact Atqasuk to the coastline (opportunity to receive barge groceries and materials)
- Improve Post Office
- Airport terminal
- Developing natural resources; coal / natural gas

**Figure 4: Community opportunities provided during Atqasuk public SWOT meeting**



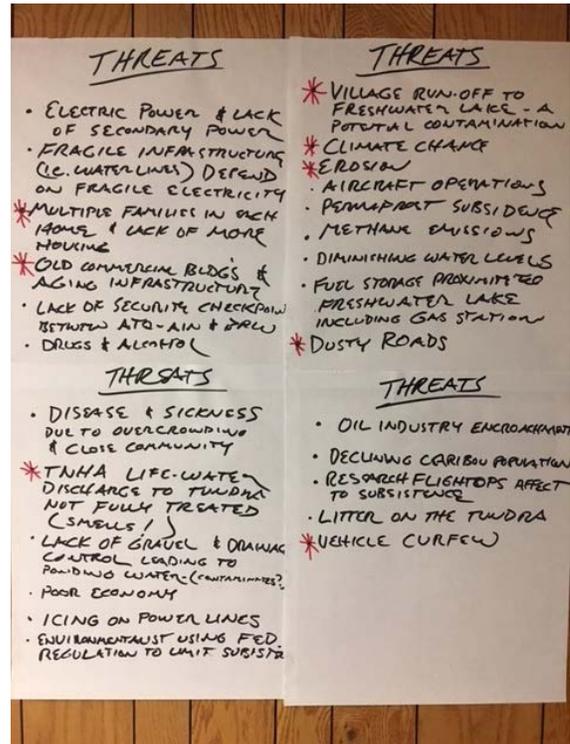
**Community Threats:**

- Multiple families in each home and lack of housing, overcrowding in homes
- Old commercial buildings and aging infrastructure
- TNHA; life – water system discharge to tundra not fully treated (smells), you can smell the sewer
- Village run-off to freshwater late – a potential contaminate
- Climate change
- Erosion
- Dusty roads
- Vehicle curfew

**Community Threats (continued):**

- Electric power and lack of secondary power
- Fragile infrastructure (water lines) depend on fragile electricity
- Lack of security check-point between Atqasuk, Wainwright and Barrow (Utqiagvik)
- Drugs and alcohol importation
- Disease and sickness spreads easily due to home overcrowding and close community
- Lack of gravel and drainage control leading to ponding water (contaminants?), lack of road development
- Poor economy
- Icing on power lines; no lineman, need for back-up electricity source
- Environmentalists using federal regulations to limit subsistence
- Aircraft operations
- Loose dogs and threat of rabies
- Permafrost subsidence
- Methane emissions
- Diminishing water levels
- Water source threat; fuel storage proximity to freshwater lake and including gas station
- Oil industry encroachment
- Declining caribou population, need accurate Area of Influence map
- Research flight operations affect to subsistence
- Researchers not sharing findings with village
- Young and inexperienced hunters altering caribou migration by not waiting for second and third wave of caribou to migrate through and leaving trash behind during hunt. Lack of respect for land.
- Road to/from Wainwright/Barrow (Utqiagvik) could bring in drugs and alcohol, more hunters in Atqasuk area on already diminished caribou population
- Litter on the tundra

**Figure 5: Community threats provided during Atqasuk public SWOT meeting**



## 1.6 Youth Involvement

On April 17, 2017, Meade River School students participated in a discussion about the future of Atqasuk and how they would like to see it develop over the next twenty years. Students in all age ranges identified the need for a road to Barrow, newer and/or bigger houses, and additional recreational facilities. Their responses are summarized by age range below.

### 10-13 year olds:

- Restaurants
- Hotels
- Road to Barrow
- Bigger gym/recreational facilities/elders & youth center/bigger swimming pool
- Movie theatre
- Football and basketball camps
- Healthy/better community
- All phones to have Internet
- Newer bigger houses
- New playground
- New jobs – operations & maintenance jobs, hotel jobs

### 14-18 year olds:

- College
- Restaurant
- Road to Barrow
- Hotel
- More houses
- New gym court
- New playground
- New community center
- Outdoor basketball
- Volleyball/basketball camp
- ASNA health camps
- New/bigger stores (AC Store)

### 13-14 year olds:

- Road to Barrow
- More food/cheaper food/better healthier food
- Bowling ally
- More/bigger Stores
- More school programs
- No drugs
- ATM
- Banks

## 1.7 Vision Statement

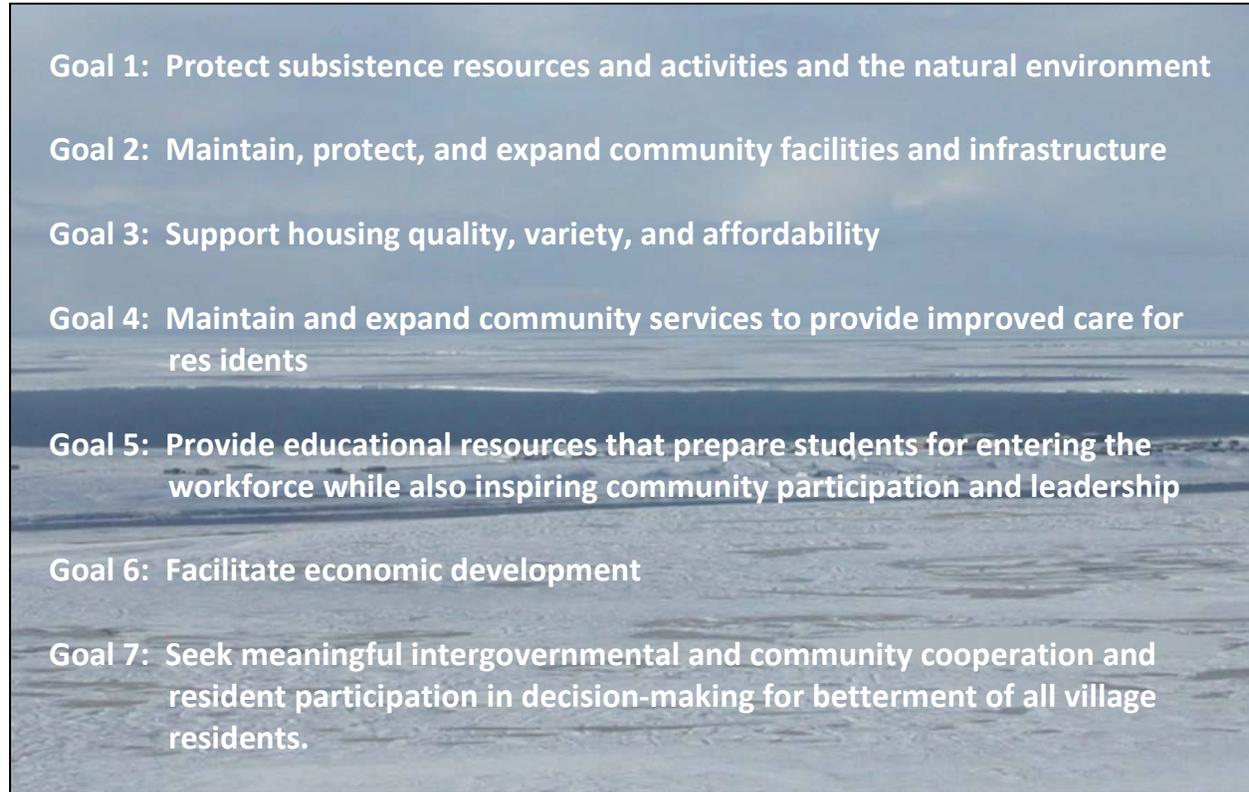
Creating a vision statement for the future of the community is an important part of the comprehensive planning process. Goals, objectives, and implementing strategies are developed to implement the vision that Atqasuk residents want for the future of the community. The following vision statement was devised from local leadership and resident comments and concerns during the comprehensive planning process. This statement guided the development of goals and objectives that implement this plan.

*As residents of the village of Atqasuk, we will continue to cultivate and value a strong sense of community through an active subsistence lifestyle, traditional knowledge of all ages, and the Inupiat language and values. Our community leaders and residents will guide land use and development in a coordinated, cost effective, efficient, and environmentally sensitive way that protects not only the community, but also wildlife habitats and the area's abundant natural resources. Quality affordable housing opportunities will relieve overcrowded homes while well-maintained and reliable utilities and other public infrastructure and community facilities will increase residents' quality of life. Our education system will not only prepare our youth through training opportunities and programs that meet the employment needs of our community, but also inspire our youth to become thoughtful and well-informed community leaders. We will have recreational opportunities, especially for families and youth, that facilitate healthy living and an active lifestyle. Community cooperation and resident participation in public policy fosters decision-making for betterment of all village residents.*

## 1.8 Plan Scope and Organization

As a result of community input, seven goals have been established for the plan that provide the overall direction for the plan's implementation, shown below in Figure 6. Objectives for each of these goals and associated strategies for reaching those objectives are included in the tables in Chapter 10.

**Figure 6: Atqasuk Comprehensive Plan Goals<sup>2</sup>**



This Plan is designed so that readers may focus on (a) specific section(s) of interest, versus reading the Plan in its entirety. Chapters 1 through 9 provide introductory material and a context for the goals, objectives and strategies, which are included in Chapter 10 along with a discussion of how the plan will be implemented in Chapter 11. The references at the end of the plan identify studies, reports and other sources of information consulted while developing this plan. The 11 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 an overview of both the local and regional governments involved in the administration of the community as well as a discussion of Atqasuk's history and language.

Chapter 3 provides information the natural environment including the location, vegetation, wildlife, endangered species, contaminated sites, and climate change.

Chapter 4 includes information on the historical, current, and projected future population of Atqasuk.

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<sup>2</sup> Alaska Department of Commerce, Community, and Economic Development. 2004. Community Photo Library. *Atqasuk Aerial View*. Accessed Jan. 26, 2017. [www.commerce.alaska.gov/dcra/dcrepoext/Pages/PhotoLibrary.aspx](http://www.commerce.alaska.gov/dcra/dcrepoext/Pages/PhotoLibrary.aspx).

Chapter 5 includes discussion of the importance of the subsistence lifestyle to community residents.

Chapter 6 examines public facilities, including the water and sewer system, power generation, solid waste, gravel resources, and communications.

Chapter 7 discusses education, health, and the economy in Atqasuk.

Chapter 8 examines housing issues, both current and future needs.

Chapter 9 provides information on land use and zoning in the community.

Chapter 10 includes goals of the plan, related objectives, and actions that will help meet those objectives.

Chapter 11 concludes a discussion of Plan implementation and revision.

### **1.9 Consistency with Adopted Plan Policies**

Developing the Atqasuk Comprehensive Plan is consistent with recommendations of the 2005 adopted North Slope Borough Comprehensive Plan which includes the following selected policies (identified in parentheses) related to village planning and development.

- Develop community comprehensive plans to address existing and future growth and development needs. [Policy 2.2.1.14, 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].

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## Chapter 2. Government, History & Culture

### 2.1 Local Governance

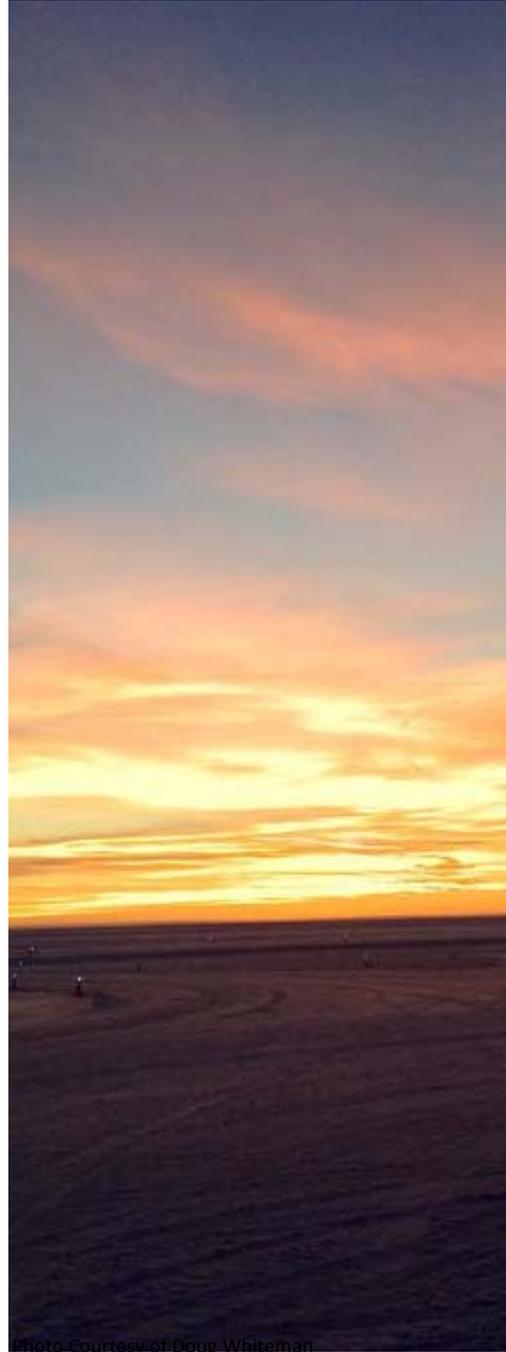
Atqasuk is represented by municipal and tribal governments, both local and regional. Each of these four governmental organizations is described below.

*City of Atqasuk.* The City of Atqasuk incorporated in 1982 as a second class city and a subdivision of the NSB and the State of Alaska. 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.

*Native Village of Atqasuk.* The seven-member Native Village of Atqasuk Tribal Council governs the Village of Atqasuk, a federally-recognized tribe. It was established under authority of the Indian Reorganization Act (IRA) of 1934. A federally recognized Indian tribal government and its political subdivisions, including Alaska Native governments like the Native Village of Atqasuk and the Iñupiat Community of the Arctic Slope (ICAS), are treated like states for certain federal tax purposes.<sup>3</sup>

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

*North Slope Borough.* Atqasuk is located within the NSB, 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 Atqasuk residents, including planning and zoning, water and sewer service, trash pick-up, road



<sup>3</sup> McCray, Sr. Richard A. and Marvin Friedlander. 2004. *Organizations Closely Affiliated with State or Indian Tribal Governments Reference Guide*. Accessed July 21, 2016. [www.irs.gov/pub/irs-tege/eotopich04.pdf](http://www.irs.gov/pub/irs-tege/eotopich04.pdf).

maintenance. NSB also has taxing authority, generally levying a property tax of 18.5 mills, with authority for up to 20.0 mills.

The North Slope Borough has a Planning Commission with eight members and eight alternates; one regular member and one alternate member are from each North Slope community. All commissioners are appointed by the NSB Mayor and confirmed by the NSB Assembly. The Planning Commissioners perform functions related to planning and zoning. They also serve as representatives of their respective communities and use their position to bring issues and concerns of their communities the attention of the North Slope Borough administration.

Although not a governing body, the Atqasuk Corporation plays a leadership role in the village as a major landownership with 24 of 71 total shareholders residing in Atqasuk.

## 2.2 History of Atqasuk

Although the townsite of Atqasuk was settled relatively recently, the Iñupiat of the Meade River have a strong cultural history on the North Slope, documented through traditional knowledge passed down through generations and through archaeological sites in locations optimal for fishing and hunting along the Meade River and its tributaries.<sup>4</sup> The Iñupiat people who resided in the Atqasuk area, traditionally referred to the Meade River as the Kuulugruaq River. The first settlements in this area were Tikigluk (Burnell Camp) and Atqasupiaq (kiiriq/Kippi Camp). Residents that lived at Tikigluk were called Aluaġmuit, or people of the coal mine. The residents of this area were well-known in northern Alaska and traveled extensively to trade at various fairs, such as Pigniġ near Point Barrow, Nigliġ near the mouth of the Colville, and areas in the upper Noatak and upper Colville River valleys.

The Meade River tributary has provided the Iñupiat with inland resources of fish, birds, caribou, and berries and has been used a primary source of transportation for subsistence purposes. The Meade River tributary is well known to the North Slope Iñupiat as an abundant source of freshwater fish and as an optimal location to set up base camps for caribou hunting. Some families historically built sod houses in areas near the river with abundant fishing opportunities and stockpiled fish in ice cellars to bring to the coast during the winter for trade. However, most Iñupiat who utilized the area usually came to set up hunting base camps, such as Payugvik on the Meade River and Iviksuk on the Inaru River. Hunters would set up camps for their families, especially for the young and elderly, while the men continued inland to hunt caribou. In addition to marine resources brought from the coast, the rivers and lakes would provide the families at the base camps with abundant fish resources for a reliable source of food. Inland dwarf willow also provided an energy source not readily available on the coast.<sup>5</sup>

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<sup>4</sup> Schneider, William, and Sverre Pedersen, and David Libbey. 1980. *Barrow-Atqasuk: Land Use Values Through Time in the Barrow-Atqasuk Area*. Fairbanks: UAF Cooperative Park Studies Unit, for the North Slope Borough.

<sup>5</sup> Ibid

Reindeer herding stations were established in the Utqiagvik (formerly Barrow)-Atqasuk area<sup>6</sup> as reindeer herding became important economic activity in the area from 1900 to 1940, drawing people to the region for employment, especially during corralling. By 1925, a different approach to reindeer herding in Alaska was introduced that made significant changes in managing the herds. The new approach required that all herders collectivize and create associations, while transferring all individual ownership of reindeer to the association. Each herder would be given shares in the association. Also, it promoted ‘open herding’, a new form of reindeer herding that allowed reindeer to roam freely for much of the year to find the best vegetation and to mass reproduce. Open herding sharply contradicted the former and more traditional practice of close herding which required closely regulating herds, controlling reproduction, and protecting the reindeer during fawning.

During the late 1920s and 1930s, the population of wolves grew significantly in northern Alaska and began to focus on reindeer as a primary food source, while caribou populations began to rebound and move back into the area as well. Caribou herds drew reindeer away from their pastures, and scattered herds into opposing ranges, while new herding practices introduced in 1925 decreased the protection and confinement of herds. The reindeer population suffered as both the caribou and wolf populations grew. The caribou drew the reindeer away from herds and wolves preyed upon them, devastating the reindeer industry.<sup>7</sup> Due to the lack of herdsman after the creation of reindeer herders associations, as well as the loss of reindeer to caribou and wolves, reindeer herding in the Utqiagvik-Atqasuk area came to an end. By 1945, the last of the reindeer left the area<sup>8</sup> and presumably mixed with the Teshekpuk Lake caribou herd to the east of the Meade River.

The Iñupiat of the North Slope have traditionally utilized various sources for heat energy including driftwood, marine mammal oil, petroleum residue from seeps near Point Simpson, and coal from deposits along Peard Bay and the Meade and Kuk Rivers. Extreme fuel shortages in Utqiagvik during the winters of the early 1940s caught the attention of Alaska Territorial Governor Ernest Gruening, who ordered engineers from the U.S. Bureau of Mines to investigate the potential for reported coal occurrences on the North Slope to provide an alternative fuel source for the region. Coal deposits along the Meade River and Peard Bay were investigated during the spring and fall of 1943. During the 1940s a coal mine on the Meade River was established near the traditional fishing village site of Tigalook (Tikiġluk, also referred to as ‘Old Atqasuk’).<sup>9</sup> The Meade River Mine provided employment to locals, and in 1945 consisted of six Iñupiaq workers and their families living in sod houses and tents.<sup>10</sup>

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<sup>6</sup> Schneider, William, and Sverre Pedersen, and David Libbey. 1980. *Barrow-Atqasuk: Land Use Values Through Time in the Barrow-Atqasuk Area*. Fairbanks: UAF Cooperative Park Studies Unit, for the North Slope Borough.

<sup>7</sup> Burch, Ernest S., Jr. 2012. *The Caribou Herds of Northwest Alaska, 1850-2000*. Fairbanks: University of Alaska Press.

<sup>8</sup> Bodfish, Waldo Kusiġ. 1991. *Kusiġ: An Eskimo Life History from the Arctic Coast of Alaska*. Fairbanks: University of Alaska Press.

<sup>9</sup> Schneider, William, and Sverre Pedersen, and David Libbey. 1980. *Barrow-Atqasuk: Land Use Values Through Time in the Barrow-Atqasuk Area*. Fairbanks: UAF Cooperative Park Studies Unit, for the North Slope Borough.

<sup>10</sup> U.S. Department of the Interior. Bureau of Mines. 1946. *Exploration of Coal Deposits of the Point Barrow and Wainwright Areas, Northern Alaska*. Prepared by Robert S. Sanford and Harold C. Pierce. Accessed Jan. 3, 2017. <https://babel.hathitrust.org/cgi/pt?id=mdp.39015078487736;view=1up;seq=5>.

A federal progress report on the success of mining coal at the Meade River site outlined four important aspects of coal mining along the Meade River during the first year of operations: first, the coal beds were too low in proximity to the Meade River water table; second, there was no warm water source to use in hydraulic mining because the Meade River was too cold during the summers; third, the Meade River was too shallow and its current was insufficient to carry away stripped material causing piling of overburden near the mine; and fourth, during mining, sediment mixes with coal making it impossible to retrieve a suitable grade of coal.<sup>11</sup> In order to avoid flooding, hydraulic mining was replaced by underground mining by hand, using minimal mechanical equipment.

The Meade River coal mine was operated by Ed Burnell and provided Utqiaġvik with a source of energy until natural gas and oil replaced coal following the discovery of the South Barrow Gasfield. The gasfield was developed by the Federal Government and continues to supply Utqiaġvik with a cheap, subsidized local energy source.<sup>12</sup> Following the closure of the mine, many families moved to Utqiaġvik.

The National Petroleum Reserve – Alaska (NPR-A) encompasses 23.6 million acres of land on the North Slope, at the center of the Iñupiat homeland. The land is essential to Iñupiat livelihood on the North Slope, but because it is a source of oil and gas it is also in the interest of energy developers and consumers.<sup>13</sup> During 1920s the U.S. Navy began to convert its fleet from coal-power to oil and gas-powered vessels. By 1923, President Warren D. Harding created the Naval Petroleum Reserve No. 4 (PET-4) to reserve a source of energy for the Navy. PET-4 was eventually renamed the National Petroleum Reserve-Alaska (NPR-A) in 1976. In addition to the name change, the Petroleum Reserve Production Act in 1976 converted control of the NPR-A from the U.S. Navy to the U.S. Department of the Interior, Bureau of Land Management (BLM).

Since its creation in 1923, the NPR-A has been described as “the largest block of land under public domain”<sup>14</sup> and “one of the largest remaining wilderness areas in the United States.”<sup>15</sup> In a proposition to turn the central Meade River area into a National Natural Landmark Site in 1977, a Federal Government report indicated that the “untouched” river represents an “outstanding example of a river system on the

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<sup>11</sup> U.S. Department of the Interior. Bureau of Mines. 1946. *Exploration of Coal Deposits of the Point Barrow and Wainwright Areas, Northern Alaska*. Prepared by Robert S. Sanford and Harold C. Pierce. Accessed Jan. 3, 2017. <https://babel.hathitrust.org/cgi/pt?id=mdp.39015078487736;view=1up;seq=5>.

<sup>12</sup> U.S. Department of the Interior. Bureau of Land Management. 2013. *National Petroleum Reserve – Alaska Final Integrated Activity Plan/Environmental Impact Statement*. Accessed Jan. 6, 2017. <https://eplanning.blm.gov/epl-front-office/eplanning/planAndProjectSite.do?methodName=dispatchToPatternPage&currentPageId=14702>.

<sup>13</sup> Schneider, William, and Sverre Pedersen, and David Libbey. 1980. *Barrow-Atqasuk: Land Use Values Through Time in the Barrow-Atqasuk Area*. Fairbanks: UAF Cooperative Park Studies Unit, for the North Slope Borough.

<sup>14</sup> U.S. Department of the Interior. Bureau of Mines. 1946. *Exploration of Coal Deposits of the Point Barrow and Wainwright Areas, Northern Alaska*. Prepared by Robert S. Sanford and Harold C. Pierce. Accessed Jan. 3, 2017. <https://babel.hathitrust.org/cgi/pt?id=mdp.39015078487736;view=1up;seq=5>.

<sup>15</sup> U.S. Department of the Interior. Bureau of Land Management. 2013. *National Petroleum Reserve – Alaska Final Integrated Activity Plan/Environmental Impact Statement*. Accessed Jan. 6, 2017. <https://eplanning.blm.gov/epl-front-office/eplanning/planAndProjectSite.do?methodName=dispatchToPatternPage&currentPageId=14702>.

Arctic Coastal Plain with all of the stages of meanders and oxbow lakes represented” and also that the recently settled village of Atqasuk posed “a strong threat to the integrity of the area.”<sup>16</sup>

Throughout the twentieth century, many Iñupiat from areas across northern Alaska began to centralize in Utqiagvik and Wainwright for access to education, employment, healthcare, goods, and recreation. Some returned seasonally to the locations in which their families originated. After the passage of the Alaska Native Claims Settlement Act of 1971 (ANCSA) and the creation of the North Slope Borough soon thereafter, many groups that became centralized in Utqiagvik and Wainwright either moved back to their ancestral villages (Anaktuvuk Pass and Kaktovik) or they began plans to reestablish former village sites (Nuiqsut, Atqasuk, and Point Lay).<sup>17</sup> ANCSA provided an opportunity for the reestablishment of small rural Alaskan villages. This was an opportunity for families with heritage of living in specific areas to return to their ancestral locations and to live in or near their old village sites.

With some assistance from ASRC and the NSB, the people from the Meade River area moved home. In 1977, the village of Atqasuk was reestablished by families that once lived in Tigalook, Old Atqasuk, and other locations on the Meade River tributary. Pursuant to Section 12(a) of ANCSA, the Atqasuk Corporation was allotted surface rights to over 69,000 acres of surface rights.

### 2.3 Iñupiaq Values and Language

The residents of Atqasuk honor cultural ties to the land and ancestors through traditional Iñupiaq values. The Iñupiat highly regard family, work ethic, the Iñupiaq language, drumming and dancing, and sharing food and knowledge of animals with a deep respect for the environment as it provides fresh water, clean air, and subsistence foods. Table 1 summarizes values of the North Slope Iñupiat.

There has been a decrease in both the number of individuals speaking Iñupiaq as well as the number of households where Iñupiaq is the primary language. Fewer people speak Iñupiaq fluently, which often parallels the passing of elders. In 2003, 30 percent spoke Iñupiaq fluently, decreasing to 20.6 percent in 2010. The majority of fluent Iñupiaq speakers (25) were between the ages of 36 and 60 years of age and 13 were over the age of 61. Only one person was reported as fluent under the age of 36.<sup>18</sup> The percentage of speakers has further decreased by 2015; only 14.1 percent of residents spoke Iñupiaq fluently, or 28

<sup>16</sup> Racine, Charles H. 1979. *Proposed Natural Landmark Site Evaluation, Arctic Lowlands, Alaska, Central Meade River Area*. Wolcott, VT: Center for Northern Studies.

<sup>17</sup> U.S. Department of the Interior. Bureau of Land Management. 2013. *National Petroleum Reserve – Alaska Final Integrated Activity Plan/Environmental Impact Statement*. Accessed Jan. 6, 2017. <https://eplanning.blm.gov/epl-front-office/eplanning/planAndProjectSite.do?methodName=dispatchToPatternPage&currentPageId=14702>.

<sup>18</sup> 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](http://www.north-slope.org/your-government/census-2010)North Slope Borough.

people.<sup>19</sup> Conversely, there has been a sharp rise in English usage. Between 1998 and 2015 the percentage of households speaking mostly English rose from 37 percent to 57 percent.<sup>20</sup>

Because a dramatic decline in fluent Native speakers resulted when schools forbade students from speaking their native language, the North Slope Borough School District (NSBSD) has made efforts to strengthen the Iñupiaq language by offering language classes from early childhood through 8<sup>th</sup> grade.<sup>21</sup> 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.

**Table 1: Iñupiaq Values<sup>22</sup>**

Value	Explanation
Paaqfaktautaiññiq - <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.
lḡagiḡñiq - <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.
Qiñuiññiq - <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.
Aviktuaqatigiḡñiq - <i>Sharing</i>	It is amazing how sharing works. Your acts of giving always come back.
Ukpiqqutiqaḡniq - <i>Spirituality</i>	We know the power of prayer. We are a spiritual people.

<sup>19</sup> North Slope Borough. 2015. *North Slope Borough 2015 Economic Profile and Census Report Volume XI*. Prepared by Circumpolar Research Associates Shepro, C., Maas, C. and D. Gallaway and edited by Jason Bergerson for the North Slope Borough. Accessed Jan. 20, 2017. [www.north-slope.org/your-government/nsb-2015-economic-profile-census-report](http://www.north-slope.org/your-government/nsb-2015-economic-profile-census-report).

<sup>20</sup> Ibid

<sup>21</sup> North Slope Borough School District. 2016. *Iñupiaq Education Department*. Accessed May 16, 2016. [www.nsbds.org/domain/44](http://www.nsbds.org/domain/44).

<sup>22</sup> North Slope Borough. 2005. *North Slope Borough Comprehensive Plan, Atqasuk Village Profile*. Prepared by URS Corporation for the North Slope Borough. October 2005. Accessed Jan. 4, 2017. [www.north-slope.org/assets/images/uploads/AtqasukVillageProfile06.pdf](http://www.north-slope.org/assets/images/uploads/AtqasukVillageProfile06.pdf).

## Chapter 3. Natural Environment

### 3.1 Geography

Atqasuk is located at the southern extent of the Arctic Coastal Plain in Alaska, approximately 60 miles south of Utqiagvik (formerly Barrow), the borough seat of government, 58 miles east of the village of Wainwright, and 142 miles northeast of Point Lay. The community is entirely within the boundaries of the National Petroleum Reserve-Alaska (NPR-A). The village municipal boundaries encompass 38.9 square miles of land and 3.5 square miles of water.<sup>23</sup>

The village lies between Imagruaq Lake and the Meade River (Kuulugruaq). The natural drainage of the village is both west into the Imagruaq Lake and east down the bluffs to the Meade River. The surrounding landscape is largely flat, except for some steep river banks, and is treeless with vast plains of tundra vegetation dotted by lakes. However, the Meade River and Imagruaq Lake are dominant features in the village and the region. The Meade River originates at Lookout Ridge in the Brooks Range and flows northward, through Atqasuk, to Admiralty Bay / Dease Inlet on the Arctic Ocean coastline, a distance of about 100 miles.<sup>24</sup> The current village site is near a historic bituminous coal mine that provided fuel for government and private facilities in Utqiagvik during and after World War II.<sup>25</sup> Map 1 illustrates the location of the community within the North Slope Borough.

The Meade River meanders northward across the Arctic Coastal Plain roughly 230 miles from its headwaters in the Brooks Range foothills to Admiralty Bay on the Beaufort Sea. The two main advantages of Atqasuk's location are access to river and lake resources, and access to caribou migration routes. The Meade River, similar to other river tributaries on the Arctic Coastal Plain, is surrounded by innumerable lakes, ponds, and streams which



Photo Courtesy of Doug Whiteman

<sup>23</sup> Alaska Department of Commerce, Community, and Economic Development. 2017. *Alaska Community Database Online: Atqasuk*. Accessed Jan. 10, 2017. [www.commerce.alaska.gov/dcra/DCRAExternal/community](http://www.commerce.alaska.gov/dcra/DCRAExternal/community).

<sup>24</sup> Libbey, D., G. Spearman, and D. Hoffman. 1979. *Native Livelihood and Dependence: A Study of Land Use Values Through Time*. North Slope Borough Contract Staff. U.S. Department of the Interior, National Petroleum Reserve in Alaska. Anchorage, Alaska.

<sup>25</sup> U.S. Department of the Interior. Bureau of Land Management. 2008. Northeast NPR-A Final Supplemental Integrated Activity Plan/Environmental Impact Statement. Accessed Jan. 3, 2017. [www.blm.gov/ak/st/en/prog/planning/npra\\_general/ne\\_npra/northeast\\_npr-a\\_final.html](http://www.blm.gov/ak/st/en/prog/planning/npra_general/ne_npra/northeast_npr-a_final.html).

provide extensive fish resources throughout the year. Migrating caribou from the Teshekpuk and Western Arctic Caribou Herd also pass through the Atqasuk area.

### 3.2 Climate

Atqasuk is within the arctic climate zone, characterized by cold dry winters and cool summers. Although located close to the Arctic Ocean, it has interior arctic influence, registering warmer in the summer and colder in winter than other arctic coastal communities. Temperatures range from minus 56 degrees Fahrenheit (F) to 78 degrees F. The daily minimum temperature drops below freezing 300 days of the year. The annual average temperature is 13.5 degrees F. Extreme cold (-40F to -60F) and ice fog is known to last a week at a time. Precipitation is light at five inches a year with snowfall averaging 22 inches a year. Average winds are predominantly from the east.

### 3.3 Flooding and Erosion

Runoff flooding is the most common in Atqasuk, usually after long or extreme rainfall events. Rain storms and rapid thaw events also contribute to flooding. Because the bed of the Meade River is considerably lower than the community, there is not a history of localized flooding.<sup>26</sup>

Erosion and increased sediment load in the Meade River has made it both wider and shallower. The erosion season for Arctic rivers has historically occurred mostly in the spring, related to ice scouring, snow melt-off and bank slumping following thaw.

### 3.4 Soils and Permafrost

The Atqasuk village and environs lay at the southern extent of the Arctic Coastal Plain which is characterized by a wide expanse of flat tundra with thaw lakes, drained lake basins, polygonal patterned ground, pingos, and tussock-laden tundra overlaying permafrost.<sup>27</sup> The current village site lies on a stabilized sand dune flat with a thickness between 10 to 20 feet which is underlain by permafrost.

Atqasuk like much of Arctic Alaska is classified as having “continuous permafrost” rather than discontinuous islands. Tundra vegetative covers an “active layer” of inorganic soil overlying several hundred feet of permanently frozen sands (permafrost soil) in and near the village townsite. Differential thaw of the tundra results in subsidence and cracks which fill with water and freeze again creating the polygonal pattern of ice wedges, troughs and ridges seen throughout the landscape.

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<sup>26</sup> Brubaker M., Bell J., Dingman H., Ahkivgak M., Whiteman D. 2014. *Climate Change in Atqasuk, Alaska, Strategies for Community Health*. Prepared for the Alaska Native Tribal Health Consortium Center for Climate and Health. Accessed Jan. 11, 2017. [www.anthc.org/chs/ces/climate/climateandhealthreports.cfm](http://www.anthc.org/chs/ces/climate/climateandhealthreports.cfm).

<sup>27</sup> CAVM Team. 2003. *Circumpolar Arctic Vegetation Map. (1:7,500,000 scale), Conservation of Arctic Flora and Fauna (CAFF) Map No. 1*. U.S. Fish and Wildlife Service, Anchorage, Alaska. ISBN: 0-9767525-0-6, ISBN-13: 978-0-9767525-0-9. Accessed Jan. 5, 2017. [www.geobotany.uaf.edu/cavm](http://www.geobotany.uaf.edu/cavm).

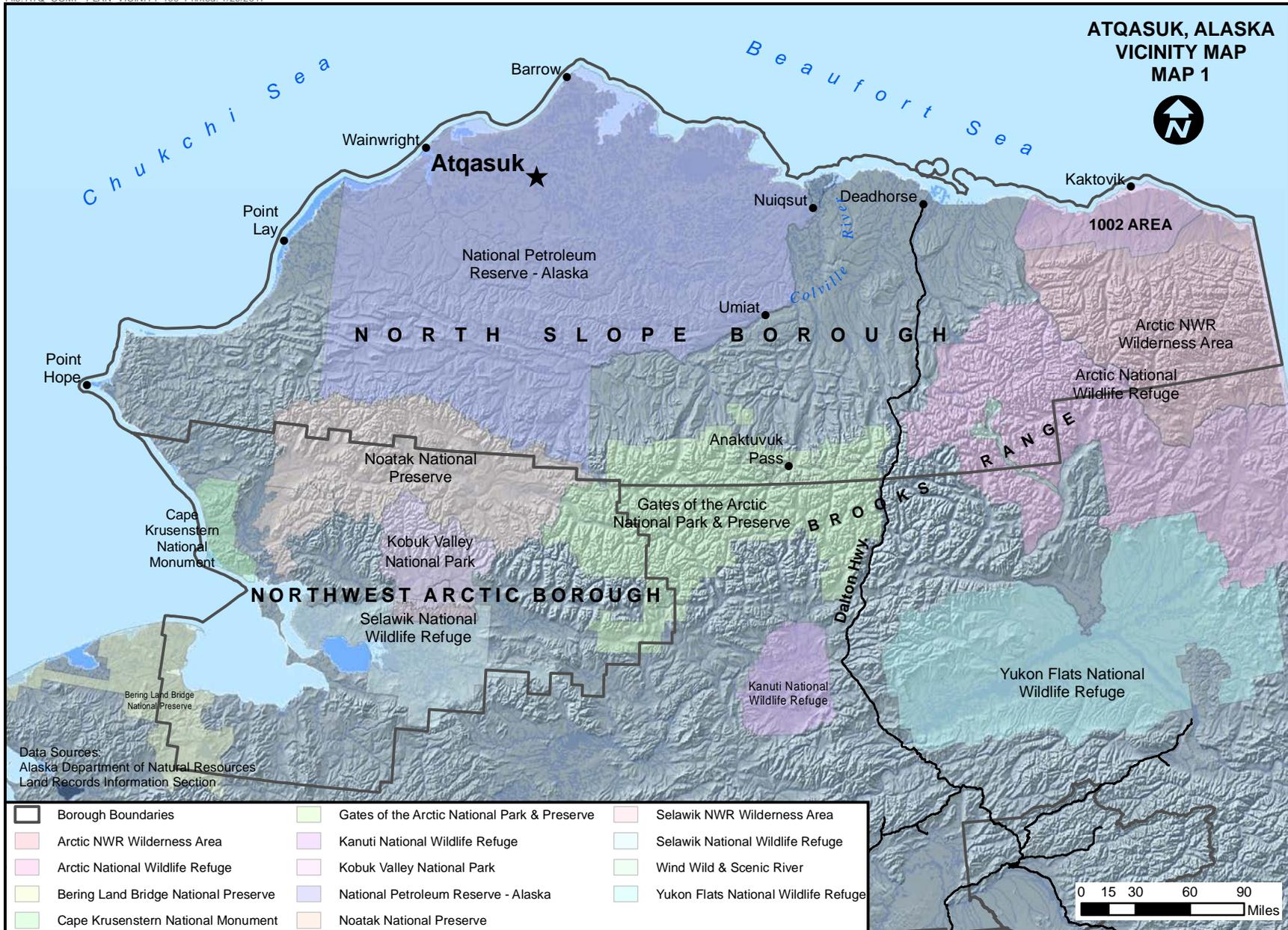
### **3.5 Vegetation and Wetlands**

Vegetation is dominated by sedges, grasses, and mosses, and include dwarf shrubs (<40 cm tall). The actual vegetation types within the Atqasuk developed areas are difficult to characterize and are considered a disturbed landscape due to the construction of gravel roads and building pads that alter the natural function of the tundra and wetlands.

Arctic wetlands provide many useful functions and values. The various ponds, lakes and drainages of the Arctic Coastal Plain regulate runoff through storage in the active layer, slowly releasing water to streams over extended periods. These wetlands retain or distribute sediments, nutrients, and toxicants. When planning future development, careful siting can minimize impacts to higher value wetland areas, where disruptions may adversely affect the habitat of sensitive and important wildlife species, or functions benefitting the community. The US Fish and Wildlife Service (FWS) is the principal US Federal agency tasked with providing information to the public on the extent and status of our Nation's wetlands. The US FWS National Wetlands Inventory (NWI) is a publically available resource that provides detailed information on the abundance, characteristics, and distribution of wetlands. A wetlands map for the Atqasuk area is provided in Map 2.

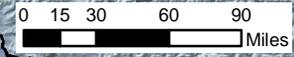
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**ATQASUK, ALASKA  
VICINITY MAP  
MAP 1**



Data Sources:  
Alaska Department of Natural Resources  
Land Records Information Section

Borough Boundaries	Gates of the Arctic National Park & Preserve	Selawik NWR Wilderness Area
Arctic NWR Wilderness Area	Kanuti National Wildlife Refuge	Selawik National Wildlife Refuge
Arctic National Wildlife Refuge	Kobuk Valley National Park	Wind Wild & Scenic River
Bering Land Bridge National Preserve	National Petroleum Reserve - Alaska	Yukon Flats National Wildlife Refuge
Cape Krusenstern National Monument	Noatak National Preserve	



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### 3.6 Wildlife

The area surrounding Atqasuk is rich in mammals, fish, and waterfowl. The area is also at the northern periphery of the range of the Western Arctic Herd of caribou and is a core wintering area for the Teshekpuk Lake Herd of caribou. Bird populations are representative of those habitats found on the North Slope. The table below lists the species commonly found the Atqasuk area.

**Table 2: Species commonly found in the Atqasuk Area**

Terrestrial Mammals	Arctic Fox, Brown Bear, Caribou, Ground Squirrel, Red Fox, Weasel, Lynx, Porcupine, Moose, Beaver, Wolf, and Wolverine
Marine Mammals	Polar Bear
Birds	King Eider, Mallard, Green-winged Teal, Long-tailed Duck, Northern Pintail, Ptarmigan, and White-fronted goose, Tundra Swan, Raven
Fish	Arctic Char, Broad Whitefish, Burbot, Chum Salmon, Arctic Grayling, Humpback Whitefish, King Salmon, Least Cisco, Rainbow Smelt
Plants	Cloudbberries (Salmonberries), Blueberries, Cranberries, Eskimo Tea, Blackberries, Wild Spinach

### 3.7 Threatened and Endangered Species

The Endangered Species Act (ESA) (1973) provides a program for the conservation of threatened and endangered plants and animals and the habitats on which they attend. The lead federal agencies for implementing ESA are the U.S. Fish and Wildlife Service (FWS) and the U.S. National Oceanic and Atmospheric Administration (NOAA) Fisheries Service. The FWS maintains a worldwide list of endangered species. The law requires federal agencies, in consultation with the U.S. Fish and Wildlife Service and/or the NOAA Fisheries Service, to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of designated critical habitat of such species. The law also prohibits any action that causes a "taking" of any listed species of endangered fish or wildlife. Likewise, import, export, interstate, and foreign commerce of listed species are all generally prohibited.

Spectacled Eider (*Somateria fischeri*), Steller’s Eider (*Polysticta stelleri*), and Polar Bear (*Ursus maritimus*) are listed as threatened species by the ESA and are known to be found in the Atqasuk vicinity. Final critical habitat rulings have been made for the Spectacled and Steller’s eider and the Polar Bear. No proposed or final designated critical habitat for any of the identified threatened species is located in the immediate Atqasuk area but subsistence activities may enter the critical habitats located closer to the coast while hunting or fishing.

*Migratory Birds.* Birds are protected under the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. Any activity that results in the ‘take’ of migratory birds or eagles is prohibited unless authorized by the U.S. Fish and Wildlife Service. There are no provisions for allowing the take of migratory

birds that are unintentionally killed or injured. Any person or organization who plans or conducts activities that may result in the ‘take’ of migratory birds is responsible for complying with the appropriate regulations and implementing appropriate conservation measures.

The following is a list of Birds of Conservation Concern that may potentially be found in the vicinity of Atqasuk:<sup>28</sup>

- Bar-tailed Godwit (*Limosa lapponica*)
- Buff-breasted Sandpiper (*Tryngites subruficollis*)
- Dunlin (*Calidris alpine arctica*)
- Peregrine Falcon (*Falco peregrinus*)
- Semipalmated Sandpiper (*Calidris pusilla*)
- Short-eared Owl (*Asio flammeus*)
- Whimbrel (*Numenius phaeopus*)
- Yellow-billed Loon (*Gavia adamsii*)

### 3.8 Air Quality

Under the authority of the Clean Air Act, the U.S. Environmental Protection Agency (EPA) has established National Ambient Air Quality Standards (NAAQS) that are applicable for outdoor air quality in the U.S. If an area does not meet the NAAQS, it is classified as a non-attainment area. The Alaska Department of Environmental Conservation (ADEC) maintains compliance of NAAQS in the State of Alaska operating areas. Atqasuk is not classified as a non-attainment or maintenance area or as an area that has regularly exceeded or is nearing violation of any health-based NAAQs. According to a 2003 National Resource Council (NRC) report on the effects of oil and gas activities on the North Slope, air quality on the North Slope meets the Alaska ambient air quality standards (AAAQS) and that national air quality standards.<sup>29</sup>

Rural communities in Alaska are known to experience wind-borne dust and particulate matter and ADEC maintains a website<sup>30</sup> to receive information regarding wind-borne dust from residents. ADEC has recognized Atqasuk as a community with a dust control problem, but monitoring data is not currently being collected by the State.<sup>31</sup>

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<sup>28</sup> U.S. Department of the Interior. U.S. Fish & Wildlife Service. 2015. *Birds of Conservation Concern*. Accessed Jan. 18, 2017. [www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php](http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php).

<sup>29</sup> National Research Council. 2003. *Cumulative Environmental Effects of Oil and Gas Activities on Alaska's North Slope*. Washington, DC: The National Academies Press. doi: 10.17226/10639. Accessed Jan. 5, 2017. [www.nap.edu/catalog/10639/cumulative-environmental-effects-of-oil-and-gas-activities-on-alaskas-north-slope](http://www.nap.edu/catalog/10639/cumulative-environmental-effects-of-oil-and-gas-activities-on-alaskas-north-slope).

<sup>30</sup> Alaska Department of Environmental Conservation. Division of Air Quality. 2017. *Air Non-point Mobile Source. Dust Information*. Accessed Jan. 3, 2017. <https://dec.alaska.gov/air/anpms/pm/dust.htm>.

<sup>31</sup> Alaska Department of Environmental Conservation. 2011. *Dust Complaints in Rural Alaska (map)*. Accessed Jan. 12, 2017. [https://dec.alaska.gov/air/anpms/Dust/Dust\\_docs/web%20map%2012-2011%20\(2\).pdf](https://dec.alaska.gov/air/anpms/Dust/Dust_docs/web%20map%2012-2011%20(2).pdf).

### 3.9 Contaminated Materials and Hazardous Waste

The Alaska Department of Environmental Conservation maintains an online database of Contaminated Sites in Alaska. Contaminated sites are defined as “a location where hazardous substances, including petroleum products, have been improperly disposed.” Contaminated sites are designated by ADEC as Open or Cleanup Complete. Cleanup Complete sites may require Institutional Controls, meaning the land use and activity must be maintained by the owner in an ADEC-specified manner to protect human health and the environment.<sup>32</sup> Open sites are where remediation is pending and/or characterization of the contamination has not been completed. In Alaska, there are no landfills that accept hazardous materials, and as such all hazardous materials are eventually shipped out of state for proper disposal.

Within the vicinity of Atqasuk, ADEC has identified five contaminated sites, which are listed in Table 3 and shown in Map 3. Additional information on these contaminated sites including closure details and cleanup chronology can be found on the ADEC Contaminated Sites Program website.<sup>33</sup>

**Table 3: Contaminated Sites within the Atqasuk Area<sup>34</sup>**

No.	ADEC Hazard ID	Site Name	Location	Status	ADEC File ID
1	26082	Atqasuk Research Camp Area 1 NALEMP	~2 miles northeast of Atqasuk, AK	Open	390.38.004
2	25373	NSB Atqasuk Power Plant Waste Heat Recovery Line	On Ekosik Street; north of Vacuum Bldg; south of Power Plant; east of Clinic; Atqasuk, AK	Cleanup Complete	390.38.002
3	25374	NSB Atqasuk Fire Station Waste Heat Recovery Line	Tikgluk Street, Atqasuk, AK	Cleanup Complete	390.38.003
4	536	NSB Atqasuk Old Tank Farm	Intersection of Quglaq and Kippi Streets, Atqasuk, AK	Open	390.30.001
5	26083	Atqasuk Research Camp Area 2 NALEMP	~3.5 miles southwest of Atqasuk, AK	Open	390.38.004

Active contaminated sites have the potential to become exposed or seep into surrounding soils, threatening public health and the environment. Two of the three Active sites are Native American Lands Environmental Mitigation Program (NALEMP) sites used as research camps (Hazard IDs 26082 & 26083) by the U.S. Navy from 1944 to 1954, and the U.S. Air Force from 1954 until 1971. Both camps are located outside of the community, and tests have shown diesel range organics and residual range organics above DEC cleanup levels. The third Active site is located in town at the site of the old tank farm, where there is evidence of leaks, spills, saturated soils, and ripped lining with drainage towards Imagruaq Lake, Atqasuk’s

<sup>32</sup> Alaska Department of Environmental Conservation. 2011. *Contaminated Sites Program: The Cleanup Process*. Accessed Oct. 16 2015. <https://dec.alaska.gov/spar/csp/process.htm>.

<sup>33</sup> Alaska Department of Environmental Conservation. 2011. *Contaminated Sites Program Database*. Accessed Jan. 12 2017. <https://dec.alaska.gov/spar/csp/process.htm>.

<sup>34</sup> Ibid

drinking water source. Some cleanup has occurred at this site in the past, however additional characterization and/or cleanup is required to achieve Cleanup Complete status.<sup>35</sup>

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<sup>35</sup> Alaska Department of Environmental Conservation. 2011. *Contaminated Sites Program Database*. Accessed Jan. 12 2017. <https://dec.alaska.gov/spar/csp/process.htm>.

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### 3.10 Climate Change

The environment in Atqasuk, like other rural Alaskan communities, is changing rapidly due to global climate change. Warming in the Arctic is occurring much more quickly than in other regions, and results in thawing land, open water, and a longer warm season. At the National Weather Service station in Utqiagvik, the average annual temperature has increased by 4.9°F (1949-2012). The largest increase has occurred during the winter season, with an astonishing 7.3° increase compared with the substantial increase of 3.2° during the summer season.<sup>36</sup>

Due to increased temperatures, residents of Atqasuk have reported changes to the weather, seasons, landscape, vegetation, and wildlife. These changes have important implications for building and maintaining infrastructure, collecting subsistence foods, accessing clean water, and navigating lands and waters.

Precipitation patterns in the region are anticipated to change, resulting in rainier shoulder seasons and periodic winter rain showers. Warm, dry summers and a diminished winter snowpack can effect water levels in tundra lakes. Tundra lakes can dry and disappear entirely if they are not replenished during break-up. Residents have reported altered freeze and break-up patterns in the region and on the Meade River.<sup>37</sup> Changes to vegetation variety and abundance can be attributed to warming temperatures and altered precipitation patterns. Wildlife ranges and migration routes are also shifting partly in response to vegetation diversity. Porcupine, beaver, coyotes, and lynx have been spotted in increasing numbers near Atqasuk as their range shifts northward.<sup>38</sup>

An increase in the frequency and intensity of extreme weather is also anticipated, and residents have reported thunderstorms occurring more frequently than in the past. Thunderstorms can be damaging to infrastructure and increase the risk of wildfires caused by lightning strikes. More frequent lightning strikes, in addition to warmer and drier summer conditions and an increase in woody vegetation can increase the risk of tundra wild fires. In 2007, the largest tundra fire on record occurred on the North Slope, burning more than 240,000 acres in a single season.<sup>39</sup>

In Atqasuk's changing climate, shallow permafrost is degrading and the seasonal ground thaw zone grows with each year. As the permafrost heats up from temperature increases, ice melts and permafrost thaws, giving off large quantities of both carbon monoxide and methane. The thawed soil 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 carbon dioxide and methane into the atmosphere. Carbon dioxide and methane are greenhouse gases which remain semi-permanently in the earth's atmosphere

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<sup>36</sup> Brubaker M., Bell J., Dingman H., Ahkivgak M., Whiteman D. 2014. *Climate Change in Atqasuk, Alaska, Strategies for Community Health*. Prepared for the Alaska Native Tribal Health Consortium Center for Climate and Health. Accessed Jan. 11, 2017. [www.anthc.org/chs/ces/climate/climateandhealthreports.cfm](http://www.anthc.org/chs/ces/climate/climateandhealthreports.cfm).

<sup>37</sup> Ibid

<sup>38</sup> Ibid

<sup>39</sup> Ibid

and raise temperatures by blocking heat from escaping from the atmosphere.<sup>40</sup> As temperatures rise in the Arctic, there is increasing concern that thawing permafrost will become a major contributor to the greenhouse gas emissions.

Thawing permafrost can also result in landscape subsidence and bank erosion of waterbodies. Atqasuk is vulnerable to thaw-related erosion on the bank of the Meade River and in tundra lakes, especially Imagruaq Lake which serves as the freshwater source for the community. Atqasuk residents have observed riverbank erosion near the cemetery north of town.<sup>41</sup> Bank erosion results in increased sediment deposits as cut banks collapse and fill river beds. Bank erosion and sedimentation contribute to the Meade River becoming wider and shallower, which can restrict river travel by boat. River travel by boat can be restricted making the river wider and shallower.<sup>42</sup> Additionally, erosion in Atqasuk can increase airborne particulates and dust. Particulate matter from cut banks and roadways can cause respiratory problems and can settle into water sources. The roadways in Atqasuk are constructed with sand-rich riverbank material which is more vulnerable to erosion than gravel.<sup>43</sup> Residents have raised concern that surface runoff from town flows into Imagruaq Lake, potentially contaminating the water source. Additionally, permafrost subsidence and a shallow Meade River were also a voiced as a concern to the community during the Strengths, Weaknesses, Opportunities, and Threats (SWOT) workshop held in Atqasuk on November 21, 2016.

Climate change has already begun to alter traditional subsistence activities and harvest patterns for Atqasuk residents. Changes in precipitation can affect berry picking timing and alter the taste and quality of berries. Increased turbidity in waterbodies caused by thaw-induced bank erosion alters habitat for fish. Species health can be affected due to warming temperatures and dietary changes required by shifting vegetation. Impacts to subsistence activities can threaten food security and safety for residents. Ice cellars which are used traditionally to store subsistence foods can be damaged and fail due to permafrost thaw. Flexibility in methods of travel, harvest and storage practices, and targeted species will help subsistence users adjust to the changing climate. The subsistence lifestyle in Atqasuk is discussed fully in Chapter 5.

### 3.11 Science Research

The Alaska Arctic has been studied over the last 120 years, especially over the last 50 years, as researchers realized there is much to learn about the unique ecosystem.<sup>44</sup> Today, scientists study the Alaska Arctic to measure and track sea ice, permafrost, beach erosion, snow properties, and Arctic plants and animals.

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<sup>40</sup> U.S. National Aeronautics and Space Administration. 2017. *Global Climate Change: Causes*. Accessed Jan. 11, 2017. <http://climate.nasa.gov/causes>.

<sup>41</sup> North Slope Borough. 2005. *North Slope Borough Comprehensive Plan, Atqasuk Village Profile*. Prepared by URS Corporation for the North Slope Borough. October 2005. Accessed Jan. 4, 2017. [www.north-slope.org/assets/images/uploads/AtqasukVillageProfile06.pdf](http://www.north-slope.org/assets/images/uploads/AtqasukVillageProfile06.pdf).

<sup>42</sup> Ibid.

<sup>43</sup> Brubaker M., Bell J., Dingman H., Ahkivgak M., Whiteman D. 2014. *Climate Change in Atqasuk, Alaska, Strategies for Community Health*. Prepared for the Alaska Native Tribal Health Consortium Center for Climate and Health. Accessed Jan. 11, 2017. [www.anthc.org/chs/ces/climate/climateandhealthreports.cfm](http://www.anthc.org/chs/ces/climate/climateandhealthreports.cfm).

<sup>44</sup> Arctic Research Consortium of the United States. 2017. *Guidelines for Improved Cooperation between Arctic Researchers and Northern Communities*. Accessed June 20, 2017. <https://archive.arcus.org/guidelines/document.html>.

Scientists often collaborate with local Native communities to gather Traditional Knowledge and learn about trends over time. Utqiagvik has long been a hub for scientific research in the Alaska Arctic.

Scientific studies can occur in winter or summer and often include aerial surveys, satellite surveys, or physical surveys. Physical surveys may involve fixed-wing aircraft, helicopter, and tracked or wheeled vehicles. Studies that take place within the North Slope Borough require a field study permit from the NSB Department of Planning and Community Services. Studies that take place within NPR-A require a permit from the Bureau of Land Management (BLM). Some Native corporations also require a permit when crossing or conducting studies on Native corporation lands. In the summer of 2017, there are over 20 studies being conducted within the NPR-A, including aerial polar bear surveys, animal tracking and tagging, vegetation monitoring, permafrost experimentation, paleontological surveys, snow measurements, fish sampling, and coastal erosion monitoring.<sup>45</sup> Researchers working in the Atqasuk area may benefit from the availability of camp or kitchen facilities. Atqasuk may work with the NSB Planning and Wildlife departments to coordinate on upcoming studies and determine if community residents could provide assistance or other resources to researchers.

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<sup>45</sup> Arctic Research Mapping Application (armap). 2017. Accessed June 21, 2017. <http://armap.utep.edu/armap2d/>.

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## Chapter 4. Population

### 4.1 Historical Population and Population Trends

In 1977, 86 people that once lived in Tigalook, Old Atqasuk, and other locations along the Meade River and its tributaries reestablished the village of Atqasuk. The community has grown steadily to approximately 248 residents today.

The U.S. Decennial Census provides data every ten years on the population of Atqasuk, since 1940, when approximately 78 people lived in the Meade River area. The population dwindled to 49 people in Tikikluk village in 1950. By 1960, the population for Meade River dropped to 30 residents. For unknown reasons, Meade River, Tikikluk village, Atqasook, or Atqasuk do not appear in the 1970 Census. However, by 1980, the population had grown to 107 residents and continues to show a steadily overall increase.

In 2010, the NSB Census reported 268 people residing in the community while the U.S. Decennial Census reported that there were 233 residents, a difference of over 15 percent. This variability could be attributed to the seasonal movement of residents for subsistence activities, the dates in which census takers arrive in the village (often in April of the census year), as well as the diligence of the census takers to count all residents. Also some teachers at Meade River School and their families live elsewhere during the summer months, possibly accounting for minor increases or declines. The North Slope Borough Census, intended to have a more thorough process of counting residents, could account for difference by accurately counting the population that had historically been undercounted.

Table 4 provides a historical perspective of Atqasuk's population since 1940. Complementing Table 4 is Figure 7, graphically depicting population changes between 1940 and 2015 based on the U.S. Decennial Census with the exception of the 2015 population, which is a NSB Census and DCCED-certified population estimate.



Photo Courtesy of Doug Whiteman

**Table 4: Historical Population and Sources, 1940 to 2015<sup>46</sup>**

Year	Population	Community Name	Source
1940	78	Meade River	U.S. Decennial Census <sup>47</sup>
1950	49	Tikikluk village	U.S. Decennial Census
1960	30	Meade River	U.S. Decennial Census
1970	-	NA	U.S. Decennial Census
1977	86	Atqasuk	2003 NSB Census
1980	107	Atqasook	U.S. Decennial Census
1983	321	Atqasuk	2003 NSB Census
1985	248	Atqasuk	2003 NSB Census
1988	221	Atqasuk	2003 NSB Census
1990	216	Atqasook	U.S. Decennial Census
1993	237	Atqasuk	2003 NSB Census
1998	221	Atqasuk	2003 NSB Census <sup>48</sup>
2000	228	Atqasuk	U.S. Decennial Census
2003	250	Atqasuk	2003 NSB Census <sup>49</sup>
2010	268	Atqasuk	2010 NSB Census <sup>50</sup>
	233		U.S. Decennial Census <sup>51</sup>
2015	248	Atqasuk	NSB Census & DCCED Certified <sup>52, 53</sup>

<sup>46</sup> The 2003 North Slope Borough Census provides the Atqasuk population for years between the U.S. Decennial Census; the original source of the population figures are unknown.

<sup>47</sup> U.S. Department of Commerce. U.S. Census Bureau. 2000. *1940 - 2000. Census of Population, Meade River, Tikikluk village, Atqasook, Atqasuk, Alaska*. Accessed Jan. 6, 2017. <http://live.laborstats.alaska.gov/cen/hist.cfm>.

<sup>48</sup> North Slope Borough. 2003. *North Slope Borough 2003 Economic Profile and Census Report, Volume IX*. Prepared by Circumpolar Research Associates Shepro, C., Maas, C. and D. Gallaway.

<sup>49</sup> Ibid

<sup>50</sup> North Slope Borough. 2010. *North Slope Borough 2010 Economic Profile and Census Report Volume X*. Prepared by Circumpolar Research Associates Shepro, C., Maas, C. and D. Gallaway with J. McAnich for the North Slope Borough. Accessed Jan. 3, 2017. [www.north-slope.org/your-government/census-2010](http://www.north-slope.org/your-government/census-2010).

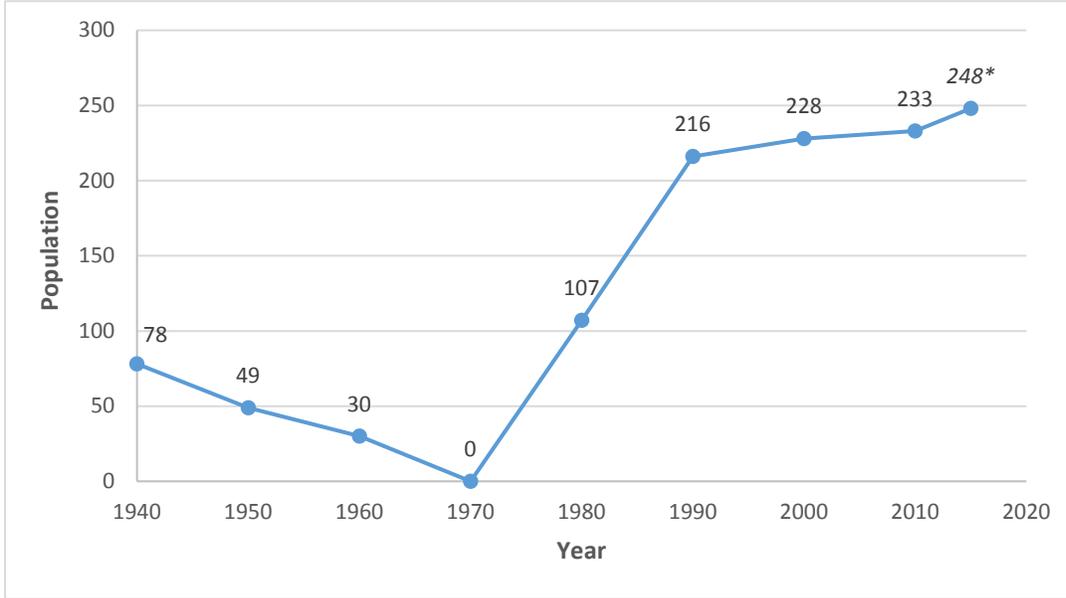
<sup>51</sup> U.S. Department of Commerce. U.S. Census Bureau. 2010. *2010 Decennial Census, Atqasuk city, Alaska State*. Accessed Jan 7, 2017. <http://factfinder.census.gov>.

<sup>52</sup> North Slope Borough. 2015. *North Slope Borough 2015 Economic Profile and Census Report Volume XI*. Prepared by Circumpolar Research Associates Shepro, C., Maas, C. and D. Gallaway and edited by Jason Bergerson for the North Slope Borough. Accessed Jan. 20, 2017. [www.north-slope.org/your-government/nsb-2015-economic-profile-census-report](http://www.north-slope.org/your-government/nsb-2015-economic-profile-census-report).

<sup>53</sup> Alaska Department of Commerce, Community, and Economic Development. 2015. Division of Community and Regional Affairs, Research & Analysis. *Population Adjustment*. Accessed Jan. 6, 2017.

[www.commerce.alaska.gov/web/dcra/ResearchAnalysis/PopulationAdjustment.aspx](http://www.commerce.alaska.gov/web/dcra/ResearchAnalysis/PopulationAdjustment.aspx).

**Figure 7: U.S. Decennial Census, 1940 – 2015 by Decade**



\*2015 population is certified from the Alaska Department of Commerce, Community and Economic Development

Table 5 provides details on specific Atqasuk population characteristics and the changes that have taken place between 2003 and 2014 based on the NSB Census.

The median age of residents has varied considerably for both males and females. The median age of the total population dropped from 27.5 years of age in 2003 to 20 over a seven year period, and up again to 24 in 2014, paralleling the changes seen in median age for females and males over the same time frame. The median age of females has shifted significantly, having dropped 5.5 years between 2003 and 2010 and then increased by seven years between 2010 and 2014.

The average household size has also steadily increased between 2003 and 2014, from an average of 3.67 to 4.18 people per household.

**Table 5: 2003, 2010, and 2014 NSB Census Population Characteristics**<sup>54, 55</sup>

Characteristic	2003	2010	2014
Total Population	250	268	248
Female	48.5%	43.7%	44.1%
Male	51.5%	56.3%	55.9%
Median age of females	27.5	22	29
Median age of males	29	20	21.5
Median age of total population	27.5	20	24
Ethnicity			
Iñupiat, percent	91.4%	92.2%	90%
Caucasian, percent	5.1%	5.6%	8.5%
Other, percent	2.5%	2.2%	1.4%
Iñupiaq speakers (percent of total population that are fluent)	55	42 (18.3%)	28 (14.1%)
Size of labor force	72	112	129
Number of households	74	68	81
Average household size	3.67	3.78	4.18
Iñupiat households	3.98	3.89	Not available
Caucasian households / *Non-Inupiat	*2.18	1.7	Not available

In addition to population increases and decreases, dependency ratios, shown in Table 6, are useful for estimating and preparing for social, economic, health, and educational needs and services. The dependency ratio is a calculation of the proportion of the population not in the workforce who are ‘dependent’ on those of working-age. Those aged under 15 and over 65 years are classified as dependents and those aged 16 to 64 years of age are classified as the working-age population. The youth dependency ratio in 2015 is significantly lower than it was in 2003 and 2010, indicating that there is a lower percentage of the total population that is under the age of 15 than there has been for over a decade. The age dependency ratio has decreased from 2010 and is also lower than it was in 2003, indicating a lower percentage of the population is 65 years old or older. A greater percentage of the Atqasuk population is in the workforce than in previous NSB censuses.

<sup>54</sup> 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. Accessed Jan. 3, 2017. [www.north-slope.org/your-government/census-2010](http://www.north-slope.org/your-government/census-2010)North Slope Borough.

<sup>55</sup> Ibid

**Table 6: Age Distribution and Dependency Ratios, 2003, 2010, and 2014**<sup>56, 57, 58</sup>

Age Range	2003	2010	2014
15 years and under (16 and under in 2014)	36.1%	35.1%	32.7 %
18 years of age and under	42.9%	42.6%	Not available
18 – 24 years of age	4.7%	12.9%	Not available
55 – 64 years of age	7.6%	12.3%	Not available
65 and older	5.9%	6.1%	7.2%
18-64	51.2%	46.6%	Not available
16-64	60.6%	58.9%	62.1%
Youth Dependency Ratio	58.2%	59.5%	32.7%
Age Dependency Ratio	9.2%	10.3%	7.5%
Total Dependency Ratio	67.4%	69.8%	Not available

## 4.2 Natural Population Increase

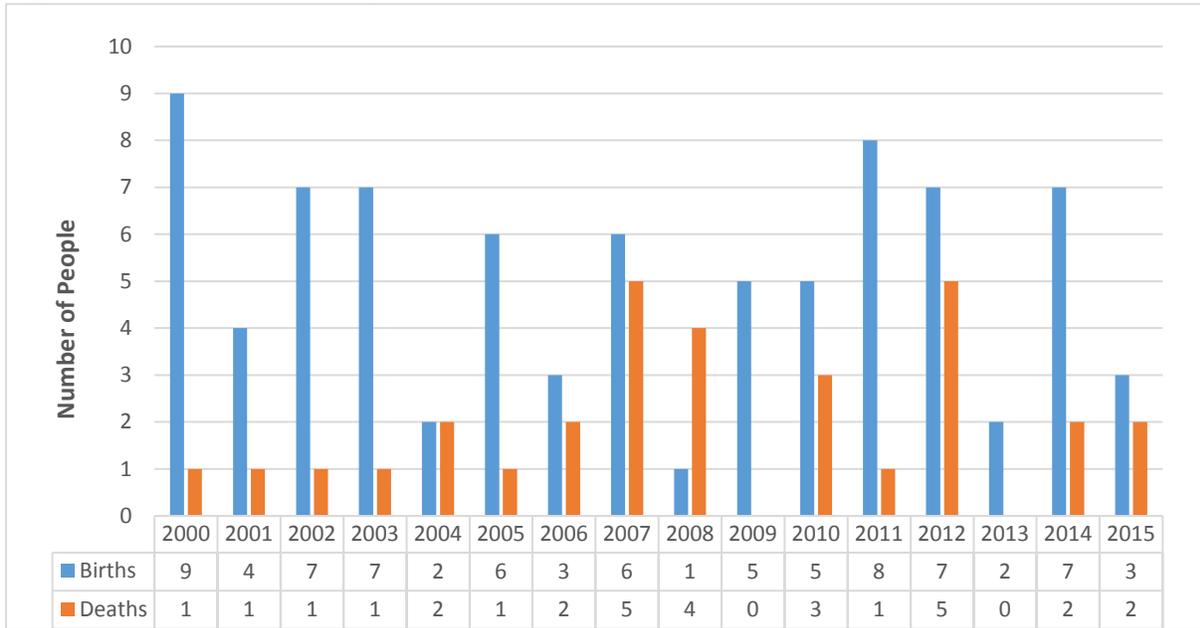
The strongest component of population growth is natural increase, with more births occurring than deaths. Between 2000 and 2015, 82 residents were born and 31 passed away, for a net increase of 51 people. As illustrated in Figure 8, births have been variable over the fifteen-year period, ranging from a low of one in 2008 to a high of nine in 2000; deaths have ranged from a low of zero in 2013 to a high of five in both 2007 and 2012. The number of births have exceeded deaths in all years except in 2004 when births and deaths were equal and 2008 when there were three more deaths than births.

<sup>56</sup> North Slope Borough. 2003. *North Slope Borough 2003 Economic Profile and Census Report, Volume IX*. Prepared by Circumpolar Research Associates Shepro, C., Maas, C. and D. Gallaway.

<sup>57</sup> 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. Accessed Jan. 3, 2017. [www.north-slope.org/your-government/census-2010](http://www.north-slope.org/your-government/census-2010)North Slope Borough.

<sup>58</sup> North Slope Borough. 2015. *North Slope Borough 2015 Economic Profile and Census Report Volume XI*. Prepared by Circumpolar Research Associates Shepro, C., Maas, C. and D. Gallaway and edited by Jason Bergerson for the North Slope Borough. Accessed Jan. 20, 2017. [www.north-slope.org/your-government/nsb-2015-economic-profile-census-report](http://www.north-slope.org/your-government/nsb-2015-economic-profile-census-report).

**Figure 8: Births and Deaths, 2000 – 2015**<sup>59</sup>



### 4.3 In-Migration and Out-Migration

The U.S. and NSB censuses do not collect data on new residents or current residents moving out of the village, also known as resident in-migration and out-migration. Out-migration is usually attributed to high school graduates leaving to attend college, workers seeking employment opportunities elsewhere, or residents 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 the prevalence of in- and out-migration in Atqasuk may be the number of people who applied for the annual Alaska Permanent Fund Dividend (PFD). The PFD program tracks the dividend recipients by zip code. Figure 9 illustrates the combined number of adults and children applicants for the PFD program during the 2000 to 2015 time period.

In 2000, 246 residents of Atqasuk applied to the PFD program, while the U.S. Decennial Census reported a total of only 228 residents for the same year. PFD applicants and U.S. Decennial Census population estimates are closer for 2010 with 229 applicants and an estimate of 233 residents. However, the NSB estimated a population of 268 residents in 2010.

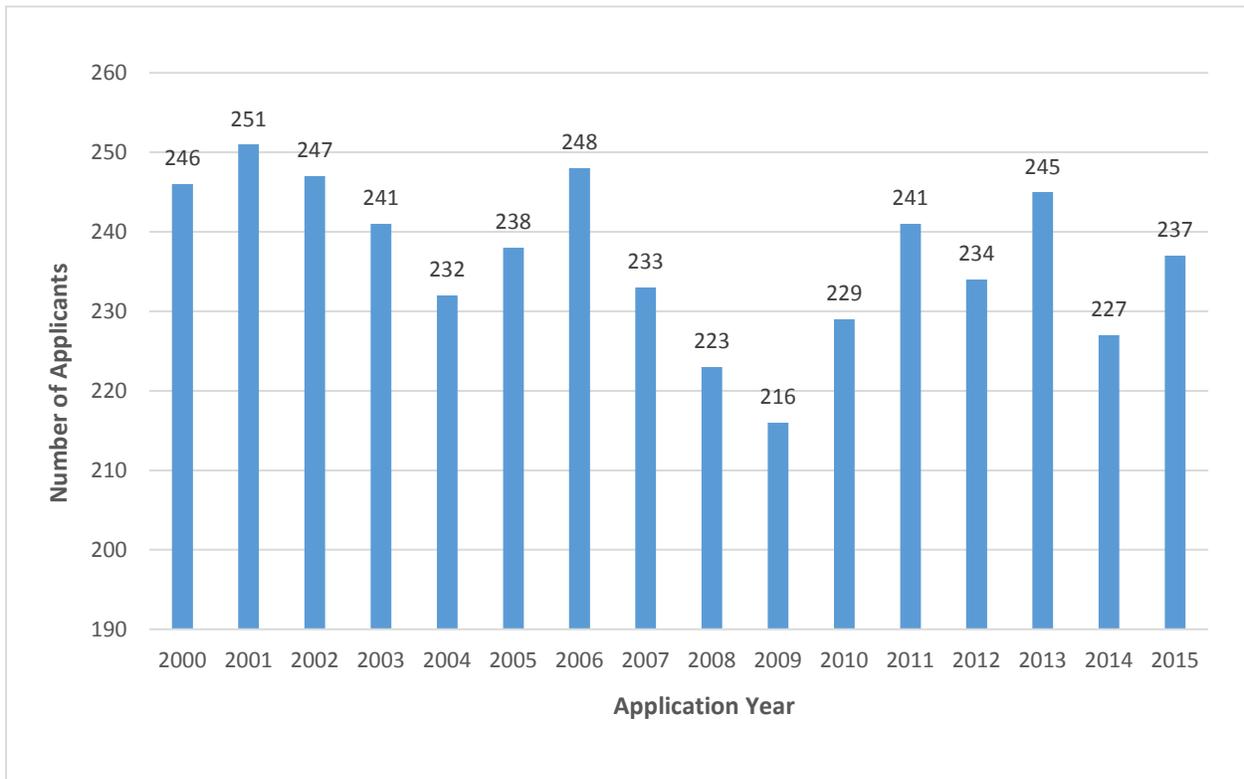
The State of Alaska uses PFD applications in conjunction with birth and death data and the U.S. Census to estimate the population of a community. The number of PFD applications does not always provide an accurate portrayal of a community’s population, leading to an undercount of the existing population and

<sup>59</sup> Gibson, David. Research Analyst II. State of Alaska Vital Statistics. Personal Communication. February 29, 2016.

thus to an estimate that is not reflective of the actual population in the community.<sup>60</sup> There are a number of reasons an Alaska resident would choose not to apply for PFD dividend, including:

- Retain residency in another state;
- Consider the PFD investments unethical;
- Consider it a bribe by oil companies that are buying our approval / silence;
- Too much pride / already receive free health care and other dividends;
- In the military;
- Avoid jury duty or other obligations;
- PFD would be garnished by the state for unpaid child support or other liens.<sup>61, 62</sup>

**Figure 9: Total Permanent Fund Applicants, 2000 to 2015<sup>63</sup>**



<sup>60</sup> North Slope Borough. 2015. *North Slope Borough 2015 Economic Profile and Census Report Volume XI*. Prepared by Circumpolar Research Associates Shepro, C., Maas, C. and D. Gallaway and edited by Jason Bergerson for the North Slope Borough. Accessed Jan. 20, 2017. [www.north-slope.org/your-government/nsb-2015-economic-profile-census-report](http://www.north-slope.org/your-government/nsb-2015-economic-profile-census-report).

<sup>61</sup> Ibid

<sup>62</sup> Theriault Boots, Michelle. 2014. *Why some Alaskans don't apply for the PFD*. Accessed Oct. 4, 2015. [www.adn.com/alaskanews/article/why-some-alaskans-dont-apply-pfd/2014/10/02](http://www.adn.com/alaskanews/article/why-some-alaskans-dont-apply-pfd/2014/10/02).

<sup>63</sup> Alaska Department of Revenue. 2000 – 2015. Permanent Fund Dividend Division. *Annual Reports*. Accessed Jan. 3, 2017. <https://pfd.alaska.gov/Division-Info/Annual-Reports>.

#### 4.4 Population Growth Projections

Calculations of the size of future populations are useful for land use planning; school enrollment; economic development initiatives; transportation and health service needs; infrastructure capacity determinations; water demand assessments; and natural resource management, among others. Population projections used by planners and policymakers 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,<sup>64</sup> availability of land for development, or, as is the case of many rural Alaska communities, the abundance of subsistence wildlife.

The high one percent annual growth rate scenario shown in Table 7 assumes that there is some moderate growth in government services, perhaps coupled with other industry development nearby that may provide jobs for residents in Atqasuk, with a projected population in 2035 of 303 people. The modest growth scenario of one-half percent per year assumes a stable job market in areas of temporary construction and government services, with a projected population in 2035 of 274 people. The no growth rate 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 percent per year, with a projected population in 2035 of 224 people. There are no foreseeable jobs or other economic indicators to support a decade or two with over two percent annual growth rate. Lastly, the linear trend projection assumes that the Atqasuk population will increase or decrease by the same number of people in each future decade as the average per decade increase or decrease observed during the interval between 1990 and 2010. This relatively simple method of projecting the future population is often as accurate as more complex methods.<sup>65</sup> The result is a growth rate of 0.12 percent.

**Table 7: Five, Ten and Twenty Year Population Projections**

Rate of Growth	2015 Base Year State Certified population estimate	5 Year Projection, 2020	10 Year Projection, 2025	20 Year Projection, 2035
<b>Percentage Projection</b>				
High Growth (+1%) <sup>66</sup>	248	261	274	303
Modest Growth (+.5%)		254	261	274
No Growth (-.5%)		242	236	224
<b>Linear Trend Projection</b>				
Linear trend based on 1990 and 2010 U.S Decennial Census	N/A	242	246	254

<sup>64</sup> North Slope Borough. 2003. *North Slope Borough 2003 Economic Profile and Census Report*. Prepared for the North Slope Borough by Circumpolar Research Associates Shepro, C., Maas, C. and D. Gallaway.

<sup>65</sup> Rayer, Stefan. 2008. *Population Forecast Errors: A Primer for Planners*. University of Florida. Accessed May 2, 2016. [www.bebr.ufl.edu/sites/default/files/Research%20Reports/Rayer%20\(2008\)%20-%20JPER.pdf](http://www.bebr.ufl.edu/sites/default/files/Research%20Reports/Rayer%20(2008)%20-%20JPER.pdf).

<sup>66</sup> Public services needs are based on the population projections in this row.

## Chapter 5. Subsistence

### 5.1 Definition of Subsistence

There are a number of definitions of subsistence and many different understandings of its meaning. What is clear is that the term means different things to people based on their cultural upbringing.

The North Slope Borough Municipal Code defines 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.”* (NSBMC 19.20.020)

The State of Alaska defines subsistence uses as

*“...the noncommercial, customary and traditional uses of wild, renewable resources by a resident domiciled in a rural area of the state for direct personal or family consumption as food, shelter, fuel, clothing, tools, or transportation, for the making and selling of handicraft articles out of nonedible by-products of fish and wildlife resources taken for personal or family consumption, and for the customary trade, barter, or sharing for personal or family consumption; in this paragraph, “family” means persons related by blood, marriage, or adoption, and a person living in the household on a permanent basis.”* (AS 16.05.940(33))

Subsistence uses in Section 803 of the federal law Alaska National Interest Lands Conservation Act (ANILCA) is defined as

*“the customary and traditional uses by rural Alaska residents of wild, renewable resources for direct personal or family consumption as food, shelter, fuel, clothing, tools or transportation; for the making and selling of handicraft articles out of nonedible by-products of fish and wildlife resources taken for personal or family consumption; and for the customary trade, barter or sharing for personal or family consumption.”*



Photo Courtesy of Doug Whiteman

While the term subsistence implies the use of natural resources for physical needs, it may not always convey the spiritual and cultural importance of those harvest activities. For Alaska Natives of the North Slope, subsistence is a connection to the land and the way the Iñupiat passed down traditional knowledge through generations. It is not only a way of life, but also the joy of living from the gifts that the Creator provides.

## 5.2 Village Area of Influence

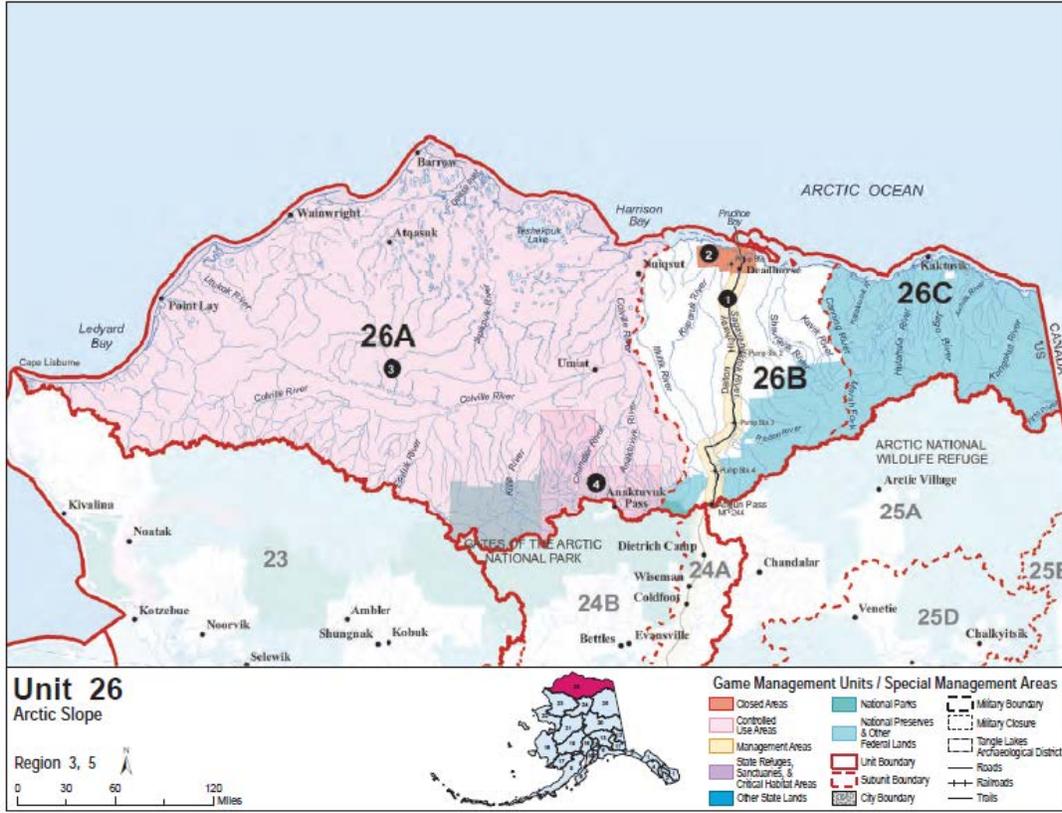
The Atqasuk Area of Influence is a planning boundary outside of the community that identifies the commonly used traditional area used the people of Atqasuk for subsistence activities. The primary purpose of identifying the area of influence is to protect areas that are traditionally important to local residents through the regulation of permitting activities; permit applicants will be required to consult with the appropriate Atqasuk entities to determine final permit stipulations. The Atqasuk Area of Influence is shown on Map 5. It extends from Cape Halkett to the northeast, south approximately 25 miles past the Colville River, west to near the NPR-A boundary, and along the Chukchi and Beaufort seas coastlines. The community's subsistence areas and patterns are determined not only by the seasonality of resources but by the village's geographical position and periodic access limitations. The area of influence overlaps the areas of influence of neighboring villages of Utqiagvik, Wainwright, Atqasuk, and Point Lay, as fits within cultural values for sharing and subsistence. The Atqasuk Area of Influence is not intended to be exclusive, but rather describes the area within which key subsistence resources for Atqasuk are harvested and family traditional uses occur.

In addition to local subsistence requirements and customs, the Alaska Department of Fish and Game (ADF&G) regulates hunting throughout the state. Atqasuk is located within the Game Management Unit 26A, shown in Map 4. Bag limits are defined by state and published annually.<sup>67</sup>

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<sup>67</sup> Specific regulations can be found on the Alaska Department of Fish and Game Hunting Maps by Game Management Unit website at: [www.adfg.alaska.gov/index.cfm?adfg=huntingmaps.bygmu&gmu=26](http://www.adfg.alaska.gov/index.cfm?adfg=huntingmaps.bygmu&gmu=26).

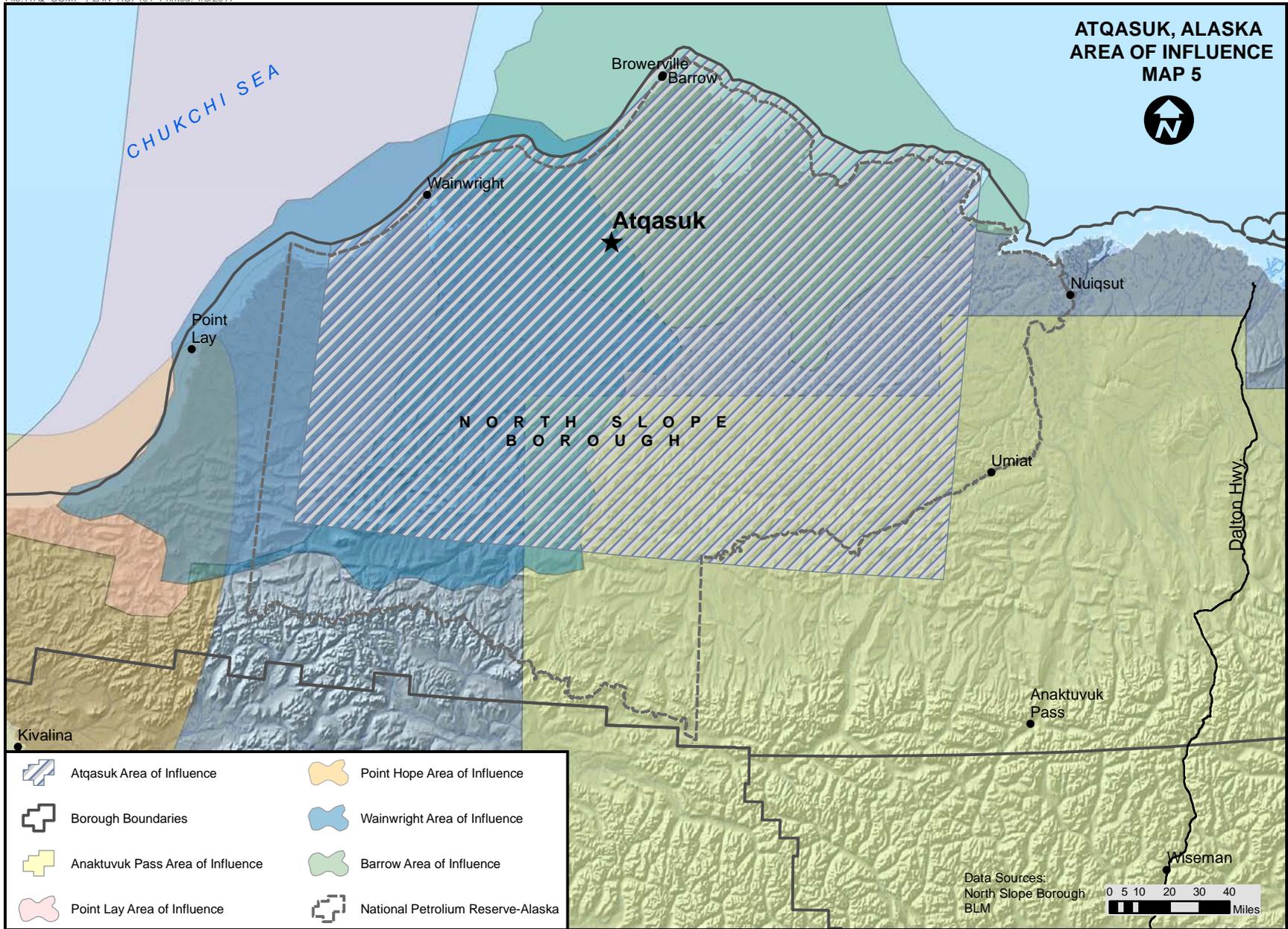
Map 4: ADF&G Game Management Unit 26A<sup>68</sup>



<sup>68</sup> Alaska Department of Fish and Game. 2013. *Game Management Unit (GMU) Information Unit 26A*. Accessed Jan. 19, 2017. [www.adfg.alaska.gov/static/hunting/maps/gmumaps/pdfs/26.pdf](http://www.adfg.alaska.gov/static/hunting/maps/gmumaps/pdfs/26.pdf).

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# ATQASUK, ALASKA AREA OF INFLUENCE MAP 5



- |  |                                  |  |                                   |
|--|----------------------------------|--|-----------------------------------|
|  | Atqasuk Area of Influence        |  | Point Hope Area of Influence      |
|  | Borough Boundaries               |  | Wainwright Area of Influence      |
|  | Anaktuvuk Pass Area of Influence |  | Barrow Area of Influence          |
|  | Point Lay Area of Influence      |  | National Petroleum Reserve-Alaska |

Data Sources:  
North Slope Borough  
BLM

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### 5.3 Atqasuk Subsistence Harvest

Residents rely on a variety of seasonally abundant resources of terrestrial and, marine mammals, fish, and waterfowl for some or all of their diet. River fishing is important as well as the hunting of migratory waterfowl, particularly geese. Some residents will travel to Utqiagvik to participate in bowhead whale hunts as well as to harvest seal and other marine mammals.

The residents of the upper Meade River are also dependent on the caribou of the Western Arctic Herd as a primary subsistence resource and the Teshekpuk Herd to a lesser degree. While considered separate herds, there is some intermingling of caribou in areas where their ranges overlap with each other and other herds, like the Central Arctic Caribou Herd and the Porcupine Caribou Herd. All of these herds are made up of barren ground caribou.

The population of caribou herds varies over time due to natural cycles. Caribou populations can also be impacted by weather, predation, overhunting and development activities. 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 predators, like wolves. As a result of community's dependence of caribou, residents express concern about potential disturbances to the caribou population, including disruption to migration routes.

A seasonal description of subsistence activities is noted below.<sup>69</sup>

**Spring:** Some villagers travel to Utqiagvik to participate in whaling. Hunting furbearers continues until the tundra snow is gone. Caribou provide a critical source of food after depletion of villagers' winter food supplies. Geese are found along interior waterbodies and on the tundra after the snow melts. Brown bear and moose are taken if encountered. Ptarmigan are hunted all year but are mostly sought when they flock together in spring.

**Summer:** Fishing is the primary activity. Gill nets are set as soon as the ice leaves the river in late May or early June. Grayling, whitefish, char and pink salmon are harvested during this time. Any long coast trips, such as to Utqiagvik, the Meade River Delta or the Inaru River, must be taken by early July before the water level drops. Fish and caribou camps are set up along the Meade, lower Nigisaqtugvik, lower Isuqtug rivers and near the village. Berries are gathered in late summer.

**Fall:** Fishing and caribou hunting dominate fall activities. Fish camps are set-up at lakes and geese are hunted along the waterways as they migrate south. After freeze-up, snow machines increase access to more remote hunting areas. By late fall, lake fishing ends but rivers continue to be fished by jigging or with nets.

**Winter:** Furbearer trapping is pursued in winter to some extent. Caribou hunting and river ice fishing for grayling, whitefish and cod occur. December is a time for community celebrations and the sharing of

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<sup>69</sup> North Slope Borough. 2005. *North Slope Borough Coastal Management Plan*.

subsistence foods. By late winter/early spring, fishing activity returns to the Meade River. Some residents travel to the coast for sea mammal hunting.

The availability of subsistence resources in the community's areas of influence and residents' access to those resources may change due to the effects of climate change, noise and nighttime glare, air pollution, fences, roads and pipelines, and low flying aircraft. These and other changes and activity can alter wildlife ecosystems and migratory patterns, causing hunters to travel greater distances, at greater hazards, to secure food resources. 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.

#### **5.4 Subsistence Vulnerabilities**

Subsistence resources and users within the community's areas 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 areas of influence and residents' access to those resources may change due to the impacts of scientific studies and road construction within the area, as well as to the effects of climate change, such as tundra fires. 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. Dryer 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.

## Chapter 6. Public Facilities

### 6.1 Recreation and Community Use Facilities

Atqasuk does not presently have a child care facility but residents have expressed the desire for one. A facility would need to be staffed residents that are trained and certified as child care professionals. Meade River School has both a pool and playground facilities. The pool is open for exclusively for students because teachers also function as life guards. The existing playground was constructed in 1999 - 2000<sup>70</sup> and upgrades are desired by the community as well as an additional playground site.

Residents have also expressed a desire for a teen center, bowling alley, additional gymnasium, ATM/banking services, senior center, and qalgi for larger community gatherings. Additionally, a washeteria with showers is needed for those residents whose homes are not connected to existing water/wastewater system.

The NSB Health Department currently administers the Meals on Wheels and Congregate Meals programs for Atqasuk senior citizens during the regular school year. Transportation and translation services are also provided, as well as assistance in filing out documents.<sup>71</sup>

### 6.2 Public Safety

*Police Department.* The North Slope Borough Police Department, shown in Figure 10, dispatches one full-time police officer to Atqasuk on rotating two week shifts. The first week of assignment, the officer works 11 hours per day. The second week of assignment, the officer works 12 hours per day. The Department also employs one local resident to serve as a Community Public Safety Specialist. The Atqasuk Police Department is a 1,200 square foot facility that includes a two



<sup>70</sup> Wong, Mel. Plant Manager. North Slope Borough School District. Personal Communication. Jan. 19, 2017.

<sup>71</sup> Fischer, Margie. Program Coordinator, Senior Citizen's Program. North Slope Borough Health and Social Services Department. Personal Communication. Jan. 12, 2017.

cell jail, evidence room, office area, garage, and living quarters for the Police Officer dispatched to the community

**Figure 10: Police Department**<sup>72</sup>



Emergency 911 calls are handled through the Police Department Dispatcher in Utqiagvik and relayed to the local police officer and NSB Fire Department personnel. Atqasuk residents can also call a local phone number to report non-emergency incidents to the Police Department. Arraignments for bailable offenses are handled telephonically with the Barrow Superior Court. For more serious crimes, suspects are transported from Atqasuk to Utqiagvik by an Alaska State Troopers Court Services Officer or another North Slope Borough Police Officer. In extreme public safety matters, re-enforcement personnel are flown from Utqiagvik to assist the village police officers.<sup>73</sup>

**Fire Suppression and Emergency Medical Assistance.** The North Slope Borough Fire Department, shown in Figure 11, employs a staff of three in Atqasuk: one village fire chief and two emergency responders. The Atqasuk Volunteer Fire Department has three volunteer emergency responders. The village facility is approximately 4,900 square feet, supplied and maintained by the North Slope Borough. All volunteers and paid staff have basic fire training, cardiopulmonary resuscitation training (CPR) (adult and small child/infant), and are certified emergency trauma technicians. The Fire Department also provides emergency medical technician certification when instructors and funding are available. Fire Department personnel respond to all 911 phone calls, 24 hours per day, 365 days per year.

The Fire Department equipment includes one tanker, one engine truck, one ambulance, one pick-up truck, and one sport utility vehicle. The tanker vehicle holds approximately 2,000 gallons of water with a pump capacity of 750 gallons per minute. The engine vehicle holds approximately 1,000 gallons of water and a pump capacity of 1,250 per minute. The village of Atqasuk has a total of 16 fire hydrants.

**Figure 11: Fire Station**<sup>74</sup>



<sup>72</sup> UMIAQ Design & Municipal Services. 2012. Photo Library. *Atqasuk Police Department*

<sup>73</sup> Rhees, Mick. Sargent. North Slope Borough Police Department. Personal Communication. Dec. 15, 2016.

<sup>74</sup> UMIAQ Design & Municipal Services. 2012. Photo Library. *Atqasuk Fire Department*.

*Search and Rescue Services.* The NSB Search and Rescue Department, shown in Figure 12, lends personal locator beacons to the village and distribution of the personal locator beacons are coordinated through the NSB Village Liaison's Office. If a beacon is activated, an alert is sent to the NSB offices in Utqiagvik and rescue efforts are planned in coordination with the Atqasuk search and rescue and NSB Search and Rescue Department.

**Figure 12: Volunteer Search & Rescue**<sup>75</sup>



If needed, a helicopter is dispatched from the NSB Search and Rescue headquarters in Utqiagvik. Atqasuk's Volunteer Search and Rescue facility is supplied by the NSB. Emergency village evacuation efforts are coordinated through the Atqasuk Volunteer Search and Rescue, Atqasuk Volunteer Fire Department, City of Atqasuk, Atqasuk Corporation, Native Village of Atqasuk, and Meade River School. The Atqasuk Volunteer Search and Rescue and Atqasuk Volunteer Fire Department work cooperatively to best serve the village in search and rescue efforts.<sup>76</sup>

### 6.3 Water System

The North Slope Borough owns and maintains the water treatment plant in the community of Atqasuk. Atqasuk has a piped water system below grade with a nanofiltration treatment process. The below grade water system construction started in 1999 and was completed 2002.<sup>77</sup> It consists of a closed loop water system consisting of 8-inch high-density polyethylene (HDPE) water lines located underneath the road prisms. The initial installation of the water system included 47 residential connections, 7 commercial building connections, and 13 public building connections.<sup>78</sup> There have not been any additional connections since the initial system installation. The system is a pressure circulation distribution system. There are 16 fire hydrants throughout the community to provide water for fire protection, as shown in Map 6. The Atqasuk system does not suffer from the subsidence issues that plague other systems on the North Slope. There have been three leaks in the recent past: two below grade and one located above grade near a service box. The two leaks below grade were small breaks, leaking at about two gallons per minute. All leaks have been repaired.<sup>79</sup>

<sup>75</sup> UMIAQ Design & Municipal Services. 2012. Photo Library. *Atqasuk Volunteer Search and Rescue facility.*

<sup>76</sup> Shugluk, Della. Village Liaison. North Slope Borough Mayor's Office. Personal Communication. Jan. 16, 2017.

<sup>77</sup> Brubaker M., Bell J., Dingman H., Ahkivgak M., Whiteman D. 2014. *Climate Change in Atqasuk, Alaska, Strategies for Community Health.* Prepared for the Alaska Native Tribal Health Consortium Center for Climate and Health. Accessed Jan. 11, 2017. [www.anthc.org/chs/ces/climate/climateandhealthreports.cfm](http://www.anthc.org/chs/ces/climate/climateandhealthreports.cfm).

<sup>78</sup> North Slope Borough. 2002. Village Water and Sewer Project Atqasuk, CIP No. 09-85 and 10-74, Construction Package 2. Prepared by LCMF Incorporated for the North Slope Borough.

<sup>79</sup> Thompson, Caleb. Utilities System Specialist. NSB Public Works Department. Personal Communication. Jan. 11, 2017.

After the initial construction of the water and sewer systems in 2002, about 12 newer homes have been constructed. None of the newer homes are connected to the below grade system;<sup>80</sup> they have holding tanks for water and sewer. The North Slope Borough provides treated water delivery service to the new homes as well as sewage holding tank pumping, which is taken to the sewage lagoon for disposal.

The water treatment plant has a capacity to treat 93,000 gallons per day. Raw water is extracted from Imagrūaq Lake through a 4-inch HDPE above grade arctic grade pipe. Raw water pumping occurs during the summer months when the lake is ice free, pumping up to 93,000 gallons per day. The pumping period typically takes about six weeks to both pump and treat enough to fill the reservoir tanks.<sup>81</sup> The water treatment plant operates 24 hours a day, seven days a week during the summer months and does not pump during the winter months. The raw water is first pumped through a microfilter into an intermediate tank inside the facility. It is then processed through a two stage nanofilter. There is a 3-inch backwash force main that connects from the water treatment plant to an outfall in Kikakrak Lake. When water is pumped into the water treatment plant, the micronano treatment system is capable of treating approximately 70 percent of the water pumped in through the micro- and nanofilters into the storage tanks. The remaining 30 percent is pumped out the force main for disposal at the Lake.<sup>82</sup> There are two water tank reservoirs in Atqasuk with a total capacity of 4 million gallons. One tank holds 1.5 million gallons and the other holds 2.5 million gallons.<sup>83</sup>

Typical water demand in Atqasuk is 34 to 37 gallons per person per day; the analysis in this plan uses 36 gallons per person per day. Table 8 summarizes the estimated usage rate utilizing the population forecast provided in Chapter 4. As indicated, the community is projected to use just under 4,000,000 gallons per year, about 96 percent of the total tanks' capacity. Even with the most aggressive growth rate of one percent, the demand for water can be easily met through 2035 when the usage rate would still be below the storage capacity. The water treatment plant has the capacity to treat the required amount even with a short pumping season of six weeks.

**Table 8: Water Generation and Treatment Forecast for High Growth Rate**

Forecast Year (High Growth Rate, 1 percent)	Population	Daily Flow Usage (Gallons/Village/Per Day)	Proposed Usage per Year (Gallons/Year)
2016	248	8,928	3,142,656
2020	261	9,396	3,307,392
2025	274	9,864	3,472,128
2030	288	10,368	3,649,536

<sup>80</sup> The 12 homes without water and sewer connections was determined by adding the number of residences shown on the 2015 Atqasuk Community Profiles Maps and subtracting the number of homes that were connected to the system between 1998 and 2002.

<sup>81</sup> Thompson, Caleb. Utilities System Specialist. NSB Public Works Department. Personal Communication. Jan. 11, 2017.

<sup>82</sup> Leavitt, Manuluk. Utilities System Specialist. NSB Public Works Department. Personal Communication. Jan. 18, 2017.

<sup>83</sup> Thompson, Caleb. Utilities System Specialist. NSB Public Works Department. Personal Communication. Jan. 11, 2017.

## 6.4 Wastewater System

*Piping System.* The NSB owns and maintains the Atqasuk Wastewater Treatment Plant (WWTP) and wastewater system. The wastewater system was commissioned in 2001 and has not been expanded since the original installation.<sup>84</sup> It is a vacuum system with 6-inch HDPE arctic grade pipe constructed in trenches in the road prisms throughout the community, with three access vaults and 33 clean-outs. A vacuum building located at the terminus of Ouglag Street is needed to maintain the necessary vacuum pressures to move the effluent through the piped system. The access vaults contain shut off valves below grade that allow specific sections of the system to be shut down if problems occur.<sup>85</sup> Like the water system, there were originally 61 service connections which included commercial and residential buildings and the school. Map 7 illustrates the system layout and associated appurtenances. Fifteen homes have been built since 2002 and are not connected to the below grade system; all are utilizing holding tanks for both water and wastewater.<sup>86</sup>

Wastewater is collected by the vacuum mains to the collection stations and from there to the Wastewater Treatment Plant. There are 7,190 linear feet of vacuum collection piping in Atqasuk.<sup>87</sup> There is a sewer force main that allows overflow effluent to be directly channeled from the vacuum station directly out to the wastewater treatment building for treatment. Each house has a 15-gallon sump. When the sump fills, the vacuum system pulls the waste to the vacuum station for ultimate delivery to the wastewater plant. There is a section of abandoned sewer main that used to service the school building and carried effluent directly to an outfall in Kigakrak Lake. This portion of piping and manholes is now abandoned and the school is connected directly into the current system, which carries effluent to the WWTP for treatment before outfalling into the lake.<sup>88</sup>

*Wastewater Treatment Plant.* The WWTP was commissioned for operation in 2001. The WWTP is an extended aeration activated sludge package plant housed in a prefabricated metal building. The design basis of the system, the treatment process, and physical components of the existing facility are described in this section.

The plant utilizes an extended aeration wastewater treatment process with chlorine disinfection. The treatment works is comprised of two secondary activated sludge package plants (treatment trains). Each train has a flow capacity of 5,500 gallons per day, for a total plant capacity of 11,000 gallons per day. Treated effluent is discharged through an outfall that connects from the wastewater plant to Kigakrak Lake. Waste sludge is dewatered, bagged, and then transported to the local landfill for final disposal.

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<sup>84</sup> North Slope Borough. 2012. *Project Analysis Report: Water and Sewer Connections for Atqasuk and Nuiqsut*. Prepared by UMIAQ for the North Slope Borough. Aug. 24, 2012.

<sup>85</sup> Leavitt, Manuluk. Utilities System Specialist. NSB Public Works Department. Personal Communication. Jan. 18, 2017.

<sup>86</sup> Thompson, Caleb. Utilities System Specialist. NSB Public Works Department. Personal Communication. Jan. 11, 2017.

<sup>87</sup> North Slope Borough. 2012. *Project Analysis Report: Water and Sewer Connections for Atqasuk and Nuiqsut*. Prepared by UMIAQ for the North Slope Borough. Aug. 24, 2012.

<sup>88</sup> Leavitt, Manuluk. Utilities System Specialist. NSB Public Works Department. Personal Communication. Jan. 18, 2017.

The plant influent is screened through a rotostrainer and then flow is split into the treatment trains. Screened influent then flows into an aerated equalization basin, which has a capacity of about 1,800 gallons. From the equalization basin, wastewater is pumped to an aeration basin (approximately 5,500 gallons) and then flows into a secondary clarifier (approximately 1,000 gallons excluding cone). From the secondary clarifier, effluent flows over a weir into a chlorine contact chamber (approximately 650 gallons). Some of the required chlorine contact time occurs in effluent piping, which is allowable. Following dechlorination process, effluent is then discharged to Kigakrak Lake Lagoon via the outfall.<sup>89</sup>

The Atqasuk Wastewater Treatment Plant has exceeded the permitted allowed flow of 11,000 gallons per day, especially during public meetings and sports events at the school. Between January 2010 and January 2012 there was 44 recorded overflows, accounting for approximately six percent of the operating interval in which the plant exceeded capacity.<sup>90</sup> Over the same timeframe, the estimated wastewater into the plant averaged approximately 6,912 gallons per day.<sup>91</sup>

The normal daily average flows are well below plant total capacity; homes with sewage holding tank systems do not contribute to the flow into the wastewater treatment plant. By 2035, the average daily flow is projected to be 9,696 gallons per day as shown in Table 9, or about 88 percent of the existing WWTP capacity. The forecast does not include the 15 homes currently on holding tanks. These usage and growth rates indicate that the plant's capacity is sufficient for many years for average daily flow, especially with continued use of wastewater holding tanks. However, given issues reported with exceedances during peak flow, the North Slope Borough is experimenting with a newly developed media membrane in the village of Kaktovik. The membrane is anticipated to increase the plant's capacity to handle peak inflows. If the media membrane is successful in Kaktovik, the NSB will install it in the WWTP in Atqasuk to address the peak flow exceedances. The WWTP will likely still require a facility expansion in the near future, especially if the homes currently utilizing holding tanks are connected to the wastewater system.

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<sup>89</sup> Thompson, Caleb. Utilities System Specialist. NSB Public Works Department. Personal Communication. Jan. 11, 2017.

<sup>90</sup> North Slope Borough. 2012. *Project Analysis Report: Water and Sewer Connections for Atqasuk and Nuiqsut*. Prepared by UMIAQ for the North Slope Borough. Aug. 24, 2012.

<sup>91</sup> Thompson, Caleb. Utilities System Specialist. NSB Public Works Department. Personal Communication. Jan. 11, 2017.

**Table 9: Wastewater Generation and Treatment Forecast for High Growth Rate**<sup>92, 93, 94</sup>

Forecast Year (high growth rate, 1%)	Forecasted Population	Estimated Daily Flow (gallons / village / per day)	Estimated Peak Flow (allons / village / per day)	Treatment Plant Capacity
2016	248	7,936	13,491	11,000
2020	261	8,352	14,198	
2025	274	8,768	14,905	
2035	288	9,216	15,667	

*Sewage Lagoon.* The active sewage lagoon is located on the east side of the community landfill. Septage bags from the WWTP are buried into the landfill. The sewage trucks that pump the above ground holding tanks dump into the lagoon. According to NSB Public Works personnel, the sewage lagoon is sized appropriately for incoming waste and there is not overflow issues.<sup>95</sup>

<sup>92</sup> Forecasts are based on the assumption of 30 gallons per person per day water usage.

<sup>93</sup> A peaking factor of 1.7 is used for this comparison (North Slope Borough. 2012. *Project Analysis Report: Water and Sewer Connections for Atqasuk and Nuiqsut*. Prepared by UMIAQ for the North Slope Borough. Aug. 24, 2012).

<sup>94</sup> The lack of hourly peak flow data in Atqasuk requires using community data with similar water usage, in this case Utqiagvik, as used in North Slope Borough. 2012. *Project Analysis Report: Water and Sewer Connections for Atqasuk and Nuiqsut*. Prepared by UMIAQ for the North Slope Borough. Aug. 24, 2012.

<sup>95</sup> Ibid

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## 6.5 Solid Waste

Atqasuk's landfill is a Class III Material Storage Waste Landfill (MSWLF) and is owned and operated by the NSB. A Class III Landfill is a landfill that accepts less than five tons of municipal waste based on an annual average.<sup>96</sup> The landfill and sewage lagoon in Atqasuk was constructed in 1985 and serves as the community disposal site for municipal wastes, septage, and dried sewage solids. Burnable wastes are incinerated on the south side of the trash landfill area and after incineration, are disposed on the trash landfill active face. The landfill was fitted for a burn cage in 2006. The landfill receives approximately 0.57 tons of waste per day.<sup>97</sup>

The landfill site is located approximately 2.5 miles from the airport which is a sufficient distance per the required FAA separation requirements. It is accessed by the Landfill Access Road. The landfill consists of an active sewage lagoon, a sewage cell and active solid waste landfill, as depicted in Map 8.

A general permit (GP) application has been submitted and is being evaluated by ADEC that will allow the NSB to permit all of the NSB landfill under one general or master permit with standardized expiration dates, closure plans, and reporting procedures at all NSB village landfills. ADEC has authorized a temporary extension to the Atqasuk landfill permit to allow for the GP application to be submitted and the subsequent ADEC review and approval. The permit will extend the landfill permit for another five years.<sup>98</sup>

The landfill is surrounded by security fencing and access gates, and the gates are locked when NSB personnel are not on site, preventing public access. The landfill is not attended with regular hours; dumpsters are provided throughout the village for use by the public for day to day disposal needs.

In Atqasuk, 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

An existing burn cage on site is also permitted for use. Waste material is separated prior to burning. Batteries are recycled by backhauling out of the village. Fluids are removed from discarded vehicles. All waste streams prohibit the placement of hazardous wastes, and commercial demolition must provide statements to NSB Public Works Department that disposed waste are inert in nature, friable asbestos, and lead as part of the coordination for access to use the landfill.

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<sup>96</sup> Alaska Statute. 18.AAC. 60.300 Purpose, Scope, and Applicability: Classes of Landfills. Accessed Aug. 25, 2016. [www.touchngo.com/lglcntr/akstats/aac/title18/chapter060/section300.htm](http://www.touchngo.com/lglcntr/akstats/aac/title18/chapter060/section300.htm).

<sup>97</sup> North Slope Borough. 2011. *Areawide Class III Landfill Permit Application to Alaska Department of Conservation, Solid Waste Division*. June 14, 2011.

<sup>98</sup> Ritz, Paul P.E, UMIAQ Design & Municipal Services. General Permit Application. Personal Communication. Oct. 10, 2016.

The 2011 landfill application submittal for the Atqasuk landfill estimated to receive less than 0.57 tons or 1140 pounds per day of solid waste.<sup>99</sup> For a landfill capacity analysis, five pounds of refuse per person per day is used, including solid waste that will be generated through construction projects and refuse from businesses and public services. At this rate, calculated using the high growth rate of one percent per year, Atqasuk will generate about 436,480 pounds of garbage per year or about 0.62 ton per day. Table 10 extends the figures to amounts generated in tons per year.

Based on the expansion estimates from the GP Permit update and with a maximum one percent growth rate in the village, the estimated remaining life in the landfill is 28.6 years.<sup>100</sup>

**Table 10: Solid Waste Generation Forecast for High Growth Rate**

Forecast Year	Population Count	Pounds of Waste (per day)	Tons of Waste (per year)
2016	248	1,240	218
2020	261	1,305	230
2025	274	1,370	241
2030	288	1,440	253
2035	303	1,515	267

<sup>99</sup> North Slope Borough. 2011. *Areawide Class III Landfill Permit Application to Alaska Department of Conservation, Solid Waste Division*. June 14, 2011.

<sup>100</sup> Ibid



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## 6.6 Power Generation and Fuel Storage

*Power Plant.* The Atqasuk power plant is located on the west side of the village, on Ekosik Street and was constructed in 1987. The plant facility consists of two adjacent structures that house five generators. The plant was built in 2012, with the addition of the new 3508 450 kWh generators along with new switchgear, building controls, and a fire suppression system. The power plant also now includes a new office area, break room, lockers and shower room, and storage space. However, a Project Analysis Report (PAR) was contracted in 2013 to investigate deficiencies in the plant which revealed that the plant has obsolete controls and switchgear. It does not need a major re-build, but some pumps, cranes, and radiators may need upgrades to remain in compliance.<sup>101</sup> The upgrades have not been funded. Power distribution is shown in Map 9.

Together, the five generators, listed in Table 11, have a total power capacity of 3,245 kilowatts (kW). The original power plant building houses two Caterpillar 3508 diesel fired generators rated at 450kW and 425kW, along with and one Caterpillar 3512 diesel fired generator rated at 550kW. Adjacent to this building is a prefabricated metal building added in 2000 that houses two Caterpillar 3512 diesel fired generators rated at 910kW each.<sup>102</sup> The power plant operates using the five generator units listed below:

**Table 11: Power Generator Units**

Unit	Make/Model	Capacity	Serial Number
1	Caterpillar 3508C	450 KW	70Z01076
2	Caterpillar 3508STD	425 KW	70Z00588
3	Caterpillar 3512STD	550 KW	67Z00548
4	Caterpillar 3512	910 KW	67Z02022
5	Caterpillar 3512	910 KW	67Z02021

At this time there are no known deficiencies and all five engines are in good working order. However, in early 2016, generator #5 was plagued with overheating and a high oil temperature issues. With current demand loads, the power plant is able to meet the village needs by running one of the larger Caterpillar 3512 generators most of the time. During the winter season, the monthly peak load is about 450-500 kilowatt hours (kWh). Some higher peaks were reported during colder periods of the winter up through 550 kWh. During summer months this peak load drops to about 325-400 kWh. A single generator can handle the community needs even during most winter days. Even when peak demands are over 500 kWh, one of the larger generators can handle the load.<sup>103</sup>

<sup>101</sup> North Slope Borough. 2013. *Draft Atqasuk Power Plant Upgrade Analysis*. Prepared by McCool Carlson Green Architects for the North Slope Borough.

<sup>102</sup> North Slope Borough. 2013. *Alaska Energy Authority Renewable Energy Fund Grant Application Round VII for the Atqasuk Transmission Line Design and Permitting Project*.

<sup>103</sup> North Slope Borough. 2016. *Atqasuk Summary Power Plant Operator Report*.

During summer, the overall demand drops with peak loads rarely going over 400 kWh. Records of the daily peak loads show the actual demand from the community by the hour, showing that the peak demand usually occurs around 3 to 5pm.<sup>104</sup> Another peak demand is at about 9am. Typically, the larger generators (3512 models) handle the winter loads and the smaller generators (3508 models) handle the summer loads. After 1,000 hours of operation on each generator, they are rotated for regular service. With continuous maintenance and recommended intermittent major overhauls, the generator life is expected to be well over 100,000 hours of operation, or about 11 years.<sup>105</sup>

The five generators combined have an expected life of 55 years. The power plant is well equipped to meet the community demand well past 2035. However, as the population grows, the peak demand will also grow. To meet future demand, two generators may need to be operated in tandem, decreasing the total life efficiency of combined generators.

Table 12 provides projected power usage over the next twenty years. A rate of 2.0 kW per person per day is used to project future peak use with future anticipated population growth, calculated from the estimated peak usage of 500 kW daily. The average winter load of 2.2 kW per person per day is used to project future winter usage, calculated from the estimated peak winter usage of 550 kW daily.

One of the 3512 generators or two of the smaller 3508 generators would be required run in tandem to meet the peak usage rates after 2025. All of the generators in use are de-rated to use ultra-low sulfur fuel per federal regulations. The fuel is not the same consistency nor as heavy as regular diesel fuel, which causes generators to produce less than the intended amount of horse power, thereby producing an overall lower rate of horsepower. The change is minimal for purposes of calculating power loads.

**Table 12: Power Usage Forecast for High Growth Rate**

Forecast Year	Population	Daily Peak Usage (kW/per day)	Average Winter Usage (kW/per day)
2016	248	496	546
2020	261	522	574
2025	274	548	603
2030	288	576	634
2035	303	606	667

<sup>104</sup> North Slope Borough. 2016. *Atqasuk Summary Power Plant Operator Report*.

<sup>105</sup> Mueller, Kim. 2016. NSB Public Works, Power and Light Division. Personal Communication. May 2, 2016.

Additional usage data includes:<sup>106</sup>

- Average Total Monthly Loads - 239,009 kWh
- Average Daily Load – 8,130 kWh
- Average Monthly Fuel Used In Plant – 21,772 gallons
- Average Monthly Power Sold – 257,942 kWh
- Average Monthly Residential Usage (Including seniors) – 53,850 kWh
- Average Monthly Commercial Usage (Including State/Federal) – 184,826 kWh
- Average Monthly Community Facility Usage – 4,695 kWh

The cost of fuel is notoriously high in rural Alaska warranting an analysis of the potential for local, renewable energy sources for electric power generation, such as wind power or microturbines.

*Energy.* Each household uses an estimated average of 800 gallons of heating fuel per year.<sup>107</sup> Diesel fuel is used to heat homes, Meade River School and fuel the generators in the power plant. The power plant uses approximately 266,000 gallons per year, with a monthly usage in winter of about 24,000 gallons per month.

Atqasuk is one of the 184 Alaskan communities that participated in the Alaska Energy Authority's (AEA) Power Cost Equalization (PCE) program in 2015. 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 Atqasuk, electricity costs a flat rate of \$15 for up to 100 kWh, an additional 15cents per kWh for use between 101 to 600 kWh, and 35 cents per kWh for use over 600 kWh. Elders and residents with disabilities are charged \$0.35 per kW when usage exceeds 600 kWh; below 600 kW, there is no charge. Details are provided in Table 13.

**Table 13: Utility Costs**

Utility	Cost
<b>Fuel</b>	
Residential Heating Fuel Delivery cost	\$1.40/gallon
Senior Residential Heating Fuel Delivery cost	\$1.00/gallon
Residential/Commercial Diesel cost	\$4.10/gallon
Senior Diesel cost	\$1.26/gallon
Propane Bottle (100 pounds)	\$350.00
Gasoline (Commercial)	\$4.90 gallon
Gasoline (Residential)	\$4.10 gallon
Gasoline (Senior)	\$3.69 gallon
<b>Electricity (Residential)</b>	

<sup>106</sup> North Slope Borough. 2016. *Atqasuk Summary Power Plant Operator Report*.

<sup>107</sup> North Slope Borough. 2015. *North Slope Borough Draft Regional Energy Plan*. Prepared by WHPacific for the North Slope Borough. Feb. 2015. Accessed Sept. 12, 2016.

[www.north-slope.org/assets/images/uploads/Feb2015\\_draft\\_NSB\\_Energy\\_Plan\\_2.6.15.pdf](http://www.north-slope.org/assets/images/uploads/Feb2015_draft_NSB_Energy_Plan_2.6.15.pdf).

Utility	Cost
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	\$0.30 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

*Fuel.* Atqasuk has fuel storage capacity for 70,000 gallons of gasoline and 580,000 gallons of diesel in the bulk tank farm located on the south side of the community. There are two 285,000 gallon diesel tanks, and one 10,000 gallon diesel tank. In addition, there are two 30,000 gallon gasoline storage tanks and one 10,000 gallon gasoline tank. There are also numerous smaller fuel storage tanks scattered throughout the village. Five tanks located are located at the power plant, each able to hold 17,500 gallons of diesel. They are used solely for fueling the generators at the plant.<sup>108</sup>

<sup>108</sup> North Slope Borough. 2005. *North Slope Borough Comprehensive Plan, Atqasuk Village Profile*. Prepared by URS Corporation for the North Slope Borough. October 2005. Accessed Jan. 4, 2017. [www.north-slope.org/assets/images/uploads/AtqasukVillageProfile06.pdf](http://www.north-slope.org/assets/images/uploads/AtqasukVillageProfile06.pdf).



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## 6.7 Alternative Energy

*Natural Gas Exploration & Distribution.* The Barrow Gas Field Transfer Act of 1984 directs the Secretary of the Interior to convey the subsurface estate of the Barrow gas fields and the Walakpa gas discovery site, related support facilities, other lands and interests to the North Slope Borough for exploration, development, and production of fluid hydrocarbons. The Act further provides easements for operation, development, and transmission of energy to Barrow, Wainwright, and Atqasuk on the land of which UIC-owned surface estate.<sup>109</sup>

While the Barrow Gas Transfer Act authorizes the transmission of energy to nearby North Slope communities, energy developed from the gas fields is not currently distributed outside of Utqiagvik. Transmitting gas to Atqasuk from Utqiagvik would require the construction of both a pipeline and a road to maintain the pipeline. The road alone could cost \$60 million or more and would require regular maintenance. The likely overland route would be along the current ice road route used every winter to haul fuel and gravel from Utqiagvik to Atqasuk.

There may be natural gas on Atqasuk Corporation lands. However, more investigation is needed to determine if there is a viable source of energy for the community.

*Atqasuk Transmission Line.* The idea of constructing a transmission line to carry electrical power from Utqiagvik to Atqasuk has been discussed for many years due to the high cost of fuel for local power plant generators. Currently, fuel is either flown in or transported overland by rollagon or cat train from Utqiagvik to Atqasuk. In 1981, the Utqiagvik village corporation, Ukpeagvik Inupiat Corporation, and the native regional corporation, Arctic Slope Regional Corporation, both endorsed the project with letters of concurrence. More recently, the community of Atqasuk passed a resolution in support of the project and the North Slope Borough Public Works Department and the NSB Grants Division applied for an Alaska Energy Authority grant for Phase I, an in-depth feasibility study for \$175,000, and Phase II, preliminary engineering for \$210,000.<sup>110</sup> This work was completed in 2014. NSB capital funds have been requested to complete project but it remains unfunded.<sup>111</sup> If transmission line is constructed along with the road for line maintenance, a natural gas pipeline could also be considered to transport gas from the Barrow gas fields and Walakpa to Atqasuk.

*Coal.* The North Slope of Alaska contains high quality bituminous and subbituminous coal,<sup>112</sup> which is estimated to be the largest coal resource in the State.<sup>113</sup> There is a coal deposit along the Meade River,

<sup>109</sup> 98th Congress. 1984. S.2762 - Barrow Gas Field Transfer Act of 1984. Accessed April 1, 2017 [www.congress.gov/bill/98th-congress/senate-bill/2762](http://www.congress.gov/bill/98th-congress/senate-bill/2762).

<sup>110</sup> North Slope Borough. 2013. *Alaska Energy Authority Renewable Energy Fund Grant Application Round VII for the Atqasuk Transmission Line Design and Permitting Project.*

<sup>111</sup> North Slope Borough. 2014. *Capital Improvement Program Project Request Form: Atqasuk Transmission Line.*

<sup>112</sup> Arctic Slope Regional Corporation. 2013. *Resource Development.* Accessed Jan. 10, 2017. [www.asrc.com/Lands/Pages/Coal.aspx](http://www.asrc.com/Lands/Pages/Coal.aspx).

<sup>113</sup> U.S. Department of the Interior. U.S. Geological Survey. 2011. *Coal Database for Cook Inlet and North Slope, Alaska.* Prepared by Gary D. Stricker, Brianna D. Spear, Jennifer M. Sprowl, John D. Dietrich, Michael I. McCauley, and Scott A. Kinney for USGS. Data Series 599. Accessed Jan. 7, 2017. <https://pubs.usgs.gov/ds/599/downloads/DS599.pdf>.

approximately one mile south of the community of Atqasuk. Residents have used coal from the Meade River deposit for many generations. The Iñupiaq name Atqasuk means ‘the place to dig the rock that burns.’<sup>114</sup> Coal from the Meade River deposit provided fuel at fishing and hunting camps, and at times coal was mined and transported to Utqiagvik and Wainwright for use by families and the school.<sup>115</sup>

In 1941, a series of U.S. Department of Defense orders opened northern Alaska to coal development. The U.S. Bureau of Education’s Alaska Native Service shipped in mining equipment in September 1943 and commenced stripping an open pit mine on the Meade River. The coal was hauled with tractors and sleds to Utqiagvik where it was sold.<sup>116</sup>

Spring and summer mining was difficult as flood waters would intermittently cover the coal bed, and the Meade River did not have sufficient current to carry away stripped material. Overburden could be 25 feet thick and very expensive to thaw and strip. For these reasons, winter mining was advantageous, however the U.S. Bureau of Mines found that pulling loads with a tractor to Utqiagvik was difficult in the winter. The mine was operated for 10 years, and closed in 1953. The quantity of coal left in the Meade River deposit is currently unknown.<sup>117</sup>

There is ongoing research on the potential of converting coal to natural gas and gasoline. However, the necessary infrastructure to complete the conversion process on the North Slope would require a substantial investment.<sup>118</sup>

*Wind Generation.* Atqasuk has a having a medium potential for development of wind power.<sup>119</sup> In 2010, the Atqasuk Wind Resource Report was prepared for the North Slope Borough which defined the wind power class at a level 3-4 (fair), typical for inland villages. Coastal villages typically rate much higher wind power ratings. For this reason, Atqasuk was not determined to be a good site for further wind development.<sup>120</sup>

*Solar Generation.* During the summer months on the North Slope, there is 24 hours of daylight, while in the winter months, the sun does not rise for several months. According to the draft North Slope Borough

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<sup>114</sup> Bright, William. 2007. *Native American Placenames of the United States*. University of Oklahoma Press.

<sup>115</sup> U.S. Department of the Interior. Bureau of Mines. 1946. *Exploration of Coal Deposits of the Point Barrow and Wainwright Areas, Northern Alaska*. Prepared by Robert S. Sanford and Harold C. Pierce. Accessed Jan. 3, 2017. <https://babel.hathitrust.org/cgi/pt?id=mdp.39015078487736;view=1up;seq=5>.

<sup>116</sup> Ibid

<sup>117</sup> North Slope Borough. 2015. *North Slope Borough Draft Regional Energy Plan*. Prepared by WHPacific for the North Slope Borough. Feb. 2015. Accessed Sept. 12, 2016. [www.north-slope.org/assets/images/uploads/Feb2015\\_draft\\_NSB\\_Energy\\_Plan\\_2.6.15.pdf](http://www.north-slope.org/assets/images/uploads/Feb2015_draft_NSB_Energy_Plan_2.6.15.pdf).

<sup>118</sup> U.S. Department of Energy. Office of Fossil Energy. 2017. *Coal to Liquids*. Accessed Mar. 28, 2017. <https://energy.gov/fe/science-innovation/clean-coal-research/coal-liquids>.

<sup>119</sup> North Slope Borough. 2015. *North Slope Borough Draft Regional Energy Plan*. Prepared by WHPacific for the North Slope Borough. Feb. 2015. Accessed Sept. 12, 2016. [www.north-slope.org/assets/images/uploads/Feb2015\\_draft\\_NSB\\_Energy\\_Plan\\_2.6.15.pdf](http://www.north-slope.org/assets/images/uploads/Feb2015_draft_NSB_Energy_Plan_2.6.15.pdf).

<sup>120</sup> North Slope Borough. 2013. *Alaska Energy Authority Renewable Energy Fund Grant Application Round VII for the Atqasuk Transmission Line Design and Permitting Project*.

Regional Energy Plan,<sup>121</sup> solar power has been shown to defer energy costs. The report states that in Ambler, the five solar panels installed in January 2013 at the power plant (8.4kW) has displaced approximately 700 gallons of diesel fuel for a savings of \$6,000 and a CO<sup>2</sup> offset of 13.08 tons.<sup>122</sup> The benefits are considerable for both energy savings and impacts to the environment and concerns about climate change.

Solar panels are a possible source of alternative energy for Atqasuk, although there has not been any research or conceptual design for solar energy development. Because of the success in other regions of Alaska, it could be a viable option to help reduce the growing cost of conventional power generation. The draft North Slope Borough Regional Energy Plan rated energy improvement opportunities and alternatives in villages across the Slope, indicating that Atqasuk has high potential for solar energy.

Currently, there are no utility scale solar power plants in Alaska; there only small residential and commercial systems.<sup>123</sup> Solar development is driven by the high local cost for electric power. New technology in the field continues to improve the reliability and affordability, even in rural Alaska, but shipping, construction, and general installation costs are higher in Alaska than other states. Systems have been installed in the Arctic Northwest Borough that cost approximately \$55,000 for a 10kW system; \$22,000 covered travel expenses, freight, and labor.<sup>124</sup>

## 6.8 Transportation

Typical of remote Alaska communities, the distance and climate tend to keep Atqasuk residents isolated. The primary modes of transportation in Atqasuk are regional airline flights into and out of the community, vehicles and all-terrain vehicles (ATV)/snowmachines on local roads and trails, small skiffs on the Meade River and Imagrmaq Lake. An elaborate system of 17b trails provides ATV and snow machine travel routes used for recreation and subsistence hunting. In addition, there is a travel route between Utqiagvik and Atqasuk that is used for recreation, fuel hauls, and other materials, including gravel. Future transportations systems could broaden and diversify the region's network and create economic opportunities for the community.

*Airport.* The NSB owns and maintains the public airport at Atqasuk, which is located one mile south of the community. The Atqasuk Airport is formally named the Edward Burnell, Sr. Airport in honor of a renowned village resident. The 90 foot by 4,370 foot gravel airstrip is in good condition, with turnaround areas on both ends of the runway.<sup>125</sup> There is some rutting near the terminus of the apron taxiway, about 1,800 feet from the runway threshold.<sup>126</sup> An existing 280 foot by 580 foot parking apron is located on the north

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<sup>121</sup> North Slope Borough. 2015. *North Slope Borough Draft Regional Energy Plan*. Prepared by WHPacific for the North Slope Borough. Feb. 2015. Accessed Sept. 12, 2016. [www.north-slope.org/assets/images/uploads/Feb2015\\_draft\\_NSB\\_Energy\\_Plan\\_2.6.15.pdf](http://www.north-slope.org/assets/images/uploads/Feb2015_draft_NSB_Energy_Plan_2.6.15.pdf).

<sup>122</sup> Ibid

<sup>123</sup> Renewable Energy Alaska Project. 2016. *Renewable Energy in Alaska*. Accessed Sept.12, 2016.

[www.alaskarenewableenergy.org/why-renewableenergy-is-important](http://www.alaskarenewableenergy.org/why-renewableenergy-is-important).

<sup>124</sup> Ibid

<sup>125</sup> AirNav. 2016. *Atqasuk Edward Burnell Sr. Memorial Airport*. Accessed Jan 5, 2017. [www.airnav.com/airport/PATQ](http://www.airnav.com/airport/PATQ).

<sup>126</sup> Ibid

side of the runway that provides an area for passenger and freight loading and unloading. The non-precision instrumented runway is oriented on a geodetic bearing of 06-24 to align the runway with the prevailing wind and provide 92.72 percent wind coverage for 10.5 knot winds and 96.34 percent of winds at 13 knots. The approach visibility minimum is one mile.<sup>127</sup>

The navigational aids operating at the airport include a four light Precision Approach Path Indicators (PAPI) and Runway End Indicator Lights (REIL). There is a rotating, non-directional beacon, lighted wind cone, and a segmented circle. The runway lights are medium intensity runway lights (MIRL), medium intensity taxiway lights (MITL), and floodlights for apron lighting. There is an Automated Surface Observation System (ASOS) positioned near the loading apron area.<sup>128</sup>

In the 2016 Capital Improvement Project Plan submitted by the North Slope Borough Department of Public Works to the U.S. Department of Transportation Federal Aviation Administration (FAA), lists nine priority upgrades for the Atqasuk Airport over a 20-year planning window. The first is the design, geotechnical, and survey to resurface the Atqasuk Runway. The runway surface has undulations, soft spots, and a reverse crown which does not allow for proper drainage, especially during spring break-up. Soft spots in the runway are a safety concern for landing and taking off aircraft and require constant maintenance. The second item included in the 2016 Capital Improvement Project Plan is the construction of a passenger shelter to provide protection from the elements while waiting for aircraft to land. The terminal building that has been considered in other communities is to renovate a construction project trailer that is used during construction work at the airport, and then transfer it to village ownership after airport construction is complete. A project trailer is skid mounted with insulation, heat, light, and bathroom facilities located on the airport apron and maintained by a local entity. While this project has community support, logistical issues would need to be resolved regarding the cost to maintain and regularly clean the terminal building. The third item in the 2016 Capital Improvement Project Plan is the actual reconstruction of the runway, taxiway, apron, and safety area surfaces to properly crown and grade the surfaces with a good quality crushed aggregate. Without a material source locally to provide the crushed aggregate material, the cost of this work is projected to be \$21 million. Both the terminal building/shelter and resurfacing were funded for design in December 2016 with construction expected beginning in 2020/2021 using 70,000 cubic yards of gravel.<sup>129</sup>

The fourth improvement is to acquire snow removal equipment, specifically a new snow grader, bull blade, and snow blower for the airport. The fifth improvement is to construct a snow removal equipment building, programmed for 2019. Additional listings include rehabilitation of lighting programmed for 2020 and rehabilitation of security fencing and gates and perimeter fencing in 2025. The NSB is seeking federal funding for these improvements.<sup>130</sup>

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<sup>127</sup> North Slope Borough. 2014. *Atqasuk Airport As-Built Airport Layout Plan*. Accessed Jan. 5, 2017. [www.faa.gov/airports/alaskan/airports\\_resources/alp/media/ALP-Atqasuk.pdf](http://www.faa.gov/airports/alaskan/airports_resources/alp/media/ALP-Atqasuk.pdf).

<sup>128</sup> Ibid

<sup>129</sup> Shears, Robert. Community Planning and Real Estate Division Manager. North Slope Borough Department of Planning and Community Services. Personal Communication. Jan. 24, 2017.

<sup>130</sup> North Slope Borough. 2016. *2016 Capital Improvement Project Plan*. Prepared by Hattenburg, Dilley and Linnell for the North Slope Borough Department of Public Works. Jan. 28, 2016.

The Atqasuk 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.<sup>131</sup> Airport operational statistics indicate that there are approximately 44 flights per month; 94 percent are commercial taxi flights, 6 percent are transient general aviation. This data is based on 12 month period ending December 31, 2015.<sup>132</sup> Based on FAA statistics, there were 2,004 passenger enplanements for calendar year 2014, of which 1,755 were commuter or small certified air carrier enplanements. Of these, 1,755 were scheduled flights and 249 were unscheduled.<sup>133</sup> There were no large certified Air carrier enplanements.<sup>134</sup> This enplanement data is used to determine the fiscal year 2016 Airport Improvement Program passenger apportionments.

**Roads.** According to the DCCED community profile maps, Atqasuk has approximately 6.37 miles of developed roadways within the community, all of which are gravel.<sup>135</sup> The 3.37 miles of roads are primarily in town, but also provide access to the NSB material site located on the shore of the Meade River, to the landfill site 2.5 miles to the north of the community, a mile access connecting to the airport south of the community, and a mile north to the cemetery. Most roads and the runway are constructed from material mined from the Meade River or Imagrūaq Lake. The gravel material is sandy gravels (SP). The roads are generally in fair condition with adequate drainage, although there are occasional problems with rutting and potholes. Trucks and ATVs are used year-round to the extent permitted by roads, and snowmachines primarily during the winter. Atqasuk’s roads are shown in Map 10.

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. Some community members have indicated that there is a need for regular public transportation.

Land transportation beyond the community of Atqasuk is limited because there are not road connections to other communities. There are winter routes between Atqasuk and Utqiagvik and is used to transfer fuel and other materials to the village using rollagons. The trail has also been used to haul gravel material from Utqiagvik needed for some maintenance and construction needs. There are 17b trails<sup>136</sup> listed in the Tribal Transportation Program Inventory Data for Atqasuk. About 300 miles of trails are local that

<sup>131</sup> U.S. Department of Transportation. Federal Aviation Administration. 2014. *Advisory Circular AC 150/5300-13A Airport Design Change 1*. Accessed Jan. 5, 2017.

[www.faa.gov/airports/resources/advisory\\_circulars/index.cfm/go/document.current/documentNumber/150\\_5300-13](http://www.faa.gov/airports/resources/advisory_circulars/index.cfm/go/document.current/documentNumber/150_5300-13).

<sup>132</sup> AirNav. 2016. *Atqasuk Edward Burnell Sr. Memorial Airport*. Accessed Jan 5, 2017. [www.airnav.com/airport/PATQ](http://www.airnav.com/airport/PATQ).

<sup>133</sup> U.S. Department of Transportation. Federal Aviation Administration. 2015. *Passenger Boarding (Enplanement) and All-Cargo Data for U.S. Airports*. Accessed Jan. 5, 2017. [www.faa.gov/airports/planning\\_capacity/passenger\\_allcargo\\_stats/passenger](http://www.faa.gov/airports/planning_capacity/passenger_allcargo_stats/passenger).

<sup>134</sup> Ibid

<sup>135</sup> Alaska Department of Commerce, Community, and Economic Development. 2013. *Community Profile Map: Atqasuk 2013*. Accessed Jan. 20, 2017. [www.commerce.alaska.gov/web/dcra/PlanningLandManagement/CommunityProfileMaps.aspx](http://www.commerce.alaska.gov/web/dcra/PlanningLandManagement/CommunityProfileMaps.aspx).

<sup>136</sup> 17(b) easements are rights reserved to the United States that are 60-foot wide roads, 25- and 50-foot trails, and one-acre sites for short-term uses. These rights are reserved when the BLM conveys land to a Native corporation under the Alaska Native Claims Settlement Act (ANCSA). There are no 17(b) easements across public lands. More information can be found at the BLM – Alaska website at [www.blm.gov/ak/st/en/prog/lands\\_realty/17b\\_easements.html](http://www.blm.gov/ak/st/en/prog/lands_realty/17b_easements.html).

provide access for subsistence hunting and fishing areas and remote cabins and Native Allotments. Trails are located on both side of the Meade River and through the community itself as illustrated in Map 11; 17b trails within the community is not common in North Slope villages. Regional trails are also included in Tribal Transportation Program Inventory Data such as the connection trail between Atqasuk and Utqiagvik (60 miles), between Atqasuk and Wainwright (70 miles), and Atqasuk and Nuiqsut (150 miles).<sup>137</sup> Regional transportation is shown in Map 12.

The community has long sought a road connection to Utqiagvik and/or Wainwright. If a transmission line/natural gas pipeline was installed along with the road to maintain it, Atqasuk residents would benefit from the connectivity with reduced prices for not just utilities, but other items that are either delivered on the barge to Utqiagvik and Wainwright or more delivered more regularly via larger aircraft to Utqiagvik.

A road from Utqiagvik to Nuiqsut has been included in a list of priorities sent to President Donald Trump from Alaska Governor Bill Walker in mid-May 2017. Known as the Arctic Strategic Transportation and Resources (ASTAR) Project, the road between Utqiagvik and Nuiqsut is envisioned as the first of several transportation corridors to connect rural communities across the North Slope for resource development. A road between Utqiagvik and Atqasuk is proposed as a subsequent phase. The federal request for the project includes expedited environmental permitting, access to grant funding or cost-sharing through loans, and document support for land planning.<sup>138</sup>

A road connecting Atqasuk with Utqiagvik could have a significant impact on Atqasuk residents, especially for resident access to lower prices and availability of supplies, groceries, flights, etc. in Utqiagvik. There may some North Slope residents relocating to Atqasuk that enjoy living in a village but also want the connection to a larger community. However, because neither of the plans that consider a road between the two communities is planned, designed, or funded, it is difficult to consider potential impacts on the community within this comprehensive plan’s planning timeframe. This plan will be reviewed every two years; as details are available, they will be included to provide an analysis on the potential impact to the community.

*Water Travel.* When the Meade River is ice free, residents travel by boat up and down the river for hunting and recreational purposes. The primary type of boat used is a flat bottomed skiff ideal for shallow river use. Atqasuk is located approximately 60 miles inland from both the Chukchi and Beaufort seas, and shallow river conditions do not allow for barge transportation into Atqasuk, although residents are able to navigate the river in smaller type boats and out to the Beaufort Sea via the Dease Inlet. Residents have noticed that the river is becoming shallower, sometimes making even travel with kayaks difficult.<sup>139</sup>

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<sup>137</sup> North Slope Borough. 2015. *North Slope Borough Draft Regional Energy Plan*. Prepared by WHPacific for the North Slope Borough. Feb. 2015. Accessed Sept. 12, 2016. [www.north-slope.org/assets/images/uploads/Feb2015\\_draft\\_NSB\\_Energy\\_Plan\\_2.6.15.pdf](http://www.north-slope.org/assets/images/uploads/Feb2015_draft_NSB_Energy_Plan_2.6.15.pdf).

<sup>138</sup> Oliver, Shady Grove. 2017. *The Arctic Sounder. Governor prioritizes North Slope road project*. Accessed June 13, 2017. [www.thearcticsounder.com/article/1723governor\\_prioritizes\\_north\\_slope\\_road\\_project](http://www.thearcticsounder.com/article/1723governor_prioritizes_north_slope_road_project).

<sup>139</sup> Brubaker M., Bell J., Dingman H., Ahkivgak M., Whiteman D. 2014. *Climate Change in Atqasuk, Alaska, Strategies for Community Health*. Prepared for the Alaska Native Tribal Health Consortium Center for Climate and Health. Accessed Jan. 11, 2017. [www.anthc.org/chs/ces/climate/climateandhealthreports.cfm](http://www.anthc.org/chs/ces/climate/climateandhealthreports.cfm).



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# ATQASUK, ALASKA REGIONAL TRANSPORTATION MAP 12



CHUKCHI SEA

Wainwright

Barrow

Atqasuk

Point  
Lay

NORTH SLOPE BOROUGH

Data Sources:  
Alaska Department of Natural Resources  
Land Records Information Section

- Trails
- Airports (ADOT)
- Borough Boundary



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## 6.9 Snow Fences

The North Slope Borough maintains snow fences in seven of its eight communities. There are eleven primary snow fences in Atqasuk which provide snow coverage from prevailing winds. A 2011 North Slope Borough snow fence assessment identified four of the fences were in need of repair. NSB Public Works Department staff also conduct repairs as needed.<sup>140</sup> Ten of the existing fences are located along the east side of the village located between the village and the Meade River and an addition one is located on the west side, 320 feet in length, protecting the water treatment plant and water storage tanks. The fences are the lay-down style and the snow board portion is eight feet in height. On the eastern side of the community, the fence sections are perched on natural elevated river banks for maximum protection, but far enough away from both Tikiluk Street and Nayukok Street edges to minimize snow drifting in the street corridor. They range in length from 400 feet to smaller sections of 200 feet, placed to provide snow protection the entire length of the community, from the south end of the village to the north. Map 13 shows the location of both the existing and proposed snow fences.

Two new fences have been proposed to allow for protection at the airport.<sup>141</sup> Easterly winds drift snow over the runway and apron, requiring constant snow removal during and after wind events. The maintenance at the runway is a safety concern for the community.

There are some concerns about the tundra degradation caused by the accumulated snow on the downwind side of fences. In Atqasuk, this may be less of a concern because of the location of their current fences near the river embankment allow for natural drainage sloping away from village infrastructure to the river with river access for adequate runoff of water from accumulated snow.

## 6.10 Gravel

Gravel is needed to build roads, pads, and related civil projects and maintenance of the community existing infrastructure. Options considered for providing granular fill materials suitable for road and pad construction in Atqasuk include mining material from Imaġruaq Lake (core sand material), mining material from sand bars along the Meade River, and hauling material from Utqiaġvik and Prudhoe Bay. Gravel and sand deposits near the community have been identified in earlier gravel studies completed as early as 1982. These early reports identified Imaġruaq Lake and sites along the Meade River adjacent to the village as potential material sources and identified an earlier dredging project provided the granular materials to construct the existing gravel embankments in the community. There is still material located in these locations, but the cost to purchase dredge equipment, mobilize, and dredge is cost prohibitive. Current permitting requirements for dredging in the Meade River are expected to be significantly more stringent, or not achievable.<sup>142</sup> Permitting of river work is still possible with State regulatory agencies, but the

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<sup>140</sup> North Slope Borough. 2011. *Project Analysis Report: Areawide Snow Fence and Tundra Degradation*. Prepared by UMIAQ for the North Slope Borough. Feb. 9, 2011.

<sup>141</sup> Ibid

<sup>142</sup> North Slope Borough. 2014. *Project Analysis Report: Areawide Gravel Resources*. Prepared by UMIAQ for the North Slope Borough. Feb. 14, 2014

Department of Natural Resources (DNR) would require a hydrology report be completed before approving a permit.<sup>143</sup> The Atqasuk Corporation Board has stated that they believe there is a gravel source on their Corporation lands and support gravel exploration and potential development by the North Slope Borough.<sup>144</sup>

Material needs in Atqasuk are critical. Additional investigations upstream of previously studied areas on the Meade River could be considered using shallow sampling equipment, which is fairly inexpensive. This work can be done during summer months. A Hilti drill, drilling 2-inch holes to the 8-10 foot depth range will allow a determination as to whether the material is suitable. If areas are determined to contain useable material, additional analysis would be required to determine whether material mining is cost effective based on distance from the community and quantities.<sup>145</sup>

Inupiat Community of the Arctic Slope and Native Village of Atqasuk are jointly seeking to procure grant funds to investigate potential gravel sources in Atqasuk area. The grant funds would fund a broad area geophysical survey of the region surrounding the community. The survey method utilizes aerial resistivity technology, followed by field surveys, and is then corroborated by field borings to prove-up any potential gravel resources.<sup>146</sup>

A quantity survey was completed in 2013 and the remaining stockpiles at the lake's edge and the river's edge are depleted.<sup>147</sup> The two depleted stockpiles are shown in Map 14. Due to access issues, mining and dredging from a river source is expensive and time intensive because it must be done in winter months with use of ice roads. The stockpiling and mining of the existing material was primarily mined this way, and from multiple sites up the river.

The North Slope Borough has contracted with SKW Eskimos to haul 10,000 cubic yards of material during the winter of 2017 from the Utqiagvik SKW gravel pit. The gravel will be used for NSB Public Works Department operations and annual maintenance needs within the Atqasuk community.<sup>148</sup>

A 2014 report conducted to investigation gravel resources slope-wide indicated that in an average year, 1,800 cubic yards of gravel is used for regular maintenance for roads, landfill cover, water and sewer repair in Atqasuk.<sup>149</sup> The NSB Public Works Director determined that 10,000 cubic yards of gravel is enough to

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<sup>143</sup> North Slope Borough. 2014. *Project Analysis Report: Areawide Gravel Resources*. Prepared by UMIAQ for the North Slope Borough. Feb. 14, 2014

<sup>144</sup> Atqasuk Corporation. Special Board Meeting with NSB to discuss the Atqasuk draft Comprehensive Plan. Feb. 7, 2017.

<sup>145</sup> North Slope Borough. 2014. *Project Analysis Report: Areawide Gravel Resources*. Prepared by UMIAQ for the North Slope Borough. Feb. 14, 2014

<sup>146</sup> North Slope Borough. 2014. *Capital Improvement Program Project Request Form: Sand & Gravel Exploration & Minesite Development*.

<sup>147</sup> Shears, Robert. Community Planning and Real Estate Division Manager. North Slope Borough Department of Planning and Community Services. Personal Communication. Jan. 24, 2017.

<sup>148</sup> Ibid

<sup>149</sup> North Slope Borough. 2014. *Project Analysis Report: Areawide Gravel Resources*. Prepared by UMIAQ for the North Slope Borough. Feb. 14, 2014

maintain the surface of the roads and airport for four years, slightly more than the estimated amount from the 2014 report.<sup>150</sup> The amount of necessary material is dependent on whether there are larger capital projects planned, or if major repairs are needed to infrastructure and system repairs above and beyond the anticipated normal use quantities. The limited gravel supply coupled with the cost of purchasing and transporting gravel from Utqiaġvik drives the cost of the larger projects considered in Atqasuk, often making the very large ones cost prohibitive. Without a regional gravel source near the village, the cost to ship in necessary gravel is very high, since using a rollagon train is the only option available, other than finding a new source near the village.

With potential oil development north of Atqasuk in Smith Bay or elsewhere in the NPR-A, supporting ice road construction may benefit Atqasuk for future overland routes for material hauling into the village. There has been also some interest in potential development of a material source in Peard Bay, about 30 miles from Atqasuk. The Peard Bay area has only been hypothesized as a source of gravel; there is no known source deposit there. This area requires geotechnical exploratory investigation. The work could be completed in the summer using wash coring, which can be done from small Lund type skiffs. A water jet is used to probe the bay bottom, forcing material through a probe pipe.

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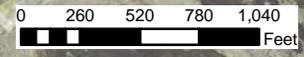
<sup>150</sup> Atqasuk Corporation. Special Board Meeting with NSB to discuss the Atqasuk draft Comprehensive Plan. Feb. 7, 2017.

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# ATQASUK, ALASKA SNOW FENCES MAP 13



-  Existing Snow Fence
-  Proposed Snow Fence
-  Snow Accumulation Area (350 ft.)
-  Snow Cover Protection Area (2,000 ft.)



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## 6.11 Communications

Telecommunications facilities serving Atqasuk include a fully digital local exchange telephone service, local dial-up Internet, cellular telephone, cable television, public radio broadcast, and the community access public teleconferencing center. 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. The Alaska Teleconferencing Network provides NSB and City of Utqiagvik teleconferencing service to the village.

High speed fiber optic telecommunication infrastructure is planned for some arctic communities. Quintillion, an Alaska-based company, is currently developing a subsea fiber optic communication network linking six remote Alaska communities with the existing terrestrial fiber optic network supplying Prudhoe Bay, Alaska. 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, Utqiagvik, and Oliktok Point (Prudhoe Bay). Fiber optic connects are not planned for Atqasuk at this time.

Currently, the North Slope Borough is closely following the development of satellite-based broadband internet providers such as OneWeb and SpaceX as they race to be first in providing seamlessly integrated global data constellation of micro-satellites at fiber comparable speeds that may provide improved connectivity for the entire North Slope community.<sup>151</sup>

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<sup>151</sup> Shears, Robert. Community Planning and Real Estate Division Manager. North Slope Borough Department of Planning and Community Services. Personal Communication. Jan. 24, 2017.

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## Chapter 7. Education, Health & Economy

### 7.1 Education

Meade River School provides education for students from pre-school through 12<sup>th</sup> grade. The current FY 2016/2017 school year has an enrollment of 78 students, with 10 teachers, one counselor, one principal, and 13 support staff.<sup>152, 153</sup> The school bus transportation system runs six times per day and stops at approximately 40 homes per day.

Meade River School, pictured on the right and in Figure 13, provides afterschool tutoring and basketball for middle and high school students. The school also sponsors open gym for the middle and high schools during the regular school year. The school library was open during the first semester of the 2016-2017 school year but due to the librarian's extended leave, was not open to the public for the spring semester.<sup>154</sup>

The school was originally constructed in 1981 with 25,171 square feet of space. An additional 7,903 square feet was added in 1984 for the mechanical wing. In 1995, a pool and shop were added to the facility, totaling an additional 6,194 square feet. A 1,850 classroom addition was built in 2003. The school is currently undergoing a \$5.3 million renovation.<sup>155</sup> Additions include gymnasium entry vestibules and a home economics expansion totaling 463 square feet.<sup>156</sup> The entire square footage of the school is 41,581 and the capacity, based on the 2012 International Building Code's maximum occupancy for educational



<sup>152</sup> North Slope Borough School District. 2016. *Meade River School*. Accessed Dec. 20, 2016. [www.nsbds.org/Domain/18](http://www.nsbds.org/Domain/18).

<sup>153</sup> Hunt, Ben. Student Records Manager. North Slope Borough School District. Personal Communication. Feb. 14, 2017.

<sup>154</sup> Rosebury, Emily. Meade River School Principal. North Slope Borough School District. Personal Communication. Jan. 12, 2017.

<sup>155</sup> Dionne, Kathy. Controller. UIC Construction. Personal Communication. Jan. 17, 2017.

<sup>156</sup> Alaska Department of Education and Early Development. 2016. *School Facility Information: School Facility List for Building List for Meade River School*. <https://education.alaska.gov/facilities/SchoolFacilityReport/SchoolFacBuilding.cfm?PK=36009001>. Accessed Apr. 4, 2017.

facilities, is 379 occupants.<sup>157</sup> However, the current classroom configuration may need to be reviewed if there were a significant increase to the student population. NSBSD administrators in Point Lay have expressed the desire for future school expansion.

School enrollment has been steady over the last eighteen school years, as shown in Table 14. Student enrollment was at its lowest point in the early 2000s, at about 70 students, rising quickly to 92 students during the 2002-2003 school year (SY), only to decrease again to 79 students the following year. Since the 1999-2000 SY, enrollment peaked in 2007-2008 and has remained steady since then with about 70 to 80 students.

**Figure 13: Meade River School<sup>158</sup>**



Often school enrollment increases as the population increases, providing insight into the size and make-up of the future workforce. In 2015, there were 24 children under the age of five in Atqasuk. These children are or will be entering pre-kindergarten or kindergarten over the next couple years, and school enrollment should rise only slightly. There were 21 residents between the ages of 15 - 19 in 2015; the new, younger students may only slightly offset graduating students.

<sup>157</sup> International Code Council. 2012. *International Building Code*. Falls Church, Va.: International Code Council.

<sup>158</sup> UMIAQ Design & Municipal Services. 2016. Photo Library. *Meade River School*.

**Table 14: Meade River School Enrollment, 1999-2000 School Year (SY) to 2016-2017 SY<sup>159</sup>**

School Year	Number of Students
1999-2000	71
2000-2001	70
2001 -2002	82
2002-2003	92
2003-2004	79
2004-2005	82
2005-2006	90
2006-2007	81
2007-2008	94
2008-2009	76
2009-2010	77
2010-2011	77
2011-2012	76
2012-2013	71
2013-2014	78
2014-2015	78
2015-2016	65 <sup>160</sup>
2016-2017	78 <sup>161</sup>

Utqiagvik-based Iḷisaġvik College offers distance education courses for Atqasuk residents. The college and the North Slope Borough School District entered into a partnership to support students advancing academically. NSBSD students have the opportunity to take courses for both high school and college credit. The Atqasuk Teleconference Center has computers available for students enrolled in online courses offered through the college. The North Slope Borough employs a village liaison who is available to assist students with enrolling, ordering textbooks, and basic computer troubleshooting. Iḷisaġvik College also has a village liaison and board of trustee in each North Slope village.<sup>162</sup>

Educational attainment of residents is shown in Table 15. Nearly one quarter of Atqasuk residents have a high school diploma, up from 17 percent in 2010. However, those with some college has decreased by nearly four percent over the same timeframe. The number of children that have not yet started school has decreased by more than half over the last five years, and is more consistent with the number that has yet to begin school in 2003.

<sup>159</sup> Alaska Department of Education and Early Development. 2015. *Report Card to the Public*. [https://education.alaska.gov/Alaskan\\_Schools](https://education.alaska.gov/Alaskan_Schools). Accessed December 20, 2016.

<sup>160</sup> North Slope Borough School District. 2016. *School Report Card for 2015-2016 School Year: Meade River School*. Accessed Dec. 20, 2016. [www.nsbdsd.org/cms/lib01/AK01001879/Centricity/Domain/38/4.%20ATQ%20Report%20Card.pdf](http://www.nsbdsd.org/cms/lib01/AK01001879/Centricity/Domain/38/4.%20ATQ%20Report%20Card.pdf).

<sup>161</sup> Hunt, Ben. Student Records Manager. North Slope Borough School District. Personal Communication. Feb. 14, 2017.

<sup>162</sup> LeClair, Caitlin. Recruiter. Iḷisaġvik College. Personal Communication. Jan. 4, 2017.

**Table 15: Educational Attainment, 2003 - 2015**<sup>163</sup>

Individual Highest Level of Education	2003		2010		2015	
	Number	Percent	Number	Percent	Number	Percent
Has not started school	17	10.0%	34	15.1%	13	6.2%
Elementary School	29	17.2%	28	12.4%	35	16.7
Middle School	19	11.3%	15	6.7%	19	9.1%
High School	13	7.7%	22	9.8%	19	9.1
Did not finish high school	24	14.2%	29	12.9%	26	12.4%
High School diploma	31	18.4%	39	17.3%	50	23.9%
GED	3	1.8%	15	6.7%	9	4.3%
Vocational/Tech graduate	2	1.2%	-	-	5	2.4%
Some College	19	11.3%	31	13.8%	19	9.0%
Bachelor’s Degree	8	4.8%	6	2.7%	6	2.8%
Master’s Degree	4	2.4%	6	2.7%	5	2.4%
Professional Degree	0	0	-	-	3	1.4%
<b>Total</b>	169	100%	225	100%	211	100%

The 2015 NSB Census reports that over 20 percent of survey respondents indicated they are dissatisfied with both school classes and the quality of instruction at Meade River School, at 22 and 22 percent respectively and higher than most of the other North Slope communities. Thirty-one percent of Atqasuk survey respondents reported that the school is not adequately preparing students for life after high school, in line with many of respondents of other North Slope communities.<sup>164</sup>

## 7.2 Health

Personal health is influenced by many factors, and using conventional health indicators can only tell one part of the story. In 2010, Atqasuk adults were half as likely to report *very good to excellent* health and twice as likely to report *fair or poor* health as were adults in the NSB overall. However, there was not a single chronic health issue seemed to account for a lower-than average general health rating reported by Atqasuk adults.<sup>165</sup> Specific health indicators from 2010 are provided below in Table 16.

<sup>163</sup> North Slope Borough. 2015. *North Slope Borough 2015 Economic Profile and Census Report Volume XI*. Prepared by Circumpolar Research Associates Shepro, C., Maas, C. and D. Gallaway and edited by Jason Bergerson for the North Slope Borough. Accessed Jan. 20, 2017. [www.north-slope.org/your-government/nsb-2015-economic-profile-census-report](http://www.north-slope.org/your-government/nsb-2015-economic-profile-census-report).

<sup>164</sup> Ibid

<sup>165</sup> 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. Accessed Jan. 3, 2017. [www.north-slope.org/your-government/census-2010North Slope Borough](http://www.north-slope.org/your-government/census-2010North Slope Borough).

**Table 16: 2010 Self-Reported Health Indicators<sup>166</sup>**

Characteristic	Atqasuk Adults	NSB Adults	State of AK Adults
Very good or excellent general health	21%	46%	56%
Fair to poor general health	34%	16%	13%
Tobacco use	61%	49%	22%
Obese ATQ heads of households / All NSB and AK adults	26%	39%	28%
Two or more soda/sugar sweetened beverage consumption/day ATQ heads of households / All NSB and AK adults	29%	45%	30%

While people’s health is influenced by personal decisions, it is also shaped by how a community is designed, built, and used, such as land use, road network, and the location or existence of parks, recreation facilities and other services. People tend to be more active when they can easily walk or have access to recreational facilities. Land use, typically addressed by comprehensive planning and land use regulations, affects the quality of life in many ways, such as the location of recreational facilities, pedestrian safety and existence and location of greenhouses or community gardens. Also important are access to a healthy diet, physical activity, and a healthy environment.

Adequate access to healthy food is critical in achieving and maintaining a nutritious diet. Healthy eating is associated with a lower risk for chronic diseases such as diabetes, hypertension and obesity. According to the U.S. Department of Health and Human Services’ Office of Disease Prevention and Health Promotion, healthy eating and regular physical activity can help achieve and maintain good health while also reducing the risk of chronic disease. The 2015-2020 Dietary Guidelines provides five overarching guidelines that encourage healthy eating:

- Follow a healthy eating pattern across the lifespan;
- Focus on variety, nutrient density, and amount;
- Limit calories from added sugars and saturated fats and reduce sodium intake;
- Shift to healthier food and beverage choices; and
- Support healthy eating patterns for all.

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 Atqasuk, like much of rural Alaska, the quality and availability of store-bought food is subject to fluctuations outside the control of local residents. Atqasuk residents have expressed desire for access to a greater variety of food and that supplies are limited in the local store. In addition to availability, access

<sup>166</sup> 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. Accessed Jan. 3, 2017. [www.north-slope.org/your-government/census-2010North Slope Borough](http://www.north-slope.org/your-government/census-2010North Slope Borough).

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 play in Atqasuk.

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.

According to the 2015 North Slope Borough Social and Economic Profile and Census, all of Atqasuk's Iñupiat households' diets included at least some subsistence foods, consistent from 2010. Those Iñupiat households whose diets consisted of half or more of subsistence foods appears to have decreased slightly over the same time period, from 66.7 percent in 2010 to 56.9 percent in 2015. The percentage of Iñupiat households whose entire diet is derived from subsistence foods has also decreased: from 14.6 percent in 2010 to 2 percent in 2015.<sup>167 168</sup>

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 pool or other recreational facilities could facilitate increased physical activity. Although Meade River School has a pool for student use, it is not available for community use due to the lack of a life guard. The playground equipment is also older and should be updated to facilitate exercise and potentially serve as a social gathering area for parents and grandparents.

Atqasuk residents are provided healthcare services by Arctic Slope Native Association (ASNA) and the NSB Department of Health and Social Services. The NSB Health & Social Services Department provides the village health care clinic facility, pictured in Figure 14, and staffs the Community Health Aide. Currently the NSB employs two itinerant health aides. The clinic also employs has one maintenance employee and one community Health representative/secretary. Atqasuk residents fill both of these positions. The NSB has periodically employed a resident health aide but cannot always find qualified staff. The Community Health Aides at the Health Clinic also oversee the local morgue.<sup>169</sup> More serious health conditions are

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<sup>167</sup> North Slope Borough. 2015. *North Slope Borough 2015 Economic Profile and Census Report Volume XI*. Prepared by Circumpolar Research Associates Shepro, C., Maas, C. and D. Gallaway and edited by Jason Bergerson for the North Slope Borough. Accessed Jan. 20, 2017. [www.north-slope.org/your-government/nsb-2015-economic-profile-census-report](http://www.north-slope.org/your-government/nsb-2015-economic-profile-census-report).

<sup>168</sup> 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. Accessed Jan. 3, 2017. [www.north-slope.org/your-government/census-2010North Slope Borough](http://www.north-slope.org/your-government/census-2010North Slope Borough).

<sup>169</sup> Sheehan, Glenn. Community Health Aide Program (CHAP) Manager. North Slope Borough. Personal Communication. Jan. 12, 2017.

referred to the regional health care facility, ASNA-operated Samuel Simmonds Memorial Hospital in Utqiagvik.

Services provided by the NSB Health and Social Services:

- Village health clinic facility and community health aide program
- Public Health Nursing
- Village eye care
- Arctic Women in Crisis
- Women, Infant, Children Program
- Children and Youth Services
- Senior Services
- Veterinary Clinic Services/Public Health Office

**Figure 14: Health Clinic**<sup>170</sup>



Health services provided by ASNA:

- Medical housing and travel
- Funeral assistance and travel
- Primary health care
- Dental services
- Behavioral health service
- Screening for Life:
  - Office visits
  - Mammogram and clinical breast exams
  - Pap tests
  - Prostate cancer screening tests
  - Colorectal cancer screening tests
  - Lung cancer screening tests
  - Health education
  - Health care coordination

Services that are not available in Atqasuk that residents indicated would be beneficial:

- Visiting doctors
- Mental health support and resources
- Yearly student physicals

<sup>170</sup> UMIAQ Design & Municipal Services. 2016. Photo Library. *Atqasuk Health Clinic*.

### 7.3 Economy

Atqasuk, like other rural North Slope communities, has an economy that includes both subsistence activities and cash. Full time employment opportunities are limited, and the majority of residents depend on subsistence foods and goods as well as corporate and government dividends for their livelihood.

*Subsistence Contribution to the Economy.* Subsistence activities fulfill a critical need in the mixed economy by providing food and raw materials for clothing, artwork, and crafts. The subsistence contribution also includes trade of subsistence resources within and outside of the community, bartering food and services, and sharing food with elders and those who cannot participate in harvest activities. In addition to economic inputs, subsistence activities also provide cultural identity and spiritual sustenance, described in detail in Chapter 5.

Although subsistence activities provide economic value in Atqasuk, that value is difficult to quantify. Subsistence foods provide outstanding nutrition and help to meet dietary needs. In 2015, over 98 percent of households in Atqasuk reported using subsistence foods.<sup>171</sup> Considering the high costs of goods, fuel, and transportation in rural Alaska, subsistence harvests may reduce food costs by providing a local source of nutrition. With few full-time employment opportunities in the community, utilizing subsistence foods can help residents adjust to smaller or seasonal incomes.

Subsistence users incur significant expenses for fuel and equipment. Required equipment may include ATVs, snow machines, boats, rifles, ammunition, nets, traps, knives, harpoons, rope, baskets, tubs, freezers; all of which help subsistence users hunt, harvest, and keep subsistence food and goods. In 2015, the average household cost of subsistence activities in Atqasuk was \$4,425.<sup>172</sup> Cash income provides the means to purchase equipment, tools and supplies to make subsistence harvest more efficient.

Likely due to this expense, households with higher incomes harvest more subsistence foods than lower income households statewide.<sup>173</sup> Sharing of subsistence foods ensures lower income households and those that cannot take part in subsistence activities can still benefit nutritionally and economically from the harvest. Some residents use subsistence goods to produce artwork and crafts for sale such as masks, mittens, dolls, yo-yos, ulus and parkas to generate cash income.<sup>174</sup> Additionally, subsistence foods can be helpful locally to barter for services or other goods.

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<sup>171</sup> North Slope Borough. 2015. *North Slope Borough 2015 Economic Profile and Census Report Volume XI*. Prepared by Circumpolar Research Associates Shepro, C., Maas, C. and D. Gallaway and edited by Jason Bergerson for the North Slope Borough. Accessed Jan. 20, 2017. [www.north-slope.org/your-government/nsb-2015-economic-profile-census-report](http://www.north-slope.org/your-government/nsb-2015-economic-profile-census-report).

<sup>172</sup> Ibid

<sup>173</sup> Alaska Department of Fish and Game. N.d. Division of Subsistence. *Alaska's Economies and Subsistence*. Accessed Nov. 16, 2016. [www.adfg.alaska.gov/static/home/library/pdfs/subsistence/ak\\_economies\\_subsistence.pdf](http://www.adfg.alaska.gov/static/home/library/pdfs/subsistence/ak_economies_subsistence.pdf).

<sup>174</sup> North Slope Borough. 2017. *Our Communities: Atqasuk*. Accessed Jan. 6, 2017. [www.north-slope.org/our-communities/atqasuk](http://www.north-slope.org/our-communities/atqasuk).

*Employment and Income.* The cash economy includes wage income, dividends, and government payments. According to the 2015 North Slope Census, the labor force in Atqasuk is comprised of 129 individuals, or 52 percent of the total population. Approximately 52 percent of the labor force has been able to secure full-time employment, while approximately 17 percent work part-time, temporary, or seasonal jobs.<sup>175</sup> The vast majority of individuals, 86 percent according to the State of Alaska, are employed in the public sector; and the remaining 14 percent are private sector employees.<sup>176</sup> Majority of local jobs are provided by the NSB and the NSB School District, with the City of Atqasuk, and the Atqasuk Corporation also providing some local employment. Per capita income from wages in 2015 was \$7,283, a decline of 17 percent from 2010 when per capita wage income was reported as \$8,800. Table 17 details the labor force and income for 2003, 2010, and 2015 from the NSB Census. In addition to employment, income can be generated from the sale of artwork and crafts. In 2005, approximately 14 percent of the Atqasuk households reported income from the sales of crafts.<sup>177</sup>

**Table 17: Labor Force and Income**

<b>Employment Characteristics of Labor Force</b>	<b>2003<sup>178</sup></b>	<b>2010<sup>179</sup></b>	<b>2015<sup>180</sup></b>
Full time employment	32.3%	45.5%	51.7%
Temporary / seasonal employment	10.8%	14.4%	13.3%
Part-time employment	2.4%	8.3%	3.3%
Unemployed	8.3%	28.8%	11.7%
Retired	7.6%	3%	20%
<b>Income Characteristics</b>	<b>2003</b>	<b>2010</b>	<b>2015</b>
Average household income	\$59,833	70,883*	\$54,874
Per capita income	\$29,036	27,334*	\$16,644

\*2010 American Community Survey 5-year estimate

<sup>175</sup> North Slope Borough. 2015. *North Slope Borough 2015 Economic Profile and Census Report Volume XI*. Prepared by Circumpolar Research Associates Shepro, C., Maas, C. and D. Gallaway and edited by Jason Bergerson for the North Slope Borough. Accessed Jan. 20, 2017. [www.north-slope.org/your-government/nsb-2015-economic-profile-census-report](http://www.north-slope.org/your-government/nsb-2015-economic-profile-census-report).

<sup>176</sup> Alaska Department of Labor and Workforce Development. 2017. *Alaska Local and Regional Information – Atqasuk city*. Accessed Jan. 4, 2017. <http://live.laborstats.alaska.gov/alari/index.cfm?r=4&b=19&p=23&goplace=go>.

<sup>177</sup> North Slope Borough. 2005. *North Slope Borough Comprehensive Plan, Atqasuk Village Profile*. Prepared by URS Corporation for the North Slope Borough. October 2005. Accessed Jan. 4, 2017. [www.north-slope.org/assets/images/uploads/AtqasukVillageProfile06.pdf](http://www.north-slope.org/assets/images/uploads/AtqasukVillageProfile06.pdf).

<sup>178</sup> North Slope Borough. 2003. *North Slope Borough 2003 Economic Profile and Census Report, Volume IX*. Prepared by Circumpolar Research Associates Shepro, C., Maas, C. and D. Gallaway.

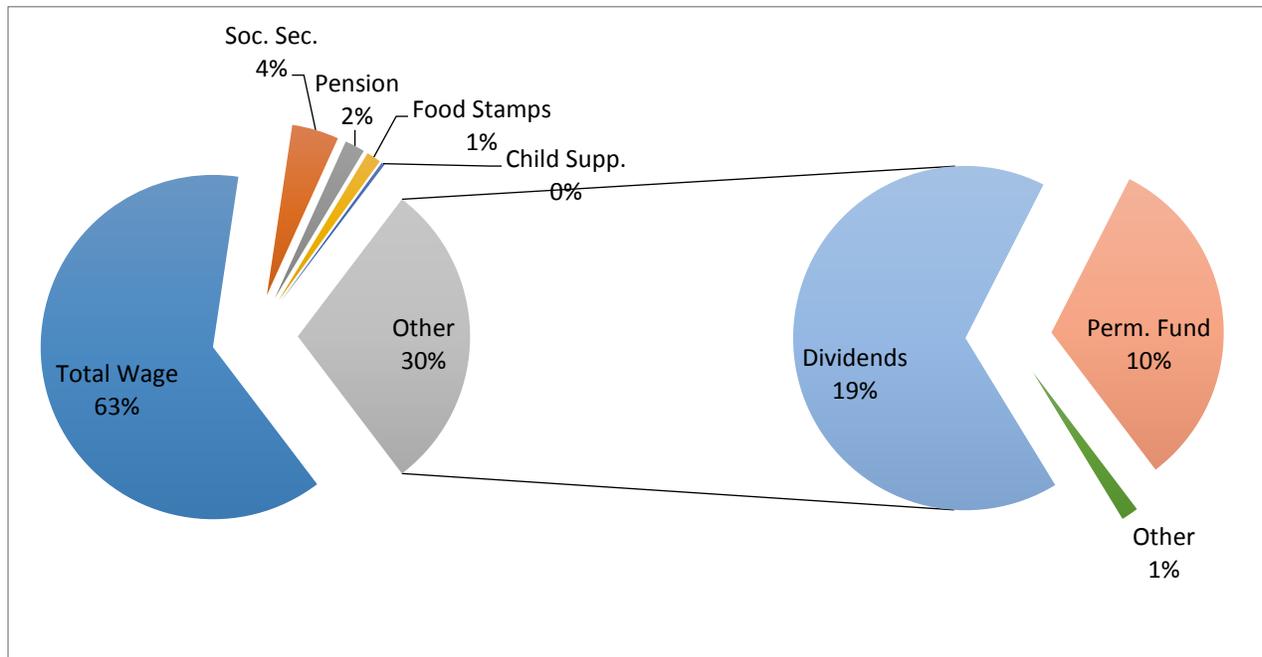
<sup>179</sup> North Slope Borough. 2010. *North Slope Borough 2010 Economic Profile and Census Report*. Prepared by Circumpolar Research Associates Shepro, C., Maas, C. and D. Gallaway with J. McAnich for the North Slope Borough. Accessed Jan. 3, 2017. [www.north-slope.org/your-government/census-2010](http://www.north-slope.org/your-government/census-2010) North Slope Borough.

<sup>180</sup> North Slope Borough. 2015. *North Slope Borough 2015 Economic Profile and Census Report Volume XI*. Prepared by Circumpolar Research Associates Shepro, C., Maas, C. and D. Gallaway and edited by Jason Bergerson for the North Slope Borough. Accessed Jan. 20, 2017. [www.north-slope.org/your-government/nsb-2015-economic-profile-census-report](http://www.north-slope.org/your-government/nsb-2015-economic-profile-census-report).

Dividends and government payments supplement earned income and are a large contributor to the cash economy. In 2015, dividends from corporate and state sources comprised approximately 28 percent of household income in Atqasuk.<sup>181</sup> Dividend moneys include Alaska Native Claims Settlement Act (ANCSA) corporation shareholder payments and Alaska Permanent Fund Dividend (PFD) payments. The regional ANCSA Corporation, Arctic Slope Regional Corporation (ASRC) provides an annual dividend to shareholders. Currently the local ANCSA village corporation, Atqasuk Corporation, is not in an economic position to provide shareholders with dividends. The Alaska PFD is provided annually to Alaska residents from a pool of invested oil revenue. In 2016, the Alaska PFD payout was capped at \$1,000, less than half of the previous year’s dividend. In 2010, the average household dividend income in Atqasuk was \$24,387. By 2015, this number had decreased by 47 percent to 12,868.<sup>182</sup>

Social security and foods stamps also contribute to local income. In 2015, households in Atqasuk on average received 4 percent of their total household income from social security benefits, and one percent of their total household income from food stamps.<sup>183</sup> Figure 15 details the average household contribution of income sources in Atqasuk.

**Figure 15: Percent Contribution to Household Income From All Sources<sup>184</sup>**



<sup>181</sup> 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. Accessed Jan. 3, 2017. [www.north-slope.org/your-government/census-2010](http://www.north-slope.org/your-government/census-2010)North Slope Borough.

<sup>182</sup> North Slope Borough. 2015. *North Slope Borough 2015 Economic Profile and Census Report Volume XI*. Prepared by Circumpolar Research Associates Shepro, C., Maas, C. and D. Gallaway and edited by Jason Bergerson for the North Slope Borough. Accessed Jan. 20, 2017. [www.north-slope.org/your-government/nsb-2015-economic-profile-census-report](http://www.north-slope.org/your-government/nsb-2015-economic-profile-census-report).

<sup>183</sup> Ibid

<sup>184</sup> Ibid

There are two stores operating in Atqasuk. The Tauqsigvik Store sells groceries, clothing, first-aid supplies, hardware, fuel, and sporting goods and P&J Store sells frozen food, soda pop, and other food items. Both are privately owned. The Atqasuk Corporation's Meade River Store is located next to the post office. The store is not currently operational and is being renovated. There are fifteen total active business licenses in Atqasuk:<sup>185</sup>

- City of Atqasuk
- D&B Quick Stop (2 licenses)
- Della Hoya's Bakery
- Dougworks
- H&R Videos (2 licenses)
- J&P Store (2 licenses)
- Maggie Hopson
- Mary Lou Kippi
- P&J Store
- Tauqsigvik(3 licenses)

Oil and gas revenues play a significant role in the economics of the North Slope Borough and in Atqasuk. Funding for water and sewer facilities, schools, health clinics, fire stations, and local roads and airports is provided by local and state oil revenues. ASRC also owns business that provide oil field services.

Jobs, however, remain scarce, and unemployment high. As in many of Alaska's rural communities, those in Atqasuk with full-time work are employed by the City of Atqasuk, North Slope Borough School District, North Slope Borough, and Native Village of Atqasuk. Although there is considerable effort to hire locally, and to educate, train, and develop local capability, there remains a need to recruit from outside the region.<sup>186</sup>

The Atqasuk Corporation recently developed the groundwork for a Strategic Plan. The draft document includes a vision for the Atqasuk community that focuses on economic development through a strong local economy with ample jobs and encourages meaningful work, self-sufficiency, and responsible development based on Iñupiaq values.<sup>187</sup> Specific business development and job creation objectives include:

- Seeking funding or contracting for environmental remediation;
- Analyzing former small businesses in the community for current viability;
- Focusing on 8(a) Business Development Program opportunities;
- Working with the national Science Foundation on leases and support services;
- Creating job shadowing and training programs; and
- Developing partnerships with NSBSD, Iḷisaḡvik, and ASRC, among others.

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<sup>185</sup> Alaska Department of Commerce, Community and Economic Development. 2017. *Corporations Business & Professional Licensing*. Accessed May 25, 2017. [www.commerce.alaska.gov/cbp/Main/Search/Businesses](http://www.commerce.alaska.gov/cbp/Main/Search/Businesses).

<sup>186</sup> Szymoniak, Glen. North Slope Borough School District Superintendent. Personal Communication. Apr. 4, 2016.

<sup>187</sup> Atqasuk Corporation. 2016. *Atqasuk Corporation Strategic Plan*.

Alaskans in many rural communities such as Atqasuk 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 Atqasuk, focusing on both existing conditions and future housing needs.

## Chapter 8. Housing

### 8.1 Existing Conditions

The 2010 NSB Census indicates that there were 61 housing units in Atqasuk, including one mobile homes/trailers; 50 single family homes; six buildings with three to four housing units each; and four buildings with five or more units each. The 61 housing units from the 2010 NSB Census represents an increase of 10 total housing units since 2003.<sup>188</sup>

The 2011 – 2015 American Community Survey (ACS) 5-Year Estimates reported 60 housing units, of which 52 were occupied and eight were vacant.<sup>189</sup> The ACS also indicated that nearly half of the housing stock (48.1 percent) were constructed 1980 and 1999 with 38.5 percent built between 1960 and 1979. No new house were reportedly constructed between 2010 and 2014.<sup>190</sup> The majority (81 percent) of homes are single family detached and the remaining 19 percent are a mix of attached homes or small multi-unit buildings. About four percent of Atqasuk homes have one bedroom; 63.5 percent have two to three bedrooms; and 30.8 percent have four or more bedrooms.<sup>191</sup> Table 18 provides additional housing characteristics.



<sup>188</sup> 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](http://www.north-slope.org/your-government/census-2010)North Slope Borough.

<sup>189</sup> U.S. Department of Commerce. U.S. Census Bureau. 2010. *2010 Decennial Census, Atqasuk city, Alaska State*. Accessed Jan 7, 2017. <http://factfinder.census.gov>.

<sup>190</sup> U.S. Department of Commerce. U.S. Census Bureau. *2011 – 2015 American Community Survey 5-Year Estimates – Atqasuk city, North Slope Borough, Alaska State*. <http://factfinder.census.gov>. Accessed Jan. 17, 2017.

<sup>191</sup> Ibid

**Table 18: 2000, 2010, and 2015 Housing Characteristics**<sup>192, 193, 194, 195</sup>

Housing Characteristic	2000		2010		2015	
	Number	Percent	Number	Percent	Number	Percent
Total number of housing units	60	100%	68	100%	81	100%
Occupied housing units	55	91.7%	64	94.1%	75	92.6%
Vacant housing units	5	8.3%	4	5.9%	6	7.4%
Owner occupied homes (of occupied units)	46	83.6%	29	45.3%	NA	NA
Renter occupied homes (of occupied units)	9	16.3%	35	54.7%	NA	NA
Percentage of overcrowding*	NA	NA	13 of 85 units	15.3%	4 of 52 units	7.7%
Percentage of severe overcrowding*	NA	NA	18 of 85 units	21.2%	6 of 52 units	11.5%

*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 estimated that 21.4 percent of the population in the seven remote North Slope villages reside in overcrowded conditions.<sup>196</sup> The 2011-2015 American Community Survey (ACS) 5-Year Estimates indicates that in 2015, 19.2 percent of Atqasuk households were either overcrowded or severely overcrowded, approximately three times the national average.

In a 2015 unpublished white paper prepared by Tagiumiullu Nunamiullu Housing Authority (TNHA), major housing issues facing North Slope communities are identified and potential solutions are analyzed. The paper indicated that there is dramatic housing need in Atqasuk; 49 families are living in overcrowded conditions with a shortage of 14 homes. This housing shortage results in multiple

<sup>192</sup> \* for all overcrowding figures denotes that the date source is ACS 2011-2015 American Community Survey 5-Year Estimates; all but the overcrowding data for 2015 is taken from the 2015 NSB Census; the remaining data is from the 2000 and 2010 U.S. Decennial Census.

<sup>193</sup> U.S. Department of Commerce. U.S. Census Bureau. 2010. *2010 Decennial Census, Atqasuk city, Alaska State*. Accessed Jan 7, 2017. <http://factfinder.census.gov>.

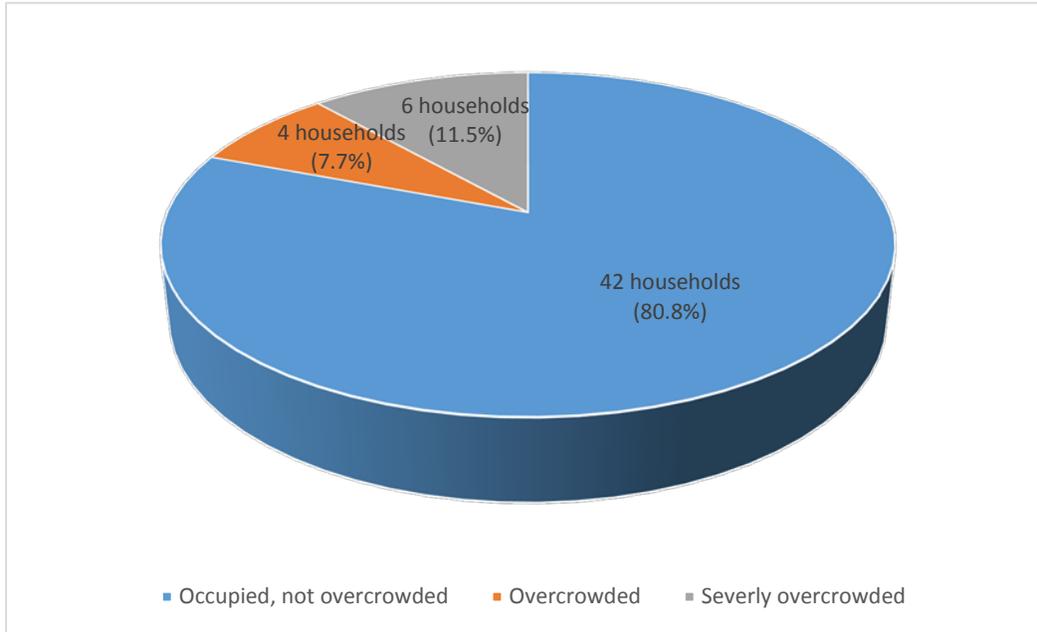
<sup>194</sup> North Slope Borough. 2015. *North Slope Borough 2015 Economic Profile and Census Report Volume XI*. Prepared by Circumpolar Research Associates Shepro, C., Maas, C. and D. Gallaway and edited by Jason Bergerson for the North Slope Borough. Accessed Jan. 20, 2017. [www.north-slope.org/your-government/nsb-2015-economic-profile-census-report](http://www.north-slope.org/your-government/nsb-2015-economic-profile-census-report).

<sup>195</sup> U.S. Department of Commerce. U.S. Census Bureau. *2011 – 2015 American Community Survey 5-Year Estimates – Atqasuk city, North Slope Borough, Alaska State*. <http://factfinder.census.gov>. Accessed Jan. 17, 2017.

<sup>196</sup> 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](http://www.ahfc.us/efficiency/research-information-center/housing-assessment).

generations living under one roof in overcrowded conditions.<sup>197</sup> The 2010 U.S. Census and 2011-2015 ACS 5-Year Estimates substantiate the extent of overcrowding in Atqasuk; the extent of overcrowded households depicted in Figure 16.

**Figure 16: Incidence of Housing Overcrowding**<sup>198, 199</sup>



**Housing Affordability.** 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.<sup>200</sup>

The average household income in 2015 in Atqasuk was \$54,874.<sup>201</sup> Thirty percent of the average household income is \$16,462 indicating that as per the HUD definition, affordable housing would need to be less than \$16,462 annually or approximately \$1,372 monthly for the average household. The median owner costs for owner occupied housing units was \$488 and for renters it was \$850.<sup>202</sup> These figures indicate that the majority of homeowners and renters in Atqasuk are not cost-burdened. Housing costs, as a percent of household income, are shown in Figure 17 for Atqasuk, the NSB, and the State of Alaska.

<sup>197</sup> Tagiugmiullu Nunamiullu Housing Authority. 2015. *North Slope Borough Housing: A Brief Analysis of Issues and Options with Budgetary Quotes*. Unpublished white paper.

<sup>198</sup> U.S. Department of Commerce. U.S. Census Bureau. 2011 – 2015 American Community Survey 5-Year Estimates – Atqasuk City, North Slope Borough, Alaska State. <http://factfinder.census.gov>. Accessed Jan. 14, 2017.

<sup>199</sup> The 2011 – 2015 American Community Survey 5-Year Estimates a total of 52 homes

<sup>200</sup> U.S. Department of Housing and Urban Development. 2016. *Affordable Housing*. Accessed Feb. 2, 2016. [http://portal.hud.gov/hudportal/HUD?src=/program\\_offices/comm\\_planning/affordablehousing](http://portal.hud.gov/hudportal/HUD?src=/program_offices/comm_planning/affordablehousing).

<sup>201</sup> U.S. Department of Commerce. U.S. Census Bureau. 2011 – 2015 American Community Survey 5-Year Estimates – Atqasuk city, North Slope Borough, Alaska State. <http://factfinder.census.gov>. Accessed Jan. 17, 2017.

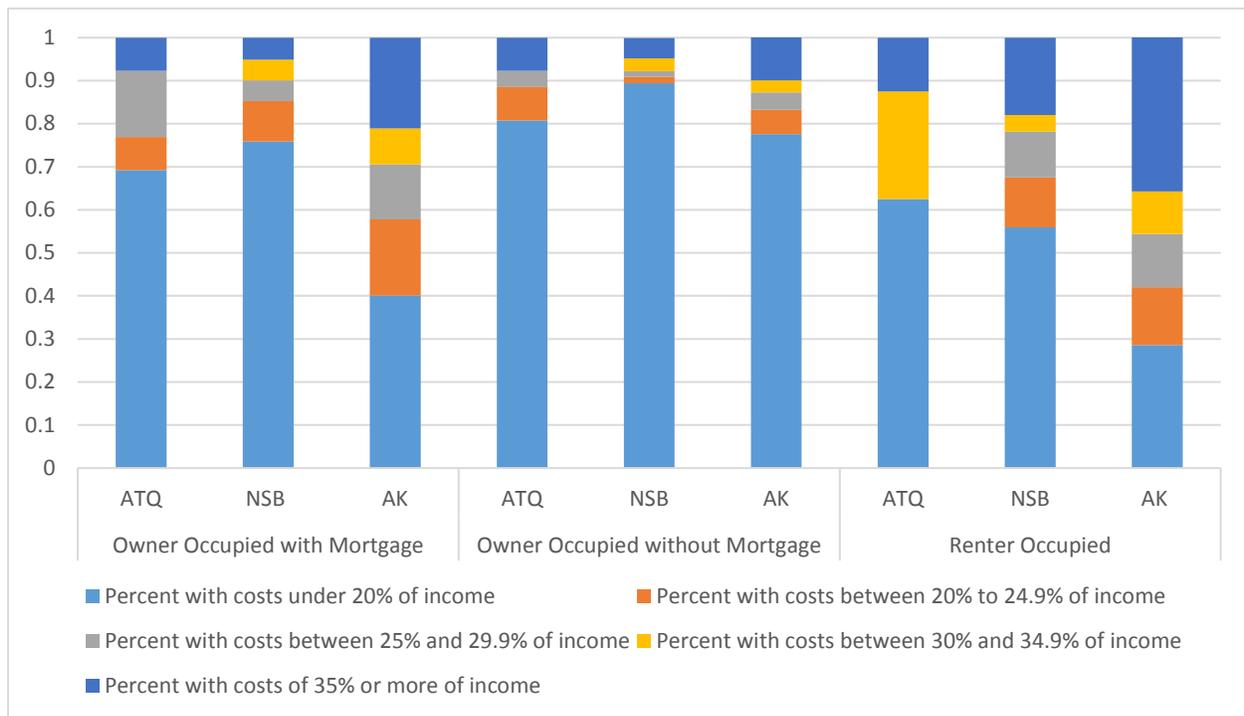
<sup>202</sup> Ibid

The availability of housing and the cost to construct new housing is an issue that significantly contributes to the lack of housing in Atqasuk. 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.

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 showed that a market basket of materials that costs \$23,405 in Anchorage and \$26,971 in Fairbanks, cost a shocking \$61,510 in Utqiagvik or 263% of the Anchorage cost.<sup>203</sup> This figure assumes added perspective, when one considers that Utqiagvik, as a hub community, is far less expensive than Atqasuk. Transport to Atqasuk 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.<sup>204</sup>

**Figure 17: Housing Costs as Percent of Income<sup>205</sup>**



<sup>203</sup> Alaska Housing Finance Corporation. *2015 Construction Costs Survey*. Accessed Feb. 7, 2016. <http://laborstats.alaska.gov/housing/constcost.pdf>.

<sup>204</sup> Tagiugmiullu Nunamiullu Housing Authority. 2015. *North Slope Borough Housing: A Brief Analysis of Issues and Options with Budgetary Quotes*. Unpublished white paper.

<sup>205</sup> U.S. Department of Commerce. U.S. Census Bureau. *2011 – 2015 American Community Survey 5-Year Estimates – Atqasuk City, North Slope Borough, Alaska State*. <http://factfinder.census.gov>. Accessed Jan. 14, 2017.

*Tagiugiullu Nunamiullu Housing Authority (TNHA).* TNHA has been working with Cold Climate Housing Research Center and have constructed five homes and three generations of high-efficiency homes designed specifically for arctic weather conditions. The first two homes were constructed with foam foundation in lieu of a gravel or pile foundation. Both had an exterior spray foam insulation. The second generation, one home, also had a foam foundation but a common timberwall exterior. The two third generation homes have portable and adjustable foundations with common timberwall exteriors. All the homes have been sold and are currently occupied. All the Atqasuk TNHA homes also are equipped with Lifestream sewage treatments systems to avoid the high cost of connecting to the piped utility system.<sup>206</sup>

*Native Village of Atqasuk / Iñupiat Community of the Arctic Slope (ICAS).* ICAS administers a housing program on behalf of the Native Village of Atqasuk and the residents of Atqasuk. The Native Village of Atqasuk is currently working with the Bureau of Indian Affairs (BIA) Housing Improvement Program (HIP) to assist eligible Alaska Natives renovate existing housing or to build new homes. HIP is a secondary, safety-net housing program that seeks to eliminate substandard housing and homelessness in Indian communities by helping those who need it most obtain decent, safe and sanitary housing for themselves and their families.<sup>207</sup> Native Village staff is currently coordinating with four Tribal members to secure housing funding.<sup>208</sup>

*Housing Condition and Maintenance.* Housing condition is also an issue in Atqasuk. Because just over two-thirds of Atqasuk's homes were constructed between 1970 and 1989,<sup>209</sup> many have repair and maintenance issues that are common with older homes. Atqasuk has few local licensed contractors or skilled tradespersons who can assist residents in building new housing or in maintaining or repairing home systems. Skilled carpenters, electricians, plumbers, and other tradespersons may need to be flown in to the village for some construction and maintenance needs. Residents have indicated that elders are especially in need of assistance on home maintenance.

## 8.2 Current and Future Housing Needs

There is currently a housing shortage in Atqasuk. This shortage often results in multiple generations, and families, residing in the same household and in overcrowded conditions.

If the high population growth scenario of one percent growth occurs and the current shortfall of approximately 14 housing units were developed, Atqasuk would need an additional five homes by 2020, an additional five homes by 2025, and another 10 homes by 2035, as shown in Table 19. This represents

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<sup>206</sup> Garoutte, Claude. Construction Services Project Manager. Tagiugiullu Nunamiullu Housing Authority. Personal Communication. Jan. 20, 2017.

<sup>207</sup> U.S. Department of the Interior. Bureau of Indian Affairs. 2017. *Housing Improvement Program*. Accessed Jan. 20, 2017. [www.bia.gov/WhoWeAre/BIA/OIS/HumanServices/HousingImprovementProgram](http://www.bia.gov/WhoWeAre/BIA/OIS/HumanServices/HousingImprovementProgram).

<sup>208</sup> Young, Mary Ellen. Liaison. Iñupiat Community of the Arctic Slope / Native Village of Atqasuk. Personal Communication. Jan. 20, 2017.

<sup>209</sup> U.S. Department of Commerce. U.S. Census Bureau. 2011 – 2015 *American Community Survey 5-Year Estimates – Atqasuk city, North Slope Borough, Alaska State*. <http://factfinder.census.gov>. Accessed Jan. 17, 2017.

a total net increase of 34 habitable dwelling needed by 2035. If the no 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 10 homes over the next 20 years beyond the current need of 14 homes. Residents have indicated that multi-family housing may be a more affordable option to ease the housing crisis.

**Table 19: 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	Current Homes Needed	Population	Cumulative Homes Needed	Population	Cumulative Homes Needed	Population	Cumulative Homes Needed
High Growth (+1 percent)	248	14	261	19	274	24	303	34
Moderate Growth (.5 percent)			254	16	261	19	274	24
No Growth (-.5 percent)			242	12	236	10	224	5
Linear trend based on 1980 and 2010 U.S Decennial Census			242	12	246	13	254	16

## Chapter 9. Land Use and Zoning

### 9.1 Land Ownership

The 1884 Organic Act, which made Alaska a civil and judicial district, declared that indigenous people “shall not be disturbed in the possession of any lands actually in their use or occupation or now claimed by them,” land title in Alaska was clouded until 1971 when Congress passed the ANCSA. This Act recognized the rights of Alaska Natives to a portion of the lands they traditionally occupied through land distribution to regional and village Native corporations. Today, most of the land around Atqasuk is owned by the federal and state governments, ASRC, and the Atqasuk Corporation, the local village Native corporation. The rest of this section provides more details about land ownership in the 39 square miles of land with the city boundaries and approximately 30,000 square miles in the village’s Area of Influence.

*Federal Lands.* The federal government owns over half of the land within the NSB. Federal land in the North Slope Borough include: National Petroleum Reserve—Alaska (NPR-A), Arctic National Wildlife Refuge (ANWR), and portions of the Gates of the Arctic National Park (GARR), Noatak National Preserve, the Alaska Maritime National Wildlife Refuge, and federal waters of the Outer Continental Shelf (OCS).

The village of Atqasuk and the 30,000 of its Area of Influence lies within the boundaries of the 23 million-acre NPR-A, which is federally owned and managed by the Bureau of Land Management. The NPR-A comprises more than a third of the NSB. Its boundary extends eastward from Icy Cape along the Chukchi Sea coast to the highest water mark on the western bank of the Colville River. The boundary follows the Colville River south and west, and then heading south to share a boundary with the Noatak National Preserve, as illustrated in Map 15.

In 1923, President Harding issued Executive Order No. 3797-A establishing the Naval Petroleum Reserve No. 4 to ensure a source of oil for the naval ships that had recently switched from



coal-power to petroleum. In 1976, the Naval Petroleum Reserves Production Act (NPRPA) transferred management of the reserve to the BLM within the U.S. Department of the Interior and renamed it the National Petroleum Reserve – Alaska, commonly known as NPR-A. In 1980, Congress passed the Appropriation Act which provided funds to begin oil and gas leasing within the NPR-A, opening it to exploration and development.

Native Alaskans are allowed access to NPR-A for subsistence hunting and fishing. Federal laws and regulations apply to industrial development and oil and gas resource extraction activities taking place within the Reserve. The BLM manages NPR-A lands and resources according to federal laws and regulations with direction provided by Integrated Activity Plans (IAP) that are usually accompanied by environmental impact statements (EIS). The December 2012 IAP/EIS and the associated February 2013 Record of Decision (ROD) provided the current management direction for the NPR-A, as summarized below:<sup>210, 211</sup>

- **Areas Open for Leasing:** About 11.8 million acres of the 22.8 million acres of subsurface lands managed by BLM in the NPR-A are available for oil and gas leasing.
- **Areas Closed to Leasing:** About 11 million acres are not available for leasing, including special management areas noted below and some of Beaufort Sea waters in Dease Inlet and those near Utqiagvik.
- **Infrastructure:** Infrastructure, including pipelines, would be allowed in over 14 million acres. Non-subsistence permanent infrastructure is prohibited in 8.4 million acres of 11 million acres closed to leasing, including 1.1 million acres in and around Teshekpuk Lake and 7.3 million acres in the southwestern part of the refuge.
- **Special Areas:** The ROD doubles the size of the Teshekpuk Lake Special Area, expands the Utukok River Uplands Special Area, and creates a new 107,000-acre Peard Bay Special Area.
- **River Protection:** The ROD seeks to protect 12 river segments and a 0.5 mile buffer on either side of the river segments for their free flow, water quality, and outstandingly remarkable values, most of which are located within the Utukok River Uplands Special Area.
- **Measures:** Stipulations and Best Management Practices (BMPs) identified in the preferred alternative of the Final IAP/EIS have been incorporated into the ROD. These measures address a number of issues and include requirements for studies, monitoring, and visual resource management.

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<sup>210</sup> U.S. Department of Interior. Bureau of Land Management. 2012. *National Petroleum Reserve-Alaska Final Integrated Activity Plan/Environmental Impact Statement*. November 2012. Accessed Jan. 11, 2017. [https://eplanning.blm.gov/epl-front-office/projects/nepa/5251/41003/43153/Vol1\\_NPR-A\\_Final\\_IAP\\_FEIS.pdf](https://eplanning.blm.gov/epl-front-office/projects/nepa/5251/41003/43153/Vol1_NPR-A_Final_IAP_FEIS.pdf).

<sup>211</sup> Northeast National Petroleum Reserve-Alaska Supplemental Integrated Activity Plan Record of Decision, July 2008, U.S. Department of the Interior, Bureau of Land Management.

The NPRPA authorizes creation of special areas in the NPR-A that contain significant subsistence, recreational, fish and wildlife, historical, or scenic value. The special areas that lie within the Atqasuk Area of Influence include:<sup>212</sup>

- **Teshekpuk Lake Special Area:** Designated in 1977, the primary purpose of this area is to protect habitat that is important for high numbers of waterfowl and shorebirds that nest, stage, and molt in this area, and for calving, migration, and insect relief habitat for the Teshekpuk Caribou Herd. The area was expanded in 1998 to include the Pik Dunes. The 2013 ROD doubled this Special Area to 3.65 million acres.
- **Utukok River Uplands Special Area:** In 1977, the Secretary of the Interior designated this Special Area in the southwestern NPR-A to protect habitat used by the Western Arctic Caribou Herd for calving and insect relief. At that time the herd was in decline – it peaked in 2003 and has been declining since then at a rate of 4-6 percent a year. The 2013 ROD expanded this area to 3.87 million acres.
- **Peard Bay Special Area:** Established in 2013, this 107,000-acre area was created to protect three habitat types: haul-out areas for marine mammals, near-shore waters for marine mammals, and a high-use staging and migration area for shorebirds and waterbirds.

In 1998, the BLM established the NPR-A Subsistence Advisory Panel to provide an opportunity for subsistence users of Anaktuvuk Pass, Atqasuk, Utqiagvik, Nuiqsut, Point Lay, and Wainwright to raise issues and concerns and to advise NPR-A land managers about potential impacts to subsistence resource habitat and activities related to proposed oil and gas exploration and development in order to ensure the least amount of impact possible to subsistence activities.

The BLM also established the NPR-A Working Group for meaningful and regular input by local communities' on-going implementation of the NPR-A IAP/EIS. This working group includes members from the North Slope local governments, Native corporations, and tribes.

*State Lands.* The State of Alaska owns lands and waters within the NSB, including submerged lands. The federal Submerged Lands Act of 1953 recognizes title by states to the submerged, navigable lands within their boundaries at the time of statehood. These lands include onshore navigable waterways and offshore marine waters extending three nautical miles seaward from the coast.

The State of Alaska owns most of the area between NPR-A and the Arctic National Wildlife Refuge, including the Prudhoe Bay and Kuparuk oil and gas fields. Other state lands are located in the western portion of the Borough to the west of the NPR-A. The DNR's 2008 Northwest Area Plan provides management direction for state lands in the Lisburne Region.<sup>213</sup> Although an area plan has not been

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<sup>212</sup> U.S. Department of Interior. Bureau of Land Management. 2012. *National Petroleum Reserve-Alaska Final Integrated Activity Plan/Environmental Impact Statement*. November 2012. Accessed Jan. 11, 2017. [https://eplanning.blm.gov/epl-front-office/projects/nepa/5251/41003/43153/Vol1\\_NPR-A\\_Final\\_IAP\\_FEIS.pdf](https://eplanning.blm.gov/epl-front-office/projects/nepa/5251/41003/43153/Vol1_NPR-A_Final_IAP_FEIS.pdf).

<sup>213</sup> Alaska Department of Natural Resources. Division of Mining, Land & Water. 2008. *Northwest Area Plan for State Lands*. October 31, 2008. Accessed Jan. 13, 2017. [www.dnr.alaska.gov/mlw/planning/areaplans/northwest](http://www.dnr.alaska.gov/mlw/planning/areaplans/northwest).

developed for other state lands in the NSB, in 2014 DNR began development of the North Slope Management Plan, expected to be released for public review in mid- to late 2017.<sup>214</sup>

*Alaska Native Claims Settlement Act.* The Alaska Native Claims Settlement Act (ANCSA), enacted into law on December 18, 1971, was intended to settle outstanding land claims and establish clear title to Alaska's land and resources. ANCSA also established regional and village corporations. The village corporations received title to the surface estate in and around the village. Under Section 14(c)(3), the village corporation must convey to a municipal corporation (city), or the state in trust (where an incorporated city does not exist, such as Point Lay, Alaska), lands identified for present and future community needs.<sup>215, 216</sup>

Atqasuk Corporation, the village Native Corporation established under ANCSA, is the primary landowner in the Atqasuk area. In 2015, the Bureau of Land Management conveyed 18,143 acres of land to the Atqasuk Corporation, fulfilling its ANCSA sections 12(a) and 12(b) entitlement. In total, Atqasuk Corporation has selected and received over 73,000 acres of land in and around the community.<sup>217</sup> The reconveyance of improved land on which the village is located and additional land for community expansion, rights-of-way, and other community needs from the Atqasuk Corporation to the City of Atqasuk, as stipulated in ANCSA section 14(c)(3) has not yet been completed.<sup>218</sup>

There are two types of protected (restricted) land for Native Alaskans: Native allotments and restricted townsite lots. Restricted land is inalienable; the property owner cannot lease, sell or convey the land, or any inherited interest in the land, without first obtaining approval from the Bureau of Indian Affairs (BIA). Generally speaking, restricted land is also not subject to state or local laws, including taxation and land use regulations, such as zoning. Native restricted land will remain tax-exempt unless changed by the United States Congress or the restrictions are removed with expressed approval by the BIA.<sup>219, 220</sup>

Generally, restricted lots were distributed via two federal statutes: the Alaska Native Allotment Act of 1906 and the 1926 Alaska Native Townsite Act. The Alaska Native Allotment Act of 1906 authorized the

<sup>214</sup> Alaska Department of Natural Resources. Division of Mining, Land & Water. 2017. *North Slope Management Plan*. Accessed Jan. 13, 2017. [www.dnr.alaska.gov/mlw/planning/mgtplans/nsmp/](http://www.dnr.alaska.gov/mlw/planning/mgtplans/nsmp/).

<sup>215</sup> Alaska Department of Commerce, Community and Economic Development. 2016. Division of Community and Regional Affairs. *Planning and Land Management*. Accessed Sept. 6, 2016. [www.commerce.alaska.gov/web/dcra/PlanningLandManagement/ResourcesforANCSA14c3.aspx](http://www.commerce.alaska.gov/web/dcra/PlanningLandManagement/ResourcesforANCSA14c3.aspx).

<sup>216</sup> Additional information on the 14(c)(3) process can be found in the *Getting Started on 14(c)(3): A Basic Guide for City and Village Councils* prepared by the Alaska Department of Commerce, Community, and Economic Development, Division of Community and Regional Affairs, [www.commerce.alaska.gov/web/Portals/4/pub/14c3Getting%20Started2004.pdf](http://www.commerce.alaska.gov/web/Portals/4/pub/14c3Getting%20Started2004.pdf).

<sup>217</sup> U.S. Department of the Interior. Bureau of Land Management. 2015. *BLM Alaska Conveys Final Land Entitlement to the Native Village of Atqasuk*. News Release No. 15-16. April 27, 2015. Accessed Jan. 10, 2017. [www.blm.gov/ak/st/en/info/newsroom/2015/april/4-27-2015\\_BLM\\_Alaska\\_conveys\\_final\\_land\\_entitlement\\_to\\_the\\_Native\\_Village\\_of\\_Atqasuk.html](http://www.blm.gov/ak/st/en/info/newsroom/2015/april/4-27-2015_BLM_Alaska_conveys_final_land_entitlement_to_the_Native_Village_of_Atqasuk.html).

<sup>218</sup> Alaska Department of Commerce, Community, and Economic Development. 2017. *Alaska Community Database Online: Atqasuk*. Accessed Jan. 10, 2017. [www.commerce.alaska.gov/dcra/DCRAExternal/community](http://www.commerce.alaska.gov/dcra/DCRAExternal/community).

<sup>219</sup> Kawerak Land Management Services. 2014. *Restricted Native Land*. Accessed July 17, 2014. [www.kawerak.org/forms/nr/informational%20sheet.pdf](http://www.kawerak.org/forms/nr/informational%20sheet.pdf).

<sup>220</sup> Case, David, Hudson, Roger, Landreth, Natalie, Kindall-Miller, Heather, Resseguie, Linda and Schutt, Aaron M. 2007. *Native American Land Base*. Alaska Bar Association, June 2007. Accessed July 17, 2014. [www.alaskabar.org/servlet/clecatalog?id=333](http://www.alaskabar.org/servlet/clecatalog?id=333).

Secretary of the Interior to grant individual Alaska Natives ownership of up to 160 acres of vacant, non-mineral and unappropriated land. The majority of Native allotments are near villages and along rivers, streams, lakes, and coastal waters. There are 51 Native allotments within 30 miles of Atqasuk.<sup>221</sup> In 1971, one of the provisions in the ANCSA repealed the authority to grant Native allotments, with the expectation of those applications that had already been submitted. Native allotment land is still being conveyed by the BLM.<sup>222, 223</sup> Native allotments and camps and cabins in the vicinity of Atqasuk are shown in Map 16.

The 1926 Alaska Native Townsite Act was passed by the United States Congress for the purpose of conveying public lands to Native Alaskans for homes within villages. All townsite acts were repealed by the passage of the Federal Land Use Policy and Management Act (FLPMA) in 1976 but lots that were already designed as ‘Native restricted’ under the Townsite Act did not lose their status. Restricted deeds are managed for Native land owners by the federal government. The owners’ ability to sell or 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. Unlike many other North Slope villages, there are not Native restricted properties in Atqasuk.<sup>224</sup> Alaska Natives could apply for lots in federally-recognized Native townsites. This program closed in 1971, before Atqasuk was resettled in 1977. The BLM is still processing a few applications.<sup>225</sup>

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<sup>221</sup> U.S. Department of the Interior. Bureau of Land Management. 2017. *Spatial Data Management System (SDMS)*. Accessed Jan. 16, 2017. <http://sdms.ak.blm.gov/isdms/imf.jsp?site=sdms>.

<sup>222</sup> Kawerak Land Management Services. 2014. *Restricted Native Land*. Accessed July 17, 2014. [www.kawerak.org/forms/nr/informational%20sheet.pdf](http://www.kawerak.org/forms/nr/informational%20sheet.pdf).

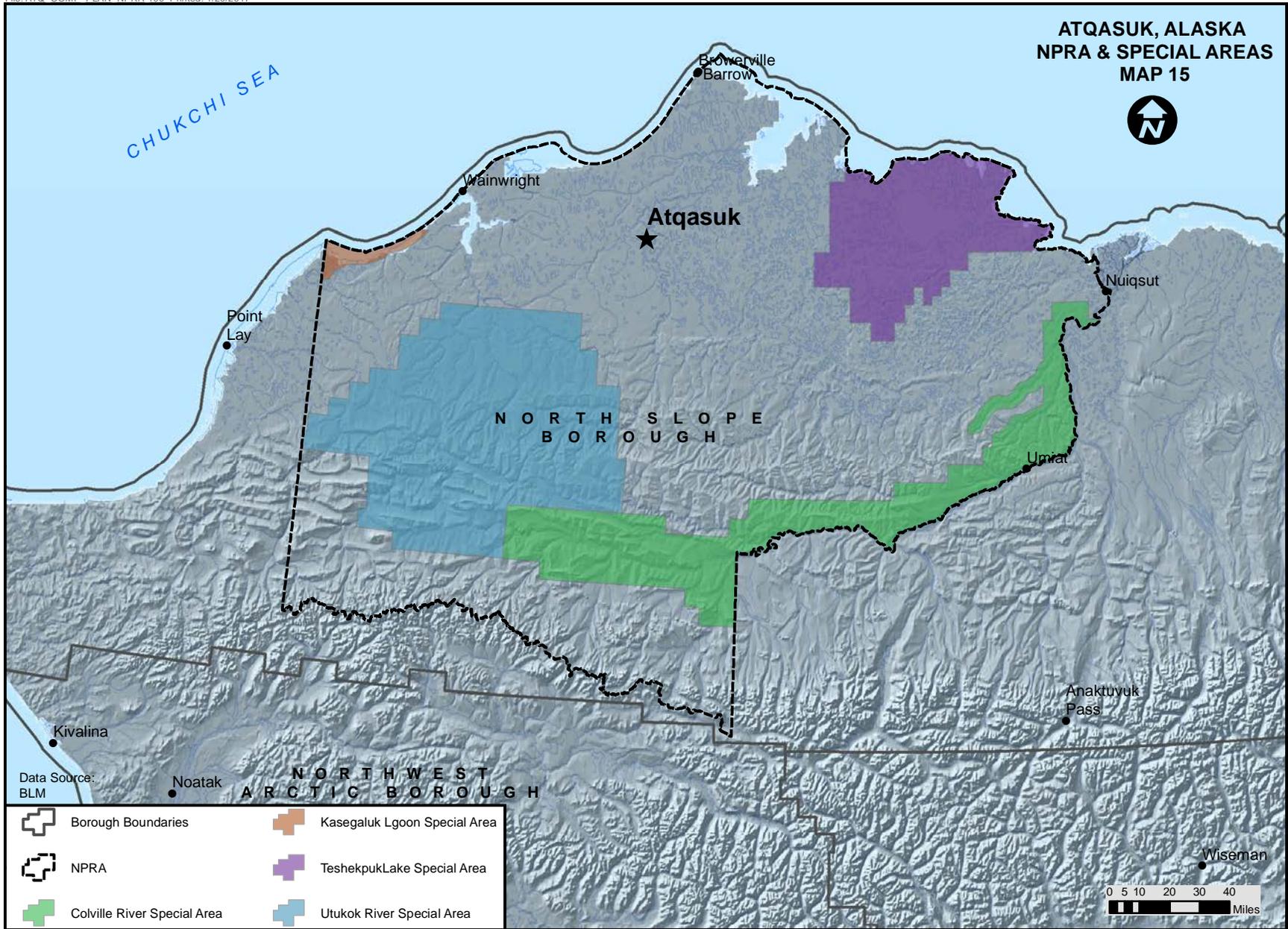
<sup>223</sup> U.S. Department of the Interior. Bureau of Land Management. 2013. *Land Transfer*. Accessed July 17, 2014. [www.blm.gov/ak/st/en/prog/ak\\_land\\_transfer.html](http://www.blm.gov/ak/st/en/prog/ak_land_transfer.html).

<sup>224</sup> North Slope Borough. 2016. *Assessor’s Division GIS data*.

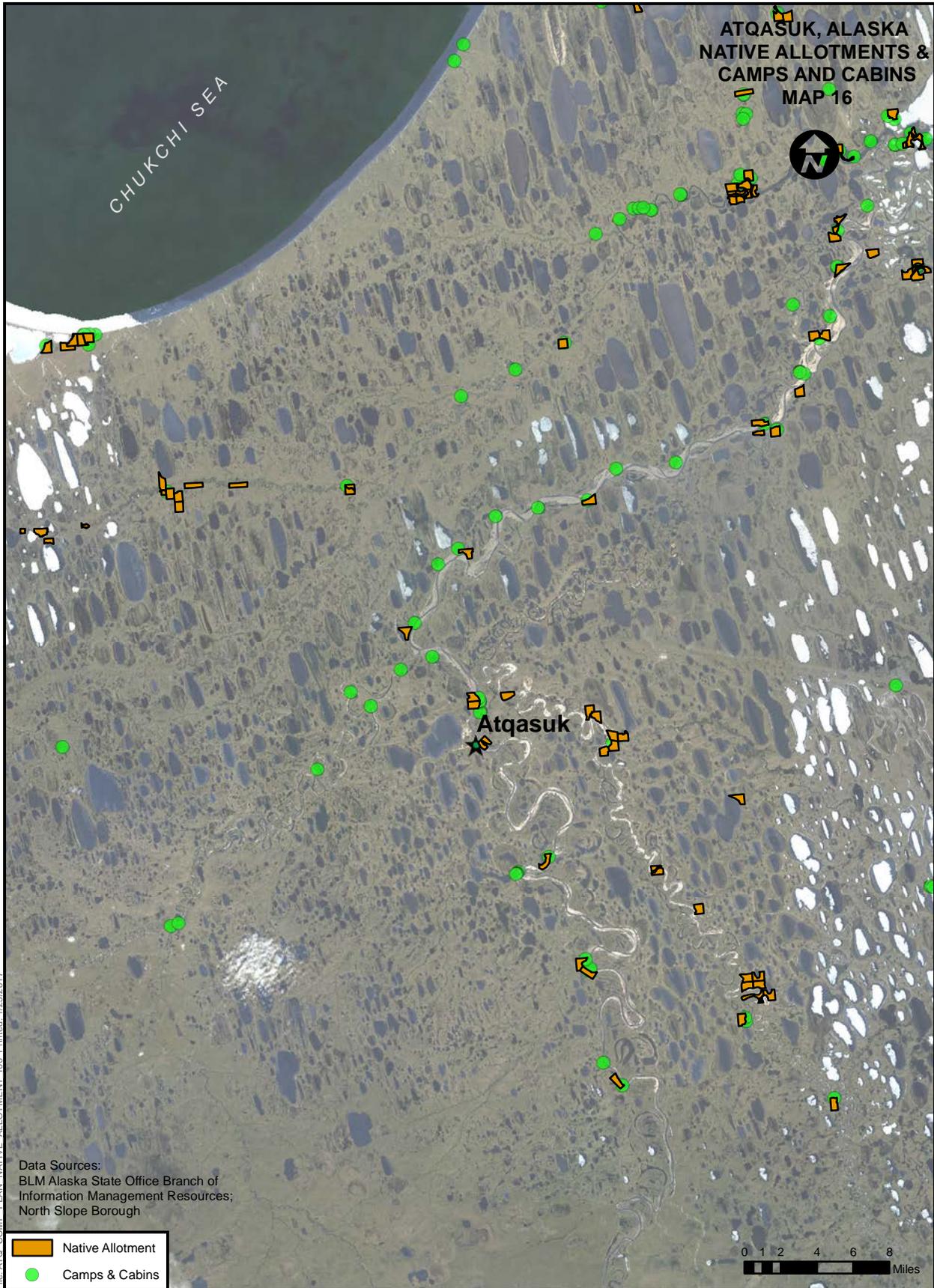
<sup>225</sup> Hull, Teresa and Linda Leask. 2000. *Alaska Review of Social and Economic Conditions*. University of Alaska Anchorage. Institute of Social and Economic Research. Vol. XXXII No. 1. [www.iser.uaa.alaska.edu/Publications/Landswebfiles/lands.pdf](http://www.iser.uaa.alaska.edu/Publications/Landswebfiles/lands.pdf).

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# ATQASUK, ALASKA NPRA & SPECIAL AREAS MAP 15



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## 9.2 Land Use and Zoning

*Land Use.* When Atqasuk was re-settled in the late 1970s, the village roads and structures were laid out in a grid system that followed natural terrain and drainage systems and avoided areas susceptible to flooding between the river and lake surrounding the village bluff. The majority of the people in Atqasuk live in an area of less than one-half square mile. The two main streets, Tikiluk Street on the east and Ekosik Street on the west, run on a north/south orientation and border the community center along with Tikiluk Street also to the north and Titalik Street to the south.

The village features seven different platting designs for clusters of land, described below.

1. The three-block residential area located between Titalik and Kippi Streets (tracts E, G, and H) are split by side streets and provide undeveloped rights-of-way down the center of the longer north-south axis of the block. Each lot is 55 feet wide and 75 feet long and each lot has direct access to the centrally-located undeveloped area which bisects the block. The east-west orientation of the lots and homes mitigate to some extent the problems arising from snowdrifting from the east or northeast prevailing winds. Interspersed within these residential blocks is the NSB Teleconference Center/Village Liaison Office, Native Village of Atqasuk office, Atqasuk Chapel, and NSBSD teach housing.
2. Immediately north of Tracts E, G, and H and bordered by Tikiluk Street to the north and Kippi and Quglag streets to the south are tracts B and C. These tracts are primarily made-up of public facilities and commercial uses, including the Meade River School, Atqasuk Corporation storage building, Fire Station, Search & Rescue, Health Clinic, Community Center/City Hall, and Post Office.
3. North of tracts B and C, bordered by Tikiluk and Utik Streets are residential blocks 1, 2, and 3, collectively known as Atqasuk Addition No. 2, which feature 24 lots, 14 of which are 100 feet at street width and 150 feet long. These blocks are oriented in a north-south axis yet do not feature the undeveloped shared right-of-way bisecting the block as found in the first residential tracts E, G, and H. The westernmost lots, bounded by Aquvluk and Ekosik streets are undeveloped. These primarily residential tracts also include several non-residential buildings, including the Atqasuk Corporation office, Police Station, and the USDW building.
4. North of tracts 1, 2, and 3, bordered by Utik and Qinagnaak streets, are another set of residential blocks that make-up Atqasuk Addition No. 3. These blocks combined provide 51 lots which are largely undeveloped and primarily owned by TNHA.
5. On the south side of the village, south of Titalik Street, lies an industrial area containing Public Works warehouses. Further south is the Atqasuk Airport.
6. On the west side of the village between Utik and Ouglag streets is an additional industrial area with the power plant, water tanks, and water treatment plant.
7. Lastly, on the south side of the village along Tikiluk and Puayuuraq streets is a newer residential subdivision, Atqasuk Addition No. 4, with several homes and a total of 33 parcels.

Maps 17 and 18 show land ownership and current use, respectively. Map 19 shows land status in the Atqasuk that includes ANSCA land transferred to Atqasuk Corporation, Native allotments within the municipal boundary, and city and private land within the community center.

*Zoning.* A major component of local planning is zoning, the division of areas into land use districts. Detailed regulations guide how each district can be developed and used. Zones are designed to accommodate both current and potential uses. The NSB is charged with administering platting and zoning on behalf of residents. The entirety of the city of Atqasuk is contained within the Village District. The surrounding area outside of the municipal boundaries is within the Conservation District, as shown in Map 20.

The NSB has created zoning districts for all land within its jurisdiction, public and private. The Village District is described in the NSBMC 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.”<sup>226</sup>

Although Atqasuk is within the Village District, Native restricted properties are not subject to the NSB’s zoning regulations. Adopting new zoning regulations in communities with a large number of Native allotments and/or Native restricted properties may not have a substantial effect on regulating land use activities or directing future growth in a specific area or areas. However, Atqasuk does not have any Native allotments or Native restricted properties within its municipal boundaries as many North Slope community do.

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<sup>227</sup> without public notice: 1) placement of fill in a wetland in accordance with the Army Corps of Engineers general permit.

*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

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<sup>226</sup> North Slope Borough. 1990. *North Slope Borough Municipal Code Of Ordinances. Title 19: Zoning. Chapter 19.40: Zoning Districts.* Accessed Dec. 15, 2016. [www.municode.com/library/ak/north\\_slope\\_borough/codes/code\\_of\\_ordinances](http://www.municode.com/library/ak/north_slope_borough/codes/code_of_ordinances).

<sup>227</sup> The Land Administrator for the Borough is the Director of the NSB Planning and Community Services Department.

- 2) Any use “elevated” by the Land Administrator for Commission review by the NSB Land Administrator, pursuant to §19.50.020.<sup>228</sup>

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:

- 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.

The Conservation District is described in Title 19 (§19.40.070) and generally encompasses the undeveloped areas of the Borough. This District is intended to conserve the natural ecosystem for all the plants and animals upon which Borough residents depend for subsistence. The Conservation District accommodates limited resource exploration and development.<sup>229</sup> 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.

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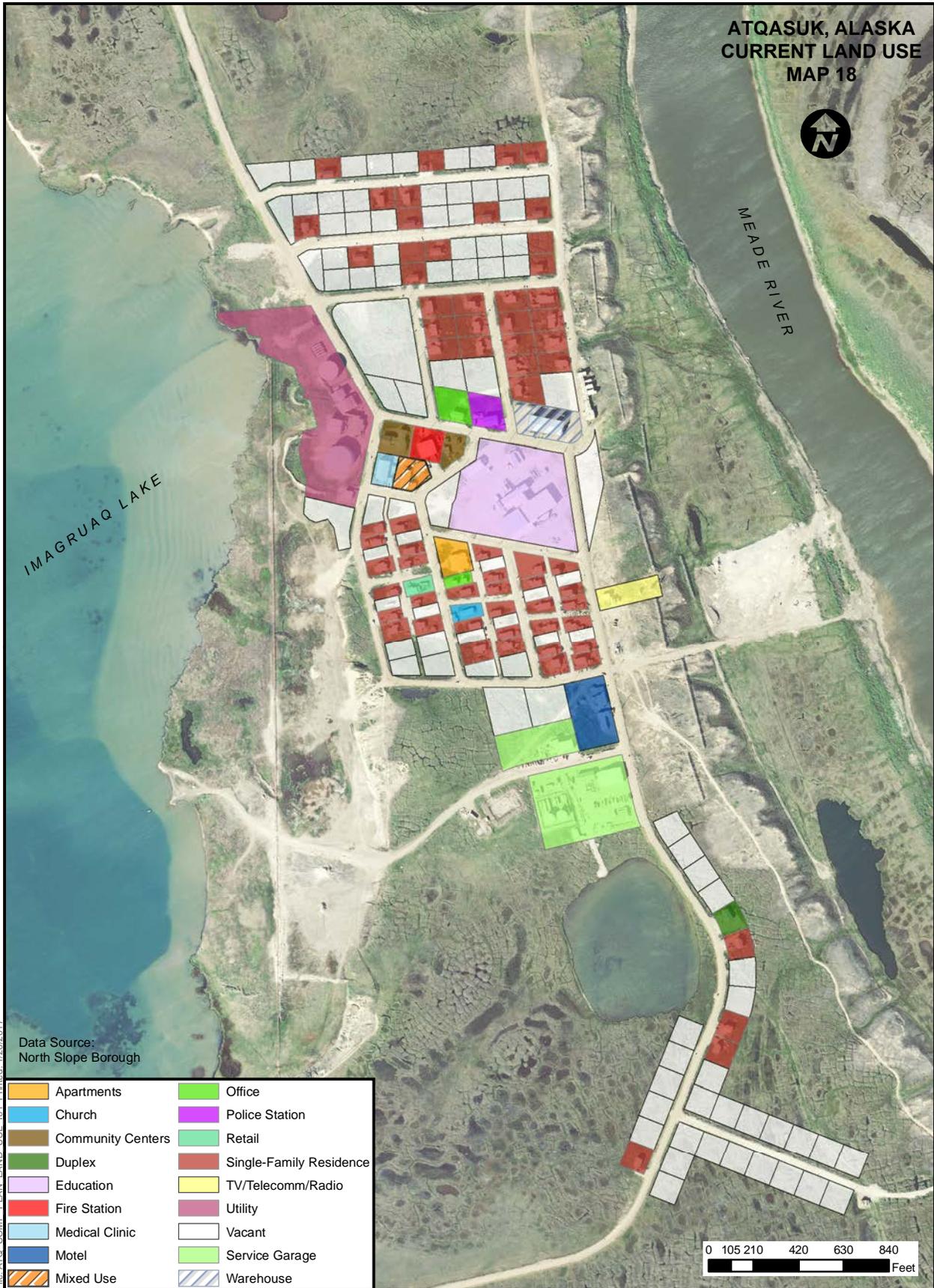
<sup>228</sup> Under NSBMC §19.50.020, the Land Administrator (Planning Director) may elevate an administrative approval or a development permit decision to that of a conditional use process and the permit application for a Atqasuk proposal would then be considered for approval by the NSB Planning Commission. Based on written findings that the elevation decision satisfied specific criteria notes in Title 19.

<sup>229</sup> North Slope Borough. 1990. *North Slope Borough Municipal Code Of Ordinances. Title 19: Zoning. Chapter 19.40: Zoning Districts.* Accessed Dec. 15, 2016. [www.municode.com/library/ak/north\\_slope\\_borough/codes/code\\_of\\_ordinances](http://www.municode.com/library/ak/north_slope_borough/codes/code_of_ordinances).

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).



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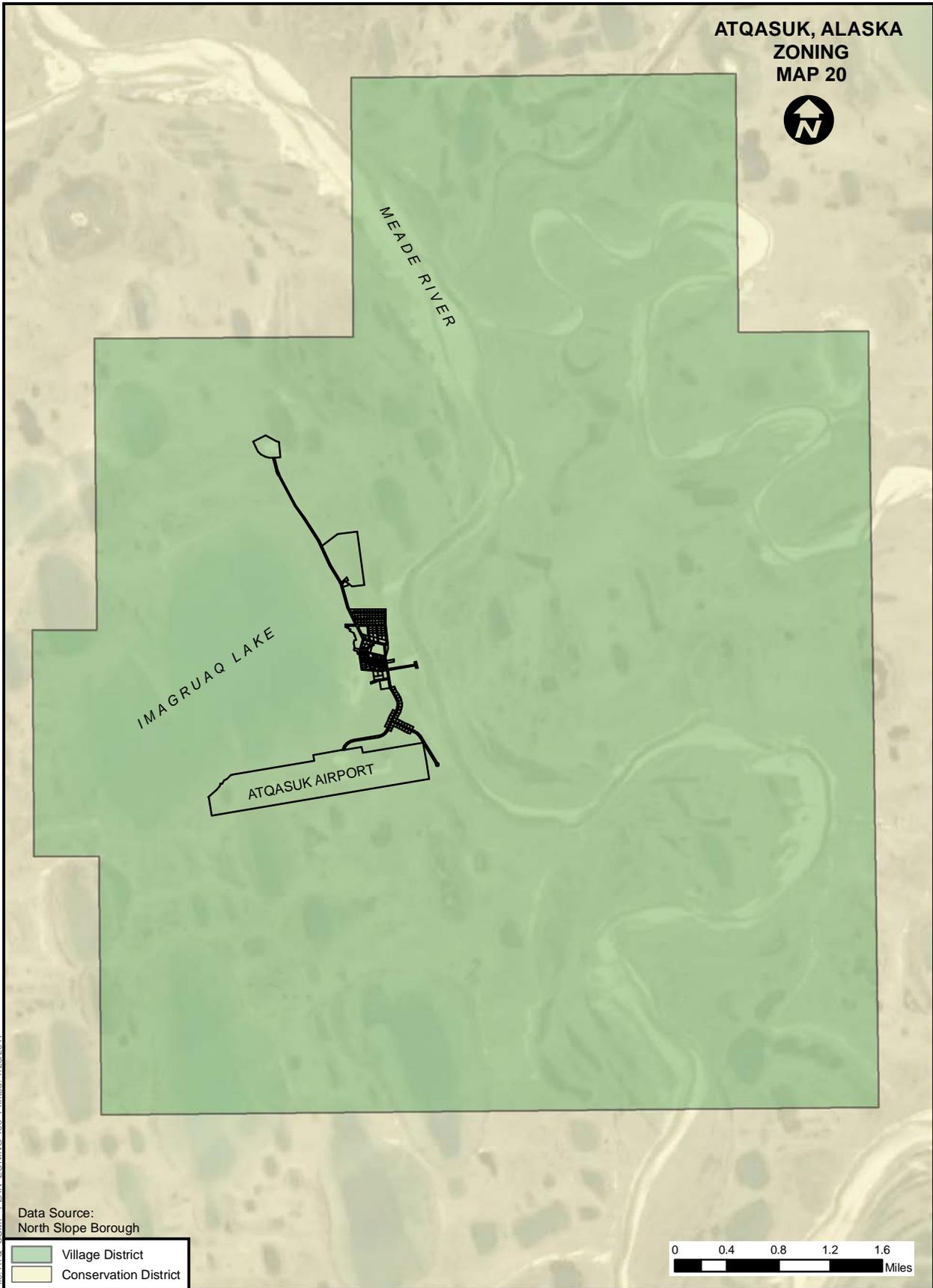
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ATQASUK, ALASKA  
ZONING  
MAP 20



Data Source:  
North Slope Borough

- Village District
- Conservation District



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### 9.3 Future Land Use

Typical zoning districts for a small community could include an Industrial District, Mixed Use District, a Residential District, and a Transportation Corridor District.

**Industrial District.** Land currently in industrial use could be rezoned as Industrial District(s), facilitating future expansion of public facilities or new industrial activities to take place within those districts.

**Mixed Use District.** Certain areas are more suitable for housing, small community-serving businesses, and public service facilities and could be rezoned, if desired by the community, to a mixed use district. The community could determine the level of administrative and public review for certain proposed land use activities within a mixed use district.

There are some community services that can be provided by residents who have the skills and abilities to operate a small business providing these services; these can include hair salons, tailoring/alterations, vehicle repair, electronic equipment and appliance repair, counseling, food preparation, or child care. Some of these businesses can be operated out of homes or from shops attached to homes. These kinds of services and business can be integrated within existing residential areas within the village core area without generating excessive noise, traffic, parking congestion or trash.

Mixed use zoning districts can be designated within the village center where businesses are easily accessible and conveniently located near other businesses and public services. In the mixed use districts, multi-density housing or businesses are typically allowed as principal uses.

**Residential District.** Areas wholly suited for residential use could be rezoned specifically for that purpose. Certain home occupations should be allowed in residential districts, including small daycare home occupations 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.

**Transportation Corridor District.** A transportation corridor is a linear pathway for a particular mode of transportation. It includes built pathways as well as designated pathways without construction. This district may be useful in the Atqasuk area for the winter route to Utqiagvik or if a pipeline is developed within the municipal boundaries.

Atqasuk is zoned as a Village District by the NSB but residents could request the establishment of more specific zoning districts and regulations through Title 19 text and zoning map amendments. Establishing zoning districts would allow by-right development within each district, meaning that a development that is explicitly allowed in a zoning district could be issued a permit without public review or as a conditional use. Atqasuk's land uses are laid out well and without the anticipated need to develop new public facilities in the near future, there is not necessarily a need to establish separate zoning districts within the community at this time. Additionally, Atqasuk is well positioned to accommodate future residential growth. Approximately 62 lots are available for new homes, sufficient to accommodate the community

over the next twenty years, the planning horizon of this comprehensive plan, and beyond. There is not a current need to establish a specific residential zoning district for the sole purpose of directing future homes to locate in a particular area because there are a sufficient number of vacant lots available for residential development within residential areas.

The community has indicated that before establishing specific zoning districts, there will need to be more investigation on the location of potential gravel sources. Once potential gravel sources are located, the community could consider industrial development sites for extracting and stockpiling a gravel supply.

## Chapter 10. Goals, Objectives & Implementing Strategies

The following goals and objectives are intended to reflect the values of the community and respond specifically to the Strengths, Weaknesses, Opportunities and Threats (SWOT) expressed by the community in meetings hosted by the North Slope Borough Planning and Community Services Department during development of this plan as well as issues raised during research and discussions with residents.

Because this comprehensive planning effort sought important issues facing the community overall, the seven goals presented in this chapter are not listed in priority order.

**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 to reach an objective.

While the vision statement and goals are critical to a comprehensive plan, the hallmark of comprehensive planning is implementation: translating the vision into reality. Each goal is accompanied by one or more objective that suggests how the community might achieve the intent and substance of the goal. Each objective is followed by an Implementing Strategy that describe how the action would be implemented. Implementing Strategies may establish how a specific course of action could 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 and contributing to the formation of the plan's development include members of the Atqasuk City Council, the Atqasuk Tribal Council, Atqasuk Native Village Corporation Board Members, village Elders, hunters, local NSBSD staff, and NSB staff members providing services in the village. However, in reference to the following Implementation Strategies, village leadership generally refers to the Atqasuk City Council, Native Village of Atqasuk Tribal Council, and Atqasuk Corporation Board Members. In some cases, not all of the village leadership entities will be involved in the implementation strategy due to expertise or capacity.

***Comprehensive Plan Goals***

- Goal 1:** Protect subsistence resources and activities and the natural environment
- Goal 2:** Maintain, protect, and expand community facilities and infrastructure
- Goal 3:** Support housing quality, variety, and affordability
- Goal 4:** Maintain and expand community services to provide improved care for residents
- Goal 5:** Provide educational resources that prepare students for entering the workforce while also inspiring community participation and leadership
- Goal 6:** Facilitate economic development
- Goal 7:** Seek meaningful intergovernmental and community cooperation and resident participation in decision-making for betterment of all village residents.

### 10.1 Goal 1 – Protect subsistence resources and activities and the natural environment

Subsistence is a way of life for a majority of residents in Atqasuk. It is critical that these resources and access to them are protected for future generations. Residents must teach subsistence knowledge and skills to youth so it can be passed on to future generations. This knowledge includes traditional hunting, fishing, and gathering skills; understanding of the land, air, and waters; and an understanding of actions needed for the protection of wildlife and its habitat. Protecting the natural environment is important for both sustaining a subsistence lifestyle but also for its own intrinsic value.

**Table 20: Goal 1 – Protect subsistence resources and activities and the natural environment**

Objectives	Implementing Strategies
<p>1.1. Provide stewardship for the land and subsistence resources, and promote Iñupiat culture and the traditional lifestyle.</p>	<p>a) Village leadership will work with North Slope Science Initiative (NSSI) member organizations to enhance communication and coordination to identify best available technologies and management practices to sustain healthy subsistence wildlife resources.</p>
	<p>b) Village leadership and NSB staff will seek effective documentation of local and traditional knowledge of wildlife habitat, migratory patterns, weather, ice conditions, etc., and will communicate that knowledge to state and federal resource management agencies and to staff of public and private science projects and programs when appropriate.</p>
	<p>c) When changing conditions warrant, village leadership 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, such as protecting migration routes.</p>
	<p>d) Seek changing the name of the Meade River to the original Iñupiat name of Kuulugruaq to reflect the traditional culture of the community.</p>
	<p>e) Incorporate the Iñupiat Heritage, Language, and Culture (IHLC) Department oral historian in promoting and documenting the traditional culture of the community through increased involvement with the community and the NSB government.</p>
	<p>f) Actively include youth to learn about protecting subsistence rights, land management, and interfacing with regulatory entities.</p>

<b>Table 20: Goal 1 – Protect subsistence resources and activities and the natural environment</b>	
<b>Objectives</b>	<b>Implementing Strategies</b>
1.2. Ensure trapping, hunting, and fishing rights are available for Atqasuk residents.	a) Village leadership will work with NSB Wildlife Management Department staff to ensure that NSB and local hunters’ voices are present at federal and state agency meetings to support the continued hunting of subsistence wildlife within the Atqasuk Area of Influence.
	b) Village leadership will work with state and federal agencies to monitor, and when necessary, contribute to proposed state and federal government agency changes to hunting regulations that may be applied to residents (e.g. number and length of permits, changes in bag limits, access limits, and other new restrictions or lessening of restrictions that may occur as a result of changes to wildlife population numbers or behaviors). They will seek to ensure that regulations are consistent with both scientific principles and local and traditional knowledge.
	c) Village leadership will coordinate with NSB Wildlife Management Department staff to provide current information on wildlife populations to federal and state agencies to support the continued hunting of subsistence wildlife within the Atqasuk Area of Influence.
1.3. Protect and enhance food drying, storage ice cellars, and other tools and facilities needed for subsistence activities.	a) Village leadership will seek local or regional grant-writing expertise to seek funding for rehabilitating or repairing damaged or failing ice cellars or creating new ice cellars for individual or village cooperative use.
	b) Village leadership will work with NSB staff to develop building setback standards or permit stipulations to protect existing ice cellars from damage related to new construction in close proximity to the cellars.
	c) Seek funding and alternative methods to minimize dust on roadways that can contaminate drying fish and meat.
1.4. Use updated and comprehensive data about the natural environment to support informed decision-making and establish regulatory and policy measures to protect natural environment when and where possible.	a) Review and potentially modify the North Slope Borough Municipal Code to further protect subsistence lands.
	b) Identify and map sensitive natural environments such as wetlands and vegetation and critical habitats / nesting areas of threatened and endangered species.
	c) Seek research on the effect of invasive species as the Arctic experiences increased maritime traffic.
	d) Develop regulations to protect tundra from development and ATV damage.

<b>Table 20: Goal 1 – Protect subsistence resources and activities and the natural environment</b>	
<b>Objectives</b>	<b>Implementing Strategies</b>
1.5. Remediate contaminated sites within the community and its area of influence.	a) Coordinate with the State of Alaska on outstanding contaminated sites in the Atqasuk area and seek remediation funding.
1.6. Facilitate improved coordination and communication regarding science research activities the vicinity.	a) Coordinate with permitting agencies to require researchers to present projects to the community, provide updates and results/findings.
	b) Work with permitting agencies to include stipulations for low-flying aircraft over subsistence lands and waters to minimize the number and frequency of flights during wildlife migratory, nesting, brooding, denning, or fledging periods in order to avoid harassment to wildlife and subsistence hunters.
	c) Work with permitting agencies to develop stipulations that require communication about low-flying aircraft routes and schedules to a village-designated coordinator to inform the community’s subsistence users.
	d) Develop a program for researchers to include interested students to actively participate in research activities.

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## 10.2 Goal 2 – Maintain, protect, and expand community facilities and infrastructure

Atqasuk has a significant amount of existing infrastructure, community facilities, and transportation systems, including a gravel road network, piped water and sewer systems, electric power, and an airport runway. It is important to maintain this infrastructure and expand when needed to improve the quality of life in the community.

<b>Table 21: Goal 2 - Maintain, protect and expand community facilities and infrastructure</b>	
<b>Objectives</b>	<b>Implementing Strategies</b>
2.1. Develop cost effective, long term and suitable gravel source.	a) Seek funding for a road to Utqiagvik to allow hauling gravel for maintenance and capital projects.
	b) Continue to investigate possible material sources on the river.
	c) Ensure involvement in nearby industry development projects to utilize resulting infrastructure.
	d) Further geotechnical investigation for regional terrestrial material site in coordination with the Atqasuk Corporation.
2.2. Continue to maintain water, sewer, electric power, and other facilities in good operating condition.	a) The NSB will resolve issues with overflow at the wastewater treatment plant during peak flow that could entail utilizing a media membrane and/or expanding the facility.
	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 and consider appropriate action(s).
	c) 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 to prepare for, and respond to, flooding, fires, pests, and other hazards.
	d) As practicable, 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 wildlife habitats and migration periods and patterns.

<b>Table 21: Goal 2 - Maintain, protect and expand community facilities and infrastructure</b>	
<b>Objectives</b>	<b>Implementing Strategies</b>
2.3. Maintain and improve the transportation network.	a) Continue to seek a gravel source to adequately maintain the community's roadways.
	b) Seek funding and gravel to repair and upgrade the cemetery roads.
	c) The NSB will work with village leadership to seek a long lasting, cost-effective road hardener system to mitigate dusty roads during summer months.
	d) The NSB will examine road areas where safety could be improved through signage and will install signs where needed.
	e) Investigate additional funding opportunities for additional road and utility development from Bureau of Indian Affairs, State of Alaska, Denali Commission, the U.S. Department of Housing and Urban Development, and federal transportation funds.
	f) Work with the NSB to continually seek funding from FAA to implement airport upgrades as laid out in the NSB 2016 Capital Improvement Project Plan including an airport terminal.
	g) Investigate the feasibility of providing regularly scheduled public transportation services.
2.4. Maintain and upgrade communication services.	a) Seek the extension of fiber optics to the community as well as improvement of telecommunication services.
2.5. 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.	a) Village leadership and NSB will identify land suitable for alternative energy systems and will pursue funding for design and development.
	b) Seek wind generation project through NSB Public Works Department following the initial development in Point Hope and Point Lay.
	c) Village leadership will seek the development of the Atqasuk transmission line.

### 10.3 Goal 3 – Support housing quality, variety, and affordability

In Atqasuk, it is common for two or three generations to share one home, resulting in housing overcrowding. Without a supply of new homes, it is difficult for young adults and new families to find entry level housing. The costs of construction are high, as is the cost to extend water and sewer services to new lots. Fortunately, Atqasuk has parcels available for housing development that are already served by many utilities on both the north and south sides of the village, easing one aspect of the complex housing shortage issue on the North Slope.

<b>Table 22: Goal 3 – Support housing quality, variety, and affordability</b>	
<b>Objectives</b>	<b>Implementing Strategies</b>
3.1. Seek comprehensive understanding of housing issues.	a) Develop a standard methodology for projecting future population growth with housing needs to evaluate current and future need. Review projections regularly and consider when prioritizing community needs and funding. Include short and long term strategy to address housing issues.
	b) Undertake a lot-by-lot study to determine ownership status and viability of property to be used for housing development.
	c) Track housing prices and rents with increases / decreases in household income to understand affordability.
3.2. Coordinate housing-related activities.	a) Establish a mechanism to advocate for ongoing state, federal and private funding support for housing using partnerships at the local and regional level.
	b) Analyze existing housing programs and efforts within different entities to determine gaps and duplicative efforts. Set up a housing coordination committee comprised of, for example, village leadership, homeowners, Cold Climate Housing Research Center, TNHA, etc. to coordinate housing activities.
	c) Promote financial literacy programs offered by lenders and non-profits that help prepare residents for future homeownership.
3.3. Review and revise zoning and subdivision ordinances and consider the need for additional village zoning districts as needed to facilitate housing development.	a) Explicitly allow for accessory structures, including homes, on a single lot in the NSB municipal code.
	b) Develop strategies for development / redevelopment that incorporate an integrated mix of residential dwelling types to address affordability, such as higher density / multi-family housing.
	c) Evaluate the NSB subdivision and zoning regulations and recommend changes where necessary to ensure that a sufficient amount of land is appropriately zoned and available for a variety of housing types and densities, including mixed-use development, for current and future housing needs.
	d) Encourage a range of housing types through regulations and programs that accommodate special population groups such as the elderly, physically challenged, large families, and single room occupants.

<b>Table 22: Goal 3 – Support housing quality, variety, and affordability</b>	
<b>Objectives</b>	<b>Implementing Strategies</b>
3.4. Seek ways to reduce costs of constructing housing to facilitate greater affordability.	a) Encourage and support efforts to construct multi-family buildings to alleviate the overcrowded conditions that provide more affordable options through the designation of specific locations for these buildings and seek to identify funding sources.
	b) Work with Cold Climate Housing Research Center (CCHRC) to build affordable and energy efficient homes.
	c) Research the feasibility of ordering, delivering, and assembling pre-cut kit houses and/or large-scale 3D printer homes.
	d) Explore funding opportunities for tribal housing authorities, elder housing and low-income housing, such as federal and state grants.
3.5. Seek quality housing through renovations or demolishing unsafe homes.	a) Implement a program that facilitates demolishing homes or structures that are not suitable for occupancy.
	b) Seek grant funds to further support retrofit weatherization efforts like the former RELI (Residential and Employment Living Improvement) program, passive ventilation systems, and other alternative building techniques to reduce energy consumption in existing houses and reduce costs for homeowners.
	c) Identify homes that may be vulnerable to damage from thawing permafrost, fire, erosion, and/or flooding and consider appropriate mitigating action(s).
	d) Investigate the feasibility of a program that provides housing maintenance assistance for homeowners and especially elders and sells supplies for housing maintenance at or near cost to facilitate affordability.

## 10.4 Goal 4 – Maintain and expand community services to provide improved care for residents

Atqasuk residents have expressed concern about the lack opportunities for recreation activities for all ages. To facilitate both physical and social well-being, especially during the winter months, space for activities and social gatherings is needed

<b>Table 23: Goal 4 – Maintain and expand community services to provide improved care for residents</b>	
<b>Objectives</b>	<b>Implementing Strategies</b>
4.1. Facilitate the development of facilities that provide opportunities for sustaining culture and improving health.	a) Village leadership, with assistance from NSB, will seek funding for ball fields and other facilities to provide residents with additional opportunities for exercise and recreation. The community has expressed the need for a teen center, daycare facility, senior center, qalgi for community gathering, and additional recreation facilities, such as a playground renovation and/or another playground.
	b) Village leadership, with assistance from NSB, will seeking funding to provide places for residents to gather that may include an open field, outdoor recreation area, and water activities.
4.2. Plan for current and future health and social service needs	a) Schedule regular evaluation and assessment of clinic facility and equipment with NSB CIPM.
	b) Investigate the feasibility of hosting visiting doctors to provide health care in person, especially near the beginning of the school year to conduct annual physicals for students.
	c) Investigate the options for mental health support and resources, such as a traveling therapists, teleconference sessions, and making sure mental health information and resources are readily available at the health clinic.
4.3. Ensure effective community emergency preparedness.	a) Coordinate hazard vulnerability assessments.
	b) Seek funding for the purchase of additional volunteer search and rescue equipment and facility renovations to strengthen operations.
	c) Provide facility space as needed to store materials and equipment intended for response to community emergencies.
	d) Disseminate information, such as family disaster supply kit contents, to residents and business about disaster preparedness to protect both people and assets.
4.4. Consider additional facilities and services as opportunities to develop them arise.	a) Seek community access to the pool for increased physical activity.
	b) Residents have expressed the desire for additional facilities and services that include expanded senior services, drugs and alcohol prevention and rehabilitation programs, space for carpentry and vehicle repair, banking services or an ATM, and a washeteria with showers.

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**10.5 Goal 5 – Provide educational resources that prepare students for entering the workforce while also inspiring community participation and leadership**

It is important to both prepare students to become community leaders and to be qualified for employment opportunities. The purpose of this goal and its associated objectives is to facilitate educational opportunities within the village, especially those that foster leadership and civic mindedness.

<b>Table 24: Goal 5 – Provide educational resources that prepare students for entering the workforce while also inspiring community participation and leadership</b>	
<b>Objectives</b>	<b>Implementing Strategies</b>
5.1. Facilitate preservation of the Inupiaq language through improving Native language fluency.	a) Establish a daycare center that includes an Iñupiat language immersion program
	b) Encourage native speakers to speak Iñupiaq at home, especially to children.
	c) Expand the Iñupiaq Immersion Program.
	d) Continue and expand the use of the Rosetta Stone program for language preservation and develop Native language education programs for adults.
5.2 Prepare students to be community leaders.	a) Encourage student programs that foster leadership skills, such as student council and peer-mentoring activities.
	b) Develop a sense of citizenship and ownership in the community through student participation in community projects, such implementing this comprehensive plan and promoting volunteerism for the betterment of the community.
5.3 Prepare students to enter the workforce	a) Develop a “how to” employment library, focusing on job skills, financial aid, and other topics.
	b) Promote existing scholarship opportunities and continue to develop and expand scholarships to meet the needs of students and employers.
	c) Evaluate the availability and needs of technical services within the community.
	d) Develop an apprenticeship program, which would provide training to create new skills in villages, supported by a regional network for technical assistance.
	e) Create a job-shadowing program that matches students with local professionals to share existing traditional and technical knowledge and to model responsible work practices and ethics.
	f) Evaluate the existing vocational education programs within the community and how it address the needs, including training for carpentry and vehicle mechanics.

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## 10.6 Goal 6 – Facilitate economic development

Residents seek greater opportunities for year-round, fulltime employment. Residents have expressed the need for jobs and job training along with the need for daycare to enable families with children to work, especially those that are flexible to allow for subsistence activities. The purpose of this goal and its associated objectives is to facilitate opportunities within the village.

<b>Table 25: Goal 6 - Facilitate economic development</b>	
<b>Objectives</b>	<b>Implementing Strategies</b>
6.1. Facilitate the establishment of businesses and services and employment opportunities.	a) Village leadership will work with the North Slope Borough School District and Iḷiṣaḡvik College to provide education, training, and certification program to residents who seek to learn construction trades, vehicle repair, and maintenance skills, and other service and repair skills that are useful to have available locally.
	b) Village leadership will coordinate with the NSB to establish childcare services to facilitate greater participation in the local workforce, also providing local employment to childcare workers.
	c) Establish work space for locals to operate businesses, such as vehicle repair shop/space in an incubator-style environment.
	d) Village leadership will work with the NSB to determine if amendments to Title 19 zoning land use code is needed to provide flexible zoning and development standards to facilitate the following community-serving uses: Greenhouses, sale of locally grown or hunted foods, an appliance and small vehicle repair shop, and various facilities and services such as lodging and food service/restaurant.
	e) 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.
	f) 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.
	g) Village leadership and NSB collaborate to develop an Alaska Regional Development Organization (ARDOR) to facilitate greater regional economic development potential.

<b>Table 25: Goal 6 - Facilitate economic development</b>	
<b>Objectives</b>	<b>Implementing Strategies</b>
6.2. Designate land and provide adequate infrastructure in appropriate locations for community business activities.	a) The village leadership will work with the NSB Planning Department to determine if amendments to Title 19 zoning and land use code is needed to encourage economic opportunities related to new local businesses and alternative energy systems.
	b) Village leadership will seek funds from government entities, corporations, and private foundations to study the feasibility of establishing new businesses related to energy conservation, renewable energy sources, and greenhouse agriculture.
	c) To the extent practical, avoid economic development activities or non-subsistence activities that could alter or disturb wildlife habitat or migratory patterns.

**10.7 Goal 7 – Seek meaningful intergovernmental and community cooperation and resident participation in decision-making for betterment of all village residents.**

Village leadership seeks to work more collaboratively to improve the quality of life for all residents. The purpose of this goal and its associated objectives is to facilitate opportunities within the village for meaningful public engagement and leadership cooperation.

<b>Table 26: Goal 7 – Seek meaningful intergovernmental and community cooperation and resident participation in decision-making for betterment of all village residents.</b>	
<b>Objectives</b>	<b>Implementing Strategies</b>
7.1. Promote formal and informal intergovernmental cooperation and agreements between the Native Village of Atqasuk, Atqasuk Corporation, City of Atqasuk, ASRC, NSB, state and federal governments for accomplishing common goals, providing a service or solving mutual problems.	a) Formally establish an Atqasuk tri-lateral committee comprised of the City of Atqasuk, Native Village of Atqasuk, and Atqasuk Corporation.
	b) Village leadership will work together with NSB staff to provide training and support to local meaningful engagement. These trainings could include ensuring representatives from Atqasuk leadership understand the land development review process.
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 village leadership will 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 Meade River 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.
7.3. Promote volunteerism.	a) Develop and implement a volunteering plan that could include type and extent of community needs; required skills; resources needed to implement a volunteer program; methods to organize, train, and manage volunteers; ways to promote volunteerism within the community; and identify potential partners.

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# Chapter 11. Implementation & Plan Revision

The Atqasuk Comprehensive Plan is intended to be a living document. Because situations change, the Objectives tables in Chapter 10 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 planning horizon, and ideally they are reviewed every two years for potential updates and updated as a matter of procedure every five years. Regularly updating the objectives tables in Chapter 10 will make it easier to complete the next update of the entire plan.

## 11.1 Capital Project Planning

Atqasuk has had several significant capital projects over the last five years. The most substantial project is the Meade River School renovation, which has received over \$15 million in total funding between 2014 and 2017. The renovation is currently underway. Additional recent capital projects include gravel haul from Utqiagvik, school bus replacement, repairs and upgrades to facilities, airport improvements, and design for both the cemetery roads upgrade and water and sewer connections.



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 Atqasuk seek alternative funding for capital projects when possible.

Table 27 provides a list of potential capital projects that may be needed or desired in Atqasuk 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 will require greater detail including a detailed scope of work and 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 extends an offer to meet with each village’s city council to provide updates on capitolly-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 2017, the City of Atqasuk prioritized the following capital projects by resolution for funding by the North Slope Borough Capital Improvement Program:

- 1) Water/Sewer Connections for Off Grid Homes
- 2) Rock/Gravel Source Survey and Study
- 3) Meade River School Renovation Completion Funds
- 4) Gravel for Airport and Water/Sewer Connections
- 5) Improved Water Delivery
- 6) Natural Gas Development Analysis

Although population growth is expected to be low over the next 20 years, there are a number of capital projects that the community currently desires or will need over this period. Those projects are identified in general categories in Table 27 with actions listed under a 5-, 10-, and 20-year timeline. These projects are not prioritized, and costs of completion have, in many cases, not been estimated. Prioritizing and estimating costs can be done through collaboration between local leadership and the North Slope Borough.

**Table 27: 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
<b>Water</b>	Connect new homes onto the existing utility system	Connect new homes onto the existing utility system	Evaluate long-term drinking water supply capacity, water quality, treatment and distribution needs
<b>Sewer</b>	Connect new homes to the existing utility system	Connect new homes onto the existing utility system	
	Evaluate long-term wastewater treatment capacity and collection needs	Expand wastewater treatment plant	
<b>Power Generation</b>	Research feasible alternative energy systems	Evaluate diesel generators for potential replacement and upgrade needs	Research coal conversion as an alternative heat source
	Upgrade power plant switch gears and controls	Wind power generation development and training	
	Develop the Atqasuk Transmission Line		
<b>Transportation</b>	Trail marking and hardening		
	Research and implement dust control measures		
	Upgrade roads to both cemeteries	Upgrade roads to both cemeteries	
	Develop a road to Utqiagvik along the Transmission Line or to Wainwright		
<b>Housing</b>	Assess extent of overcrowding		
	Rehabilitate existing vacant housing for occupancy providing energy-efficient systems	Rehabilitate existing vacant housing for occupancy providing energy-efficient systems	
	Construct new homes	Construct new homes	
	Retrofit existing housing with energy-efficient systems	Retrofit existing housing with energy-efficient systems	

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Type of Facility	1 to 5 Year Period	6 to 10 Year Period	11 to 20 Year Period
<b>Airport</b>	Design and resurface runway	Acquire snow removal equipment	Security fencing and gates and perimeter fencing rehabilitation
	Construct a passenger shelter / terminal	Construct a snow removal equipment building	
		Lighting rehabilitation	
<b>Gravel</b>	Continue evaluation of a local material source	Development of a local material source	
<b>Recreational Facilities</b>	Playground equipment upgrade / replacement		
	Develop a teen center / senior center	Indoor playground for younger kids	
<b>Community Buildings</b>	Develop a daycare facility	Develop a qalgi for community gatherings	
	Develop a washeteria with showers		

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## Appendices

Appendix A: Assembly Ordinance and Resolutions of Plan Support

Appendix B: State of Alaska Community Profile Maps

Appendix C: Adaptation Strategies for Climate Change Impacts

Appendix D: Response to Public Review Comments

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## **Appendix A: Assembly Ordinance and Resolutions of Plan Support**

North Slope Borough Assembly Ordinance #75-06-71

North Slope Borough Planning Commission Resolution #2017-11

City of Atqasuk Resolution #2017-04

Native Village of Atqasuk Resolution #2017-1

Atqasuk Corporation Resolution #2017-05

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**Appendix A: North Slope Borough Assembly Ordinance Serial No. 75-06-71**

**NORTH SLOPE BOROUGH  
ORDINANCE SERIAL NO. 75-06-71**

**A ORDINANCE ADOPTING THE ATQASUK  
COMPREHENSIVE DEVELOPMENT 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 §19.40.060(A)(2) to ensure that the incorporated villages accommodate uses in accordance with both the Borough Comprehensive Plan and Comprehensive 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 Atqasuk today and into the future are fully shared by all of the organizations working together on this project; and

**WHEREAS**, the Atqasuk Comprehensive Plan was developed with significant public involvement, including public meetings in Atqasuk, meetings with stakeholders, and website solicitation for comments; and

**WHEREAS**, the Native Village of Atqasuk Tribal Council, adopted Resolution 2017-1 on August 26, 2017, recommending adoption of the Plan as developed by the North Slope Borough; and

**WHEREAS**, the City of Atqasuk adopted Resolution 2017-04 on June 5, 2017, recommending approval of the Plan as developed by the North Slope Borough; and

**WHEREAS**, the Atqasuk Corporation, adopted Resolution 2017-05 on May 12, 2017, recommending approval of the Plan as developed by the North Slope Borough; and

**WHEREAS**, the Planning Commission adopted Resolution 2017-11 on September 28, 2017, recommending the Assembly approve of the Plan; and

**WHEREAS,** the Atqasuk Comprehensive Plan is found to be a sufficient guide to future development in Atqasuk for the next 20 years.

**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 Atqasuk Comprehensive Plan, attached as Exhibit B, as recommended by the Native Village of Atqasuk, the City of Atqasuk, the Atqasuk Corporation and the North Slope Borough Planning Commission.

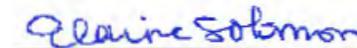
**SECTION 5. Attachments Incorporated by Reference.** Planning Commission Resolution 2017-11, attached as Exhibit A, and the Atqasuk Comprehensive Plan, attached as Exhibit B, are hereby incorporated by reference.

INTRODUCED: October 10, 2017

ADOPTED: November 14, 2017

  
\_\_\_\_\_  
John Hopson, Jr. President  
Date: 11/14/17

ATTEST:

  
\_\_\_\_\_  
Sheila Burke, Borough Clerk  
Date: 11/14/17

  
\_\_\_\_\_  
Harry K. Brower Jr., Mayor  
Date: 11-14-17

**Appendix A: North Slope Borough Planning Commission Resolution Recommending Adoption**

**NORTH SLOPE BOROUGH PLANNING COMMISSION  
RESOLUTION 2017-11**

**A RESOLUTION RECOMMENDING TO THE  
ASSEMBLY APPROVAL OF THE ATQASUK  
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 § 19.40.060(A)(2) to ensure that the incorporated villages accommodate uses in accordance with both the Borough Comprehensive Plan and Comprehensive 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 development, the maximization of economic benefits and employment opportunities for Atqasuk today and into the future are fully shared by all of the organizations working together on this project; and

**WHEREAS**, the Atqasuk Comprehensive Plan was developed with significant public involvement, including public meetings in Atqasuk, meetings with stakeholders, and solicitation for comments; and

**WHEREAS**, the Native Village of Atqasuk Tribal Council, adopted Resolution 2017-1 on August 26, 2017, recommending adoption of the Plan as developed by the North Slope Borough; and

**WHEREAS**, the City of Atqasuk adopted Resolution 2017-04 on June 5, 2017, recommending approval of the Plan as developed by the North Slope Borough; and

**WHEREAS**, the Atqasuk Corporation, adopted Resolution 2017-05 on May 12, 2017, recommending approval of the Plan as developed by the North Slope Borough; and

**WHEREAS**, the Atqasuk Comprehensive Plan is found to be a sufficient guide to future development in Atqasuk 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 Atqasuk Comprehensive Plan.

**THAT** a copy of this Resolution be forwarded to the North Slope Borough Clerk.

INTRODUCED: 9/28/17  
ADOPTED: 9/28/17

Caroline P. Cannon  
Caroline Cannon, Clerk  
Date: 9/28/17

Paul Bodfish Sr. (acting)  
Paul Bodfish Sr., Chairman  
Date: 9/28/2017

Appendix A: City of Atqasuk Resolution of Support

**CITY OF ATQASUK**

P.O. Box 91119  
Atqasuk, Alaska, 99791  
City Office Ph.: 907-633-6811  
Fax: 907-633-6812  
Email: cityofatqasuk@hotmail.com



Douglas Whiteman, Mayor

**RESOLUTION NO. 2017-04**

**A RESOLUTION OF THE CITY OF ATQASUK ENDORSING THE ATQASUK  
COMPREHENSIVE PLAN**

**WHEREAS**, the City of Atqasuk 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 Atqasuk Comprehensive Plan (Plan); and

**WHEREAS**, the process to develop the Plan involved a collaborative effort of the City of Atqasuk, the Native Village of Atqasuk Tribal Council, and the Atqasuk 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 City of Atqasuk Council has reviewed the Atqasuk Comprehensive 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 2017.

**NOW, THEREFORE BE IT RESOLVED**, the City of Atqasuk endorses the June 2017 Final Draft of the Atqasuk Comprehensive Plan and recommends approval of the Plan by the North Slope Borough Assembly.

**PASSED AND APPROVED** by a duly constituted quorum of the City Council of the City of Atqasuk on the 5th day of June, 2017.

**ATTEST:**

Douglas Whiteman 06-06-17  
Mayor Date

Maerlene Jayaguk 06/05/17  
City Clerk Date

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**Appendix A: Native Village of Atqasuk Resolution of Support**

**A RESOLUTION OF THE NATIVE VILLAGE OF ATQASUK TRIBAL COUNCIL ENDORSING THE  
ATQASUK COMPREHENSIVE PLAN**

Resolution No. 2017-1

WHEREAS, the Native Village of Atqasuk Tribal Council is a federally-recognized tribe representing the community of Atqasuk, Alaska; and

WHEREAS, the North Slope Borough and its consultants have worked with the community to develop the Atqasuk Comprehensive Plan (Plan); and

WHEREAS, the process to develop the Plan involved a collaborative effort of the City of Atqasuk, the Native Village of Atqasuk Tribal Council, and the Atqasuk 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 Native Village of Atqasuk Tribal Council has reviewed the Atqasuk Comprehensive 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 2017.

NOW, THEREFORE BE IT RESOLVED, the Native Village of Atqasuk Tribal Council endorses the June 2017 Final Draft of the Atqasuk Comprehensive Plan and recommends approval of the Plan by the North Slope Borough Assembly.

PASSED AND APPROVED BY THE NATIVE VILLAGE OF ATQASUK TRIBAL COUNCIL THIS 26TH DAY OF August 2017.



President

ATTEST:



Secretary

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Appendix A: Atqasuk Corporation Resolution of Support

**Resolution 2017-05**

**A Resolution Endorsing the 2017-2037  
Atqasuk North Slope Borough Comprehensive Plan**

**WHEREAS**, Atqasuk Corporation is the Alaska Native Claims Settlement Act Village Corporation for Atqasuk Alaska, and

**WHEREAS**, the North Slope Borough and its consultants have worked with the community to develop the 2017-2037 Atqasuk Comprehensive Plan; and

**WHEREAS**, the process to develop the Plan involved a collaborative effort of the City of Atqasuk, the Native Village of Atqasuk Tribal Council, and the Atqasuk 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 Atqasuk Corporation Board of Directors have reviewed the 2017-2037 Atqasuk North Slope Borough Comprehensive Plan, and the North Slope Borough and its consultants, ASRC Energy Services, UMIAQ Environmental and UMIAQ Design & Municipal Services, Limited Liability Companies of Ukpeagvik Inupiat Corporation, have incorporated the Atqasuk Board of Directors comments into the Final Draft.

**NOW, THEREFORE BE IT RESOLVED**, the Atqasuk Corporation endorses the 2017-2037 Final Draft of the Atqasuk Comprehensive Plan and recommends approval of the Plan by the North Slope Borough Assembly.

*Passed and Approved by the Board of Directors of Atqasuk Corporation this 12<sup>th</sup> Day of May, 2017.*

**CERTIFICATION**

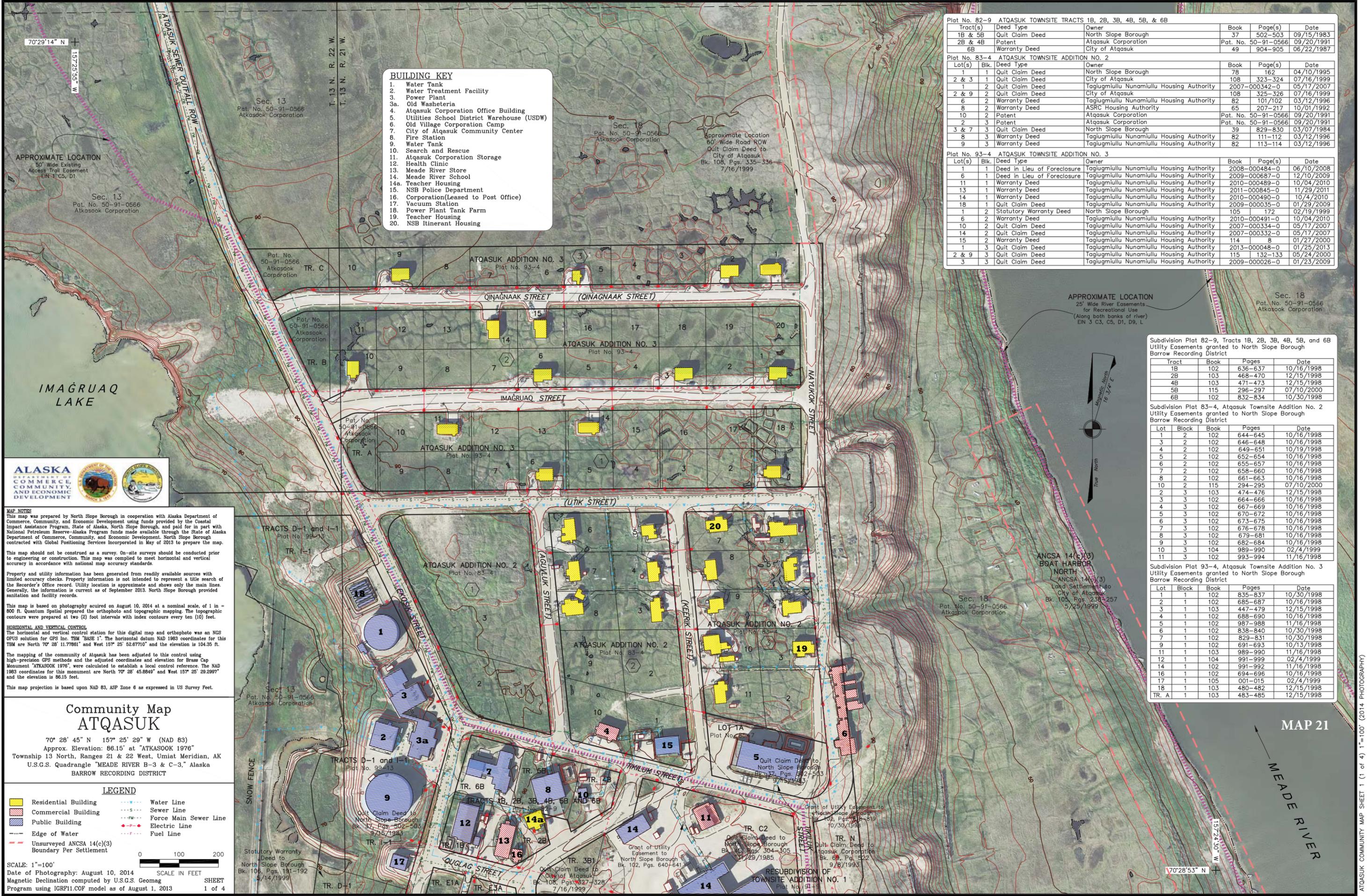
I, Bertha Akpik, do hereby certify that I am the Secretary of Atqasuk Corporation, a corporation organized and existing under the laws of the State of Alaska and that, at a meeting of the Board of Directors of corporation, duly held on May 12, 2017, at which meeting a quorum of the Directors attended and participated, the foregoing resolution was duly adopted.

In witness whereof, I have hereunto set my hand, by order of the Board of Directors thereof, this 12<sup>th</sup> day of May 2017.

  
Barrell D Brower, Vice-President

Attest:  
  
Bertha Akpik, Corporate Secretary

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**BUILDING KEY**

1. Water Tank
2. Water Treatment Facility
3. Power Plant
- 3a. Old Washeteria
4. Atkasook Corporation Office Building
5. Utilities School District Warehouse (USDW)
6. Old Village Corporation Camp
7. City of Atkasook Community Center
8. Fire Station
9. Water Tank
10. Search and Rescue
11. Atkasook Corporation Storage
12. Health Clinic
13. Meade River Store
14. Meade River School
- 14a. Teacher Housing
15. NSB Police Department
16. Corporation (Leased to Post Office)
17. Vacuum Station
18. Power Plant Tank Farm
19. Teacher Housing
20. NSB Itinerant Housing

**Plat No. 82-9 ATQASUK TOWNSITE TRACTS 1B, 2B, 3B, 4B, 5B, & 6B**

Tract(s)	Deed Type	Owner	Book	Page(s)	Date
1B & 5B	Quit Claim Deed	North Slope Borough	37	502-503	09/15/1983
2B & 4B	Patent	Atkasook Corporation	Pat. No. 50-91-0566		09/20/1991
6B	Warranty Deed	City of Atkasook	49	904-905	06/22/1987

**Plat No. 83-4 ATQASUK TOWNSITE ADDITION NO. 2**

Lot(s)	Blk.	Deed Type	Owner	Book	Page(s)	Date
1	1	Quit Claim Deed	North Slope Borough	78	162	04/10/1995
2 & 3	1	Quit Claim Deed	City of Atkasook	108	323-324	07/16/1999
1	2	Quit Claim Deed	Tagiugiullu Nunamiullu Housing Authority	2007-000342-0		05/17/2007
2 & 9	2	Quit Claim Deed	City of Atkasook	108	325-326	07/16/1999
6	2	Warranty Deed	Tagiugiullu Nunamiullu Housing Authority	82	101/102	03/12/1996
8	2	Warranty Deed	ASRC Housing Authority	65	207-217	10/01/1992
10	2	Patent	Atkasook Corporation	Pat. No. 50-91-0566		09/20/1991
2	3	Patent	Atkasook Corporation	Pat. No. 50-91-0566		09/20/1991
3 & 7	3	Quit Claim Deed	North Slope Borough	39	829-830	03/07/1984
8	3	Warranty Deed	Tagiugiullu Nunamiullu Housing Authority	82	111-112	03/12/1996
9	3	Warranty Deed	Tagiugiullu Nunamiullu Housing Authority	82	113-114	03/12/1996

**Plat No. 93-4 ATQASUK TOWNSITE ADDITION NO. 3**

Lot(s)	Blk.	Deed Type	Owner	Book	Page(s)	Date
1	1	Deed in Lieu of Foreclosure	Tagiugiullu Nunamiullu Housing Authority	2008-000484-0		06/10/2008
6	1	Deed in Lieu of Foreclosure	Tagiugiullu Nunamiullu Housing Authority	2009-000687-0		12/10/2009
11	1	Warranty Deed	Tagiugiullu Nunamiullu Housing Authority	2010-000489-0		10/04/2010
13	1	Warranty Deed	Tagiugiullu Nunamiullu Housing Authority	2011-000845-0		11/29/2011
14	1	Warranty Deed	Tagiugiullu Nunamiullu Housing Authority	2010-000490-0		10/4/2010
18	1	Quit Claim Deed	Tagiugiullu Nunamiullu Housing Authority	2009-000035-0		01/29/2009
1	2	Statutory Warranty Deed	North Slope Borough	105	172	02/19/1999
6	2	Warranty Deed	Tagiugiullu Nunamiullu Housing Authority	2010-000491-0		10/04/2010
10	2	Quit Claim Deed	Tagiugiullu Nunamiullu Housing Authority	2007-000334-0		05/17/2007
14	2	Quit Claim Deed	Tagiugiullu Nunamiullu Housing Authority	2007-000332-0		05/17/2007
15	2	Warranty Deed	Tagiugiullu Nunamiullu Housing Authority	114	8	01/27/2000
1	3	Quit Claim Deed	Tagiugiullu Nunamiullu Housing Authority	2013-000048-0		01/25/2013
2 & 9	3	Quit Claim Deed	Tagiugiullu Nunamiullu Housing Authority	115	132-133	05/24/2000
3	3	Quit Claim Deed	Tagiugiullu Nunamiullu Housing Authority	2009-000026-0		01/23/2009

**Subdivision Plat 82-9, Tracts 1B, 2B, 3B, 4B, 5B, and 6B**  
Utility Easements granted to North Slope Borough Barrow Recording District

Tract	Book	Pages	Date
1B	102	636-637	10/16/1998
2B	103	468-470	12/15/1998
4B	103	471-473	12/15/1998
5B	115	296-297	07/10/2000
6B	102	832-834	10/30/1998

**Subdivision Plat 83-4, Atkasook Townsite Addition No. 2**  
Utility Easements granted to North Slope Borough Barrow Recording District

Lot	Block	Book	Pages	Date
1	2	102	644-645	10/16/1998
3	2	102	646-648	10/16/1998
4	2	102	649-651	10/19/1998
5	2	102	652-654	10/16/1998
6	2	102	655-657	10/16/1998
7	2	102	658-660	10/16/1998
8	2	102	661-663	10/16/1998
10	2	115	294-295	07/10/2000
2	3	103	474-476	12/15/1998
3	3	102	664-666	10/16/1998
4	3	102	667-669	10/16/1998
5	3	102	670-672	10/16/1998
6	3	102	673-675	10/16/1998
7	3	102	676-678	10/16/1998
8	3	102	679-681	10/16/1998
9	3	102	682-684	10/16/1998
10	3	104	989-990	02/4/1999
11	3	102	993-994	11/16/1998

**Subdivision Plat 93-4, Atkasook Townsite Addition No. 3**  
Utility Easements granted to North Slope Borough Barrow Recording District

Lot	Block	Book	Pages	Date
1	1	102	835-837	10/30/1998
2	1	102	685-687	10/16/1998
3	1	103	447-479	12/15/1998
4	1	102	688-690	10/16/1998
5	1	102	987-988	11/16/1998
6	1	102	838-840	10/30/1998
7	1	102	829-831	10/30/1998
9	1	102	691-693	10/13/1998
11	1	103	989-990	11/16/1998
12	1	104	991-999	02/4/1999
14	1	102	991-992	11/16/1998
16	1	102	694-696	10/16/1998
17	1	105	001-015	02/4/1999
18	1	103	480-482	12/15/1998
TR. A	1	103	483-485	12/15/1998

**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, North Slope Borough, and paid for in part with National Petroleum Reserve-Alaska Program funds made available through the State of Alaska Department of Commerce, Community, and Economic Development, North Slope Borough contracted with Global Positioning Services Incorporated in May of 2013 to prepare the map.

This map should not be construed as a survey. On-site surveys should be conducted prior to engineering or construction. This map was compiled to meet horizontal and vertical accuracy in accordance with national map accuracy standards.

Property and utility information has been generated from readily available sources with limited accuracy checks. Property information is not intended to represent a title search of the Recorder's Office record. Utility location is approximate and shows only the main lines. Generally, the information is current as of September 2013. North Slope Borough provided sanitation and facility records.

This map is based on photography secured on August 10, 2014 at a nominal scale of 1 in = 800 ft. Quantum Spatial prepared the orthophoto and topographic mapping. The topographic contours were prepared at two (2) foot intervals with index contours every ten (10) feet.

**HORIZONTAL AND VERTICAL CONTROL**  
The horizontal and vertical control station for this digital map and orthophoto was an NGS OPUS solution for GPS in the TBM "BASE 1". The horizontal datum NAD 1983 coordinates for this TBM are North 70° 28' 11.77861" and West 157° 25' 52.67710" and the elevation is 104.35 ft.

The mapping of the community of Atkasook has been adjusted to this control using high-precision GPS methods and the adjusted coordinates and elevation for Brass Cap Monument "ATKASOOK 1976", were calculated to establish a local control reference. The NAD 1983 coordinates for this monument are North 70° 28' 45.8846" and West 157° 25' 29.2997" and the elevation is 86.15 feet.

This map projection is based upon NAD 83, ASP Zone 6 as expressed in US Survey Feet.

**Community Map ATQASUK**

70° 28' 45" N 157° 25' 29" W (NAD 83)  
Approx. Elevation: 86.15' at "ATKASOOK 1976"  
Township 13 North, Ranges 21 & 22 West, Umat Meridian, AK  
U.S.G.S. Quadrangle "MEADE RIVER B-3 & C-3," Alaska  
BARROW RECORDING DISTRICT

**LEGEND**

	Residential Building		Water Line
	Commercial Building		Sewer Line
	Public Building		Force Main Sewer Line
	Edge of Water		Electric Line
	Unsurveyed ANCSA 14(c)(3) Boundary Per Settlement		Fuel Line

SCALE: 1"=100'  
Date of Photography: August 10, 2014  
Magnetic Declination computed by U.S.G.S. Geomag  
Program using IGRF11.COP model as of August 1, 2013

SCALE IN FEET  
0 100 200

SHEET  
1 of 4

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# Community Map ATQASUK

70° 28' 45" N 157° 25' 29" W (NAD 83)  
 Approx. Elevation: 86.15' at "ATKASOOK 1976"  
 Township 13 North, Ranges 21 & 22 West, Umiat Meridian, AK  
 U.S.G.S. Quadrangle "MEADE RIVER B-3 & C-3," Alaska  
 BARROW RECORDING DISTRICT

## LEGEND

- |   |   |
|---|---|
|  Residential Building                              |  Water Line            |
|  Commercial Building                               |  Sewer Line            |
|  Public Building                                   |  Force Main Sewer Line |
|  Edge of Water                                     |  Electric Line         |
|  Unsurveyed ANCSA 14(c)(3) Boundary Per Settlement |  Fuel Line             |

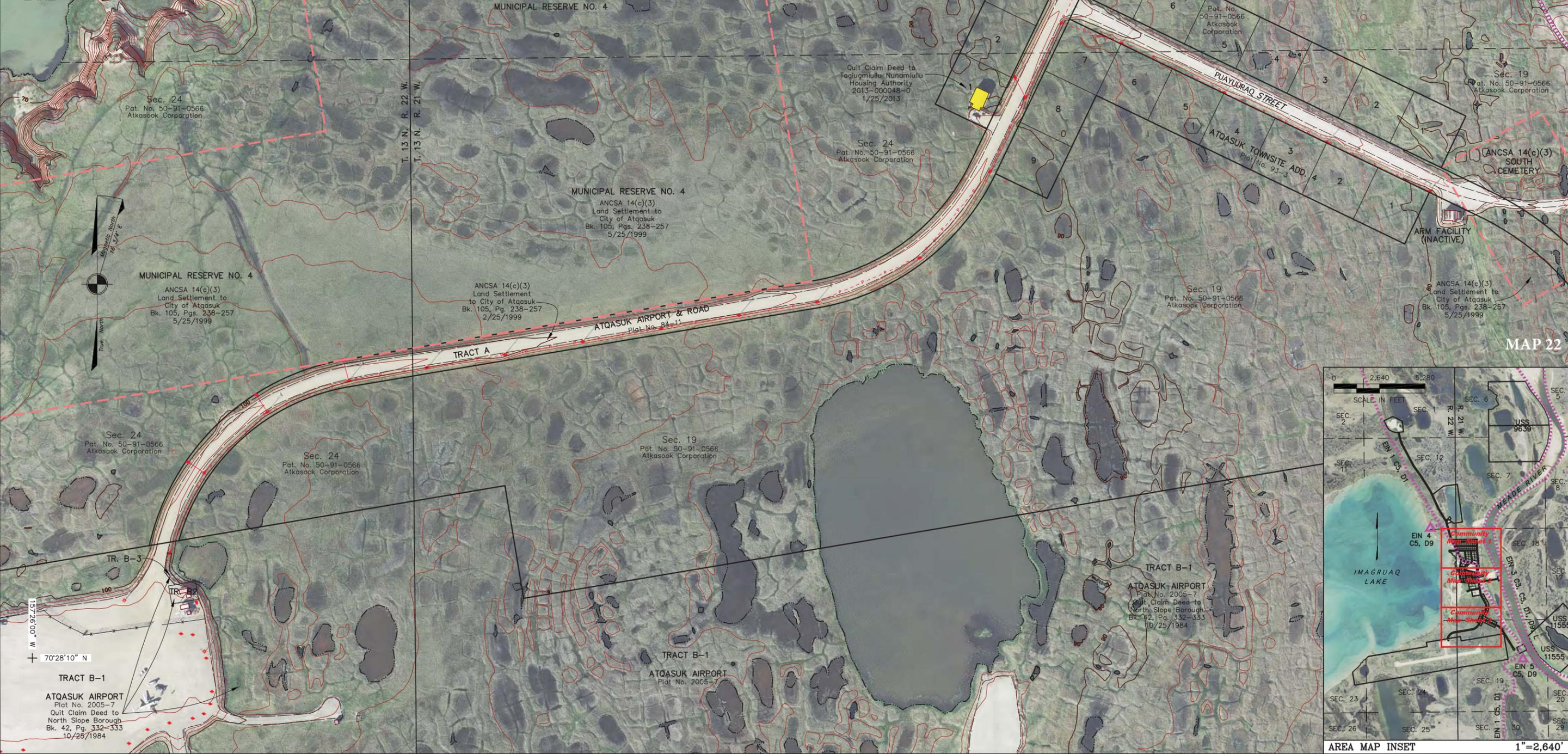


SCALE: 1"=100'  
 Date of Photography: August 10, 2014  
 Magnetic Declination computed by U.S.G.S. Geomag  
 Program using IGRF11.COP model as of August 1, 2013

SCALE IN FEET

SHEET 3 of 4

IMAGUAQ LAKE



APPROXIMATE LOCATION  
 60' Wide Existing  
 Access Trail Easement  
 EIN 1 C5, D1

Sec. 18  
 Pat. No. 50-91-0566  
 Atkasook Corporation

Sec. 19  
 Pat. No. 50-91-0566  
 Atkasook Corporation

Sec. 19  
 Pat. No. 50-91-0566  
 Atkasook Corporation

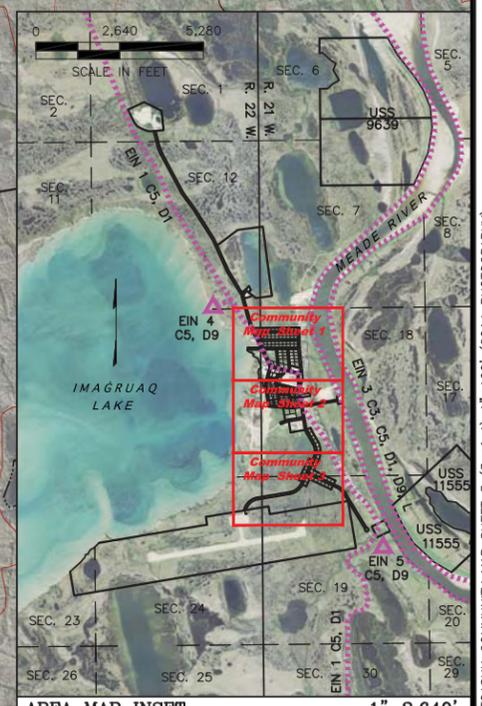
Sec. 24  
 Pat. No. 50-91-0566  
 Atkasook Corporation

Sec. 24  
 Pat. No. 50-91-0566  
 Atkasook Corporation

Sec. 19  
 Pat. No. 50-91-0566  
 Atkasook Corporation

Sec. 24  
 Pat. No. 50-91-0566  
 Atkasook Corporation

MAP 22



AREA MAP INSET

1"=2,640'

ATQASUK COMMUNITY MAP SHEET 3 (3 of 4) 1"=100' (2014 PHOTOGRAPHY)

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# Community Map ATQASUK

70° 28' 45" N 157° 25' 29" W (NAD 83)  
 Approx. Elevation: 86.15' at "ATKASOOK 1976"  
 Township 13 North, Ranges 21 & 22 West, Umiat Meridian, AK  
 U.S.G.S. Quadrangle "MEADE RIVER B-3 & C-3," Alaska  
 BARROW RECORDING DISTRICT

## LEGEND

- Residential Building
- Commercial Building
- Public Building
- Edge of Water
- Basis of Coordinates "ATKASOOK 1976"
- Water Line
- Sewer Line
- Force Main Sewer Line
- Electric Line
- Fuel Line
- Unsurveyed ANCSA 14(c)(3) Boundary Per Settlement

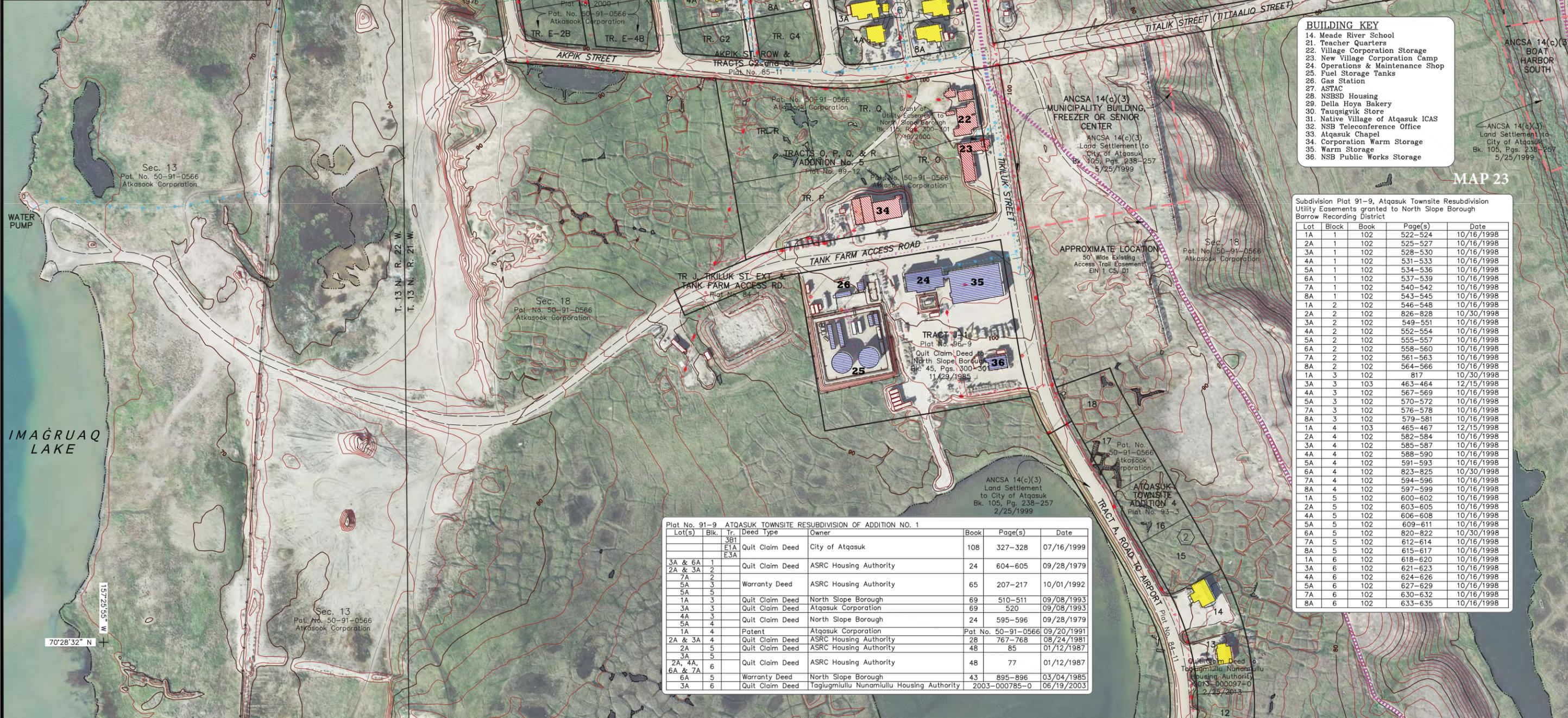
SCALE: 1"=100'  
 Date of Photography: August 10, 2014  
 Magnetic Declination computed by U.S.G.S. Geomag  
 Program using IGRF11.COF model as of August 1, 2013

SCALE IN FEET  
 SHEET  
 2 of 4

**HORIZONTAL AND VERTICAL CONTROL**  
 The horizontal and vertical control station for this digital map and orthophoto was an NGS OPUS solution for GPS Inc. TBM "BASE 1". The horizontal datum NAD 1983 coordinates for this TBM are North 70° 28' 11.77861" and West 157° 25' 52.67716" and the elevation is 104.35 ft.

The mapping of the community of Atkasuk has been adjusted to this control using high-precision GPS methods and the adjusted coordinates and elevation for Brass Cap Monument "ATKASOOK 1976", were calculated to establish a local control reference. The NAD 1983 coordinates for this monument are North 70° 28' 45.8949" and West 157° 25' 29.2997" and the elevation is 86.15 feet.

This map projection is based upon NAD 83, ASP Zone 6 as expressed in US Survey Feet.



- BUILDING KEY**
- 14. Meade River School
  - 21. Teacher Quarters
  - 22. Village Corporation Storage
  - 23. New Village Corporation Camp
  - 24. Operations & Maintenance Shop
  - 25. Fuel Storage Tanks
  - 26. Gas Station
  - 27. ASTAC
  - 28. NSBSD Housing
  - 29. Della Hoya Bakery
  - 30. Tausigvik Store
  - 31. Native Village of Atkasuk ICAS
  - 32. NSB Teleconference Office
  - 33. Atkasuk Chapel
  - 34. Corporation Warm Storage
  - 35. Warm Storage
  - 36. NSB Public Works Storage

Subdivision Plat 91-9, Atkasuk Townsite Resubdivision  
 Utility Easements granted to North Slope Borough  
 Barrow Recording District

Lot	Block	Book	Page(s)	Date
1A	1	102	522-524	10/16/1998
2A	1	102	525-527	10/16/1998
3A	1	102	528-530	10/16/1998
4A	1	102	531-533	10/16/1998
5A	1	102	534-536	10/16/1998
6A	1	102	537-539	10/16/1998
7A	1	102	540-542	10/16/1998
8A	1	102	543-545	10/16/1998
1A	2	102	546-548	10/16/1998
2A	2	102	826-828	10/30/1998
3A	2	102	549-551	10/16/1998
4A	2	102	552-554	10/16/1998
5A	2	102	555-557	10/16/1998
6A	2	102	558-560	10/16/1998
7A	2	102	561-563	10/16/1998
8A	2	102	564-566	10/16/1998
1A	3	102	817	10/30/1998
3A	3	103	463-464	12/15/1998
4A	3	102	567-569	10/16/1998
5A	3	102	570-572	10/16/1998
7A	3	102	576-578	10/16/1998
8A	3	102	579-581	10/16/1998
1A	4	103	465-467	12/15/1998
2A	4	102	582-584	10/16/1998
3A	4	102	585-587	10/16/1998
4A	4	102	588-590	10/16/1998
5A	4	102	591-593	10/16/1998
6A	4	102	823-825	10/30/1998
7A	4	102	594-596	10/16/1998
8A	4	102	597-599	10/16/1998
1A	5	102	600-602	10/16/1998
2A	5	102	603-605	10/16/1998
4A	5	102	606-608	10/16/1998
5A	5	102	609-611	10/16/1998
6A	5	102	820-822	10/30/1998
7A	5	102	612-614	10/16/1998
8A	5	102	615-617	10/16/1998
1A	6	102	618-620	10/16/1998
3A	6	102	621-623	10/16/1998
4A	6	102	624-626	10/16/1998
5A	6	102	627-629	10/16/1998
7A	6	102	630-632	10/16/1998
8A	6	102	633-635	10/16/1998

Plat No. 91-9 ATQASUK TOWNSITE RESUBDIVISION OF ADDITION NO. 1

Lot(s)	Blk.	Tr.	Deed Type	Owner	Book	Page(s)	Date
3B1		E1A	Quit Claim Deed	City of Atkasuk	108	327-328	07/16/1999
3A & 6A	1	E3A	Quit Claim Deed	ASRC Housing Authority	24	604-605	09/28/1979
7A	2						
5A	3		Warranty Deed	ASRC Housing Authority	65	207-217	10/01/1992
5A	5						
1A	3		Quit Claim Deed	North Slope Borough	69	510-511	09/08/1993
3A	3		Quit Claim Deed	Atkasuk Corporation	69	520	09/08/1993
4A	3		Quit Claim Deed	North Slope Borough	24	595-596	09/28/1979
5A	4						
1A	4		Patent	Atkasuk Corporation	Pat No. 50-91-0566	09/20/1991	
2A & 3A	4		Quit Claim Deed	ASRC Housing Authority	28	767-768	08/24/1981
2A	5		Quit Claim Deed	ASRC Housing Authority	48	85	01/12/1987
3A	5						
2A, 4A, 6A & 7A	5		Quit Claim Deed	ASRC Housing Authority	48	77	01/12/1987
6A	5		Warranty Deed	North Slope Borough	43	895-896	03/04/1985
3A	6		Quit Claim Deed	Tagiugmiullu Nunamiullu Housing Authority	2003-000785-0	06/19/2003	

MAP 23

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**Appendix C: Adaptation Strategies for Climate Change Impacts**

**Table 28: 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.</p> <p>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.<sup>230</sup></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 &amp; 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 &amp; 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>

<sup>230</sup> Hassol, Susan Joy. *Alaska Climate Impact Assessment. Impacts of a Warming Arctic*. University of Alaska, Fairbanks, 2004. [www.amap.no/documents/download/1058](http://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.<sup>231</sup></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>

<sup>231</sup> Hassol, Susan Joy. *Alaska Climate Impact Assessment. Impacts of a Warming Arctic*. University of Alaska, Fairbanks, 2004. [www.amap.no/documents/download/1058](http://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.<sup>232</sup></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>

<sup>232</sup> Hassol, Susan Joy. *Alaska Climate Impact Assessment. Impacts of a Warming Arctic*. University of Alaska, Fairbanks, 2004. [www.amap.no/documents/download/1058](http://www.amap.no/documents/download/1058).

Weather-related physical change	Potential impacts to the village	Adaptive Response Options
Early snow melt.	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.	
	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.	
Increased inland rain.	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	
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.	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>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. 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 sals 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.<sup>236</sup> 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>

<sup>236</sup> 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](http://www.north-slope.org/assets/images/uploads/CIAP%20booklet.pdf).

Weather-related physical change	Potential impacts to the village	Adaptive Response Options
<p>continued) Acid Rain. 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. <sup>233</sup> <sup>234</sup> <sup>235</sup></p>		

<sup>233</sup> Hild, C. 2002. *Contaminants In Alaska: Is America’s Arctic At Risk?* In The Status of Alaska’s Oceans & Watersheds.

<sup>234</sup> Alaska Adaptation Advisory Group to the Alaska Climate Change Sub-Cabinet. 2010. *Alaska’s Climate Change Strategy: Addressing Impacts in Alaska*. Accessed Jan. 20, 2017. [http://climatechange.alaska.gov/aag/docs/aag\\_all\\_rpt\\_27jan10.pdf](http://climatechange.alaska.gov/aag/docs/aag_all_rpt_27jan10.pdf).

<sup>235</sup> 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, UB radiation in the Arctic is projected to remain elevated.<sup>237</sup></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>

<sup>237</sup> Hassol, Susan Joy. *Alaska Climate Impact Assessment. Impacts of a Warming Arctic*. University of Alaska, Fairbanks, 2004. [www.amap.no/documents/download/1058](http://www.amap.no/documents/download/1058).

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**Appendix D: Response to Public Review Comments**

No.	Comment	Draft Page	Final Page	Action <i>italics</i> are additions; <del>strikethroughs</del> are deletions Additional sources here are presented as in-text citations but are footnotes within the plan
<b>Comments from community meeting held on April 17, 2017</b>				
1	Add lynx, beaver, porcupine, moose to the wildlife section	29	26	Table 2 listing Species Commonly Found in the Atqasuk Area now includes the following terrestrial mammals: Arctic Fox, Brown Bear, Caribou, Ground Squirrel, Red Fox, Weasel, <i>Lynx, Porcupine, Moose, Beaver</i> , Wolf, and Wolverine.
2	The community would like to be informed about scientific research – both when it’s being conducted as well as results/findings.	N/A	33-34	<p>The following section has been added:</p> <p><i>3.11 Science Research. The Alaska Arctic has been studied over the last 120 years, especially over the last 50 years, as researchers realized there is much to learn about the unique ecosystem. Today, scientists study the Alaska Arctic to measure and track sea ice, permafrost, beach erosion, snow properties, and Arctic plants and animals. Scientists often collaborate with local Native communities to gather Traditional Knowledge and learn about trends over time. Utqiagvik has long been a hub for scientific research in the Alaska Arctic.</i></p> <p><i>Scientific studies can occur in winter or summer and often include aerial surveys, satellite surveys, or physical surveys. Physical surveys may involve fixed-wing aircraft, helicopter, and tracked or wheeled vehicles. Studies that take place within the North Slope Borough require a field study permit from the NSB Department of Planning and Community Services. Studies that take place within NPR-A require a permit from the Bureau of Land Management (BLM). Some Native corporations also require a permit when crossing or conducting studies on Native corporation lands. In the summer of 2017, there are over 20 studies being conducted within the NPR-A, including aerial polar bear surveys, animal tracking and tagging, vegetation monitoring, permafrost experimentation, paleontological surveys, snow measurements, fish sampling, and coastal erosion monitoring. Researchers working in the Atqasuk area may benefit from the availability of camp or kitchen facilities. Atqasuk may work with the NSB Planning and Wildlife departments to coordinate on upcoming studies and determine if community residents could provide assistance or other resources to researchers.</i></p>

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No.	Comment	Draft Page	Final Page	<p style="text-align: center;"><b>Action</b></p> <p style="text-align: center;"><i>italics are additions; strikethroughs are deletions</i></p> <p style="text-align: center;">Additional sources here are presented as in-text citations but are footnotes within the plan</p>								
2	<p>(continued)</p> <p>The community would like to be informed about scientific research – both when it’s being conducted as well as results/findings.</p>	N/A	142	<p>(continued)</p> <p>The following Objective and Implementing Strategies have been added to Goal 1:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%; padding: 5px;"> <p>1.6. Facilitate improved coordination and communication regarding science research activities the vicinity.</p> </td> <td style="padding: 5px;"> <p><i>a) Coordinate with permitting agencies to require researchers to present projects to the community, provide updates and results/findings.</i></p> </td> </tr> <tr> <td style="padding: 5px;"></td> <td style="padding: 5px;"> <p><i>b) Work with permitting agencies to include stipulations for low-flying aircraft over subsistence lands and waters to minimize the number and frequency of flights during wildlife migratory, nesting, brooding, denning, or fledging periods in order to avoid harassment to wildlife and subsistence hunters.</i></p> </td> </tr> <tr> <td style="padding: 5px;"></td> <td style="padding: 5px;"> <p><i>c) Work with permitting agencies to develop stipulations that require communication about low-flying aircraft routes and schedules to a village-designated coordinator to inform the community’s subsistence users.</i></p> </td> </tr> <tr> <td style="padding: 5px;"></td> <td style="padding: 5px;"> <p><i>d) Develop a program for researchers to include interested students to actively participate in research activities.</i></p> </td> </tr> </table>	<p>1.6. Facilitate improved coordination and communication regarding science research activities the vicinity.</p>	<p><i>a) Coordinate with permitting agencies to require researchers to present projects to the community, provide updates and results/findings.</i></p>		<p><i>b) Work with permitting agencies to include stipulations for low-flying aircraft over subsistence lands and waters to minimize the number and frequency of flights during wildlife migratory, nesting, brooding, denning, or fledging periods in order to avoid harassment to wildlife and subsistence hunters.</i></p>		<p><i>c) Work with permitting agencies to develop stipulations that require communication about low-flying aircraft routes and schedules to a village-designated coordinator to inform the community’s subsistence users.</i></p>		<p><i>d) Develop a program for researchers to include interested students to actively participate in research activities.</i></p>
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3	<p>Provide information on how many homes are connected/not connected to water and sewer system.</p>	55	54	<p>Fifth sentence in the first paragraph under Section 6.3:  <i>The initial installation of the water system included 47 residential connections, 7 commercial building connections, and 13 public building connections. <del>61 service connections, to both commercial and residential buildings, including the school.</del> There have not been any additional connections since the initial system installation.</i></p> <p>Second paragraph in Section 6.3:  <i>After the initial construction of the water and sewer systems in 2002, about 15–12 newer homes have been constructed. <del>All</del>None of the newer <del>not</del> homes are connected to the below grade system; <del>but</del> they have holding tanks for water and sewer.</i></p>								
4	<p>Generator data is incorrect.</p>	69	68	<p>Table 11 and the related narrative have been updated:            Together, the five generators, listed in Table 11, have a total power capacity of <del>3,370</del> 3,245 kilowatts (kW). The original power plant building houses two Caterpillar 3508 diesel fired generators rated at 450kW and 425kW, along with each and one Caterpillar 3512 diesel fired generator rated at <del>650kW</del> 550kW. Adjacent to this building is a prefabricated metal building added in 2000 that houses two Caterpillar 3512 diesel fired generators rated at <del>950kW</del> 910kW each. The power plant operates using the five generator units listed below:</p>								

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4	(continued) Generator data is incorrect.			<p>(continued)</p> <table border="1"> <thead> <tr> <th>Unit</th> <th>Make/Model</th> <th>Capacity</th> <th>Serial Number</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Caterpillar 3508C</td> <td>450 KW</td> <td>70Z01076</td> </tr> <tr> <td>2</td> <td>Caterpillar 3508STD</td> <td>425 KW</td> <td>70Z00588</td> </tr> <tr> <td>3</td> <td>Caterpillar 3512STD</td> <td>550 KW</td> <td>67Z00548</td> </tr> <tr> <td>4</td> <td>Caterpillar 3512</td> <td>910 KW</td> <td>67Z02022</td> </tr> <tr> <td>5</td> <td>Caterpillar 3512</td> <td>910 KW</td> <td>67Z02021</td> </tr> </tbody> </table>	Unit	Make/Model	Capacity	Serial Number	1	Caterpillar 3508C	450 KW	70Z01076	2	Caterpillar 3508STD	425 KW	70Z00588	3	Caterpillar 3512STD	550 KW	67Z00548	4	Caterpillar 3512	910 KW	67Z02022	5	Caterpillar 3512	910 KW	67Z02021
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5	Provide information on population growth if a road is built to/from Barrow and how it relates to school capacity.	N/A	79	<p>The following text is added to the end of Section 6.8 Transportation, subsection Roads:</p> <p><i>A road from Utqiaġvik to Nuiqsut has been included in a list of priorities sent to President Donald Trump from Alaska Governor Bill Walker in mid-May 2017. Known as the Arctic Strategic Transportation and Resources (ASTAR) Project, the road between Utqiaġvik and Nuiqsut is envisioned as the first of several transportation corridors to connect rural communities across the North Slope for resource development. A road between Utqiaġvik and Atqasuk is proposed as a subsequent phase. The federal request for the project includes expedited environmental permitting, access to grant funding or cost-sharing through loans, and document support for land planning.</i></p> <p><i>A road connecting Atqasuk with Utqiaġvik could have a significant impact on Atqasuk residents, especially for resident access to lower prices and availability of supplies, groceries, flights, etc. in Utqiaġvik. There may some North Slope residents relocating to Atqasuk that enjoy living in a village but also want the connection to a larger community. However, because neither of the plans that consider a road between the two communities is planned, designed, or funded, it is difficult to consider potential impacts on the community within this comprehensive plan’s planning timeframe. This plan will be reviewed every two years; as details are available, they will be included to provide an analysis on the potential impact to the community.</i></p>																								

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6	Verify with NSBSD regarding student reenrollment and bus stops.	97	96	Section 7.1: Meade River School provides education for students from pre-school through 12th grade. The current <i>FY 2016/2017</i> school year has an enrollment of <del>82</del> 78 students, with 10 teachers, one counselor, one principal, and 13 support staff. The school bus transportation system runs six times per day and <del>stops at</del> <i>makes</i> approximately <del>240</del> homes <del>stops</del> per day.
7	Ownership of the store is incorrect.	107	106	<p><i>There are two stores operating in Atqasuk. <del>The Atqasuk Village Corporation owns and operates The Tauqsigvik Store which sells groceries, clothing, first-aid supplies, hardware, fuel, and sporting goods and P&amp;J Store sells frozen food, soda pop, and other food items. Both are privately owned. The Atqasuk Corporation's Meade River Store is located next to the post office. The store is not currently operational and is being renovated. In addition to the Tauqsigvik Store, five other entities hold active business licenses in Atqasuk: including a bakery and quick stop convenience store.</del></i></p> <ul style="list-style-type: none"> <li>• <i>City of Atqasuk</i></li> <li>• <i>D&amp;B Quick Stop (2 licenses)</i></li> <li>• <i>Della Hoya's Bakery</i></li> <li>• <i>Dougworks</i></li> <li>• <i>H&amp;R Videos (2 licenses)</i></li> <li>• <i>J&amp;P Store(2 licenses)</i></li> <li>• <i>Maggie Hopson</i></li> <li>• <i>Mary Lou Kippi</i></li> <li>• <i>P&amp;J Store</i></li> <li>• <i>Tauqsigvik (3 licenses)</i></li> </ul>
<b>Written comments provided during community meeting on April 17, 2017</b> <b>Mark Roseberry</b>				
8	Add swan and raven to Table 2	29	26	Tundra Swan and Raven are added to Table 2.
9	Limiting factor is capacity of wastewater; need larger wastewater plant.	57-59	56-59	The narrative and Table 9 in Section 6.4 subsection Wastewater Treatment Plan indicate that additional capacity is needed.
10	Thought for a museum and science research; acknowledgement / or support or importance.	N/A	33-34	The following section has been added to the plan: <i>3.11 Science Research</i> <i>The Alaska Arctic has been studied over the last 120 years, especially over the last 50 years, as researchers realized there is much to learn about the unique ecosystem. Today, scientists study the Alaska Arctic to measure and track sea ice, permafrost, beach erosion, snow properties, and Arctic plants and animals. Scientists often collaborate with local Native communities to gather Traditional Knowledge and learn about trends over time. Utqiaġvik has long been a hub for scientific research in the Alaska Arctic.</i>

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10	<p>(continued)</p> <p>Thought for a museum and science research; acknowledgement / or support or importance.</p>	N/A	33-34	<p>(continued)</p> <p><i>Scientific studies can occur in winter or summer and often include aerial surveys, satellite surveys, or physical surveys. Physical surveys may involve fixed-wing aircraft, helicopter, and tracked or wheeled vehicles. Studies that take place within the North Slope Borough require a field study permit from the NSB Department of Planning and Community Services. Studies that take place within NPR-A require a permit from the Bureau of Land Management (BLM). Some Native corporations also require a permit when crossing or conducting studies on Native corporation lands. In the summer of 2017, there are over 20 studies being conducted within the NPR-A, including aerial polar bear surveys, animal tracking and tagging, vegetation monitoring, permafrost experimentation, paleontological surveys, snow measurements, fish sampling, and coastal erosion monitoring. Researchers working in the Atqasuk area may benefit from the availability of camp or kitchen facilities. Atqasuk may work with the NSB Planning and Wildlife departments to coordinate on upcoming studies and determine if community residents could provide assistance or other resources to researchers.</i></p>
11	<p>Provide additional information on how the capacity of the school was determined.</p>	97-98	96-97	<p>The school's floorplan and the 2012 International Building Code Table 1004.1.2 that provides maximum floor area allowances per occupant were used to determine occupancy. Per the 2012 IBC, occupancy for educational facilities is 20 net floor area in square feet per occupant for classrooms and 50 net for shops and other vocational room areas. There are nine classrooms whose capacity totals 336 occupants with an average of 37 people per classroom. There are four shops. The metal shop has a capacity of 8 occupants; the woodshop has a capacity of 16 occupants; the workroom has a 15-person occupancy; and the welding shop has capacity for 4 people. Classroom and shop areas combined totals occupancy for 379. Because there are teachers, teacher's aides, and administrators that work at the school, the text has been revised to read: The entire square footage of the school is 41,581 and the capacity, <i>based on the 2012 International Building Code's maximum occupancy for educational facilities, is 379 children-occupants. However, the current classroom configuration may need to be reviewed if there were a significant increase to the student population. NSBSD administrators in Point Lay have expressed the desire for future school expansion.</i></p>

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12	Community vision of education based on data? Is education important? How do we increase graduation rates and receiving of diplomas?	N/A	N/A	The focus of comprehensive plans is community development, such as transportation, utilities, land use, recreation, and housing. Some aspects of education is within the scope of a comprehensive plan, such as education and recreation facility needs. A vision specific to education or initiatives to improve the graduation rate is outside the scope of this plan.
13	No volunteerism is promoted in the plan	N/A	154  150	Volunteerism has been added to Goal 7. <i>Objective 7.3. Promote volunteerism. a) Develop and implement a volunteering plan that could include type and extent of community needs; required skills; resources needed to implement a volunteer program; methods to organize, train, and manage volunteers; ways to promote volunteerism within the community; and identify potential partners.</i>  An addition has also been made to Objective 5.2. b) Develop a sense of citizenship and ownership in the community through student participation in community projects, such implementing this comprehensive plan <i>and promoting volunteerism for the betterment of the community.</i>
14	Visiting doctors. Social emotional support or resources. Year student physicals.	N/A  N/A	102  145	The following has been added at the end of Section 7.2 Health: <i>Services that are not available in Atqasuk that residents indicated would be beneficial:</i> <ul style="list-style-type: none"> <li>• <i>Visiting doctors</i></li> <li>• <i>Mental health support and resources</i></li> <li>• <i>Yearly student physicals</i></li> </ul> Objective 4.2: b) Investigate the feasibility of hosting visiting doctors to provide health care in person, especially near the beginning of the school year to conduct annual physicals for students. c) Investigate the options for mental health support and resources, such as a traveling therapists, teleconference sessions, and making sure mental health information and resources are readily available at the health clinic.
15	Add that we include youth to learn about the process to process to protect the subsistence rights, lands and management of those lands.	N/A	140	The following has been added to Objective 1.1: <i>f) Actively include youth to learn about protecting subsistence rights, land management, and interfacing with regulatory entities.</i>
16	4.1, b.) add: “and water activities” to the end of the sentence.	147	148	b) Village leadership, with assistance from NSB, will seeking funding to provide places for residents to gather that may include an open field, outdoor recreation area, <i>and water activities.</i>

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17	Facility expansion – school expansion	N/A	97	The following text has been added at the end of the third paragraph in Section 7.1 Education: <i>NSBSD administrators in Point Lay have expressed the desire for future school expansion.</i>
<p><b>Written comments provided during community meeting on April 17, 2017</b>  <b>Molly Ahkivgak</b></p>				
18	Health Impact. Our community is in very need of a washeteria. There are a lot of homes without running water. There is a building already it just needs employment, washers & dryers and for the community to have shower access too. Atqasuk needs a washeteria. We want to live a healthier life for our people of the North Slope.	53  147  158	52  148  159	<p>The need for a washeteria is already included several times in the plan; some updates have also been made:</p> <p>Section 6.1 Recreation and Community Use Facilities: Residents have also expressed a desire for a teen center, bowling alley, additional gymnasium, ATM/banking services, and qalgi for larger community gatherings. Additionally, a washeteria <i>with showers</i> is needed for those residents whose homes are not connected to existing water/wastewater system.</p> <p>Goal 4, Objective 4.4: b) Residents have expressed the desire for additional facilities and services that include expanded senior services, drugs and alcohol prevention and rehabilitation programs, space for carpentry and vehicle repair, <del>and as a banking services or an ATM,</del> and a washeteria <i>with showers</i>.</p> <p>Section 11.2 Capital Project Planning, Table 27 last row: Community Buildings, Develop a washeteria <i>with showers</i></p>
19	A training facility is really needed as well to get our young generations certified because they are our next generation. Most times it's hard for any entity to find a good place to train our people to get certified.	53, 147, 158	52, 148, 159	While the comprehensive plan does not specifically identify the need for a training facility, the plan does include that residents would like a teen center, bowling alley, additional gymnasium, and a qalgi for larger community gatherings. (Section 6.1; Goal 4, Objective 4.1 ( <i>qalgi for community gatherings</i> has been added); Section 11.1, Table 27). Any of these facilities could also serve as a training facility when needed.
20	Elders place gatherings to where they can teach a lot of us young people who want to learn how to sew, make things like sleds, ulu making, storytelling, learn to cook our native foods, donuts, beading, Eskimo dance. Inupiaq value building for each village. Atqasuk needs more help on these issues we are facing today.	53, 147, 158	52, 148, 159	The community's desire for a qalgi and senior center is included in the plan text: Section 6.1 Recreation and Community Use Facilities ( <i>senior center</i> has been added); Goal 4, Objective 4.1 ( <i>qalgi for community gatherings</i> has been added); and Section 11.2 Capital Project Planning, Table 27 last row: Community Buildings ( <i>Senior center</i> has been added).

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<b>Updates and clarifications by Planning Team</b>				
21	Update public involvement since April 2017 public review draft was released.	4	1	Two bullet points added under Section 1.4: <ul style="list-style-type: none"> <li>• <i>Presentation of the draft plan for community review and comment on April 17, 2017;</i></li> <li>• <i>Discussion with students at Meade River School on April 17, 2017 about the future of Atqasuk and how they would like it to develop over the next twenty years;</i></li> </ul>
22	Add youth involvement input from discussion with Meade River students on April 17, 2017.	N/A	6	A new section is added: <i>On April 17, 2017, Meade River School students participated in a discussion about the future of Atqasuk and how they would like to see it develop over the next twenty years. Students in all age ranges identified the need for a road to Barrow, newer and/or bigger houses, and additional recreational facilities. Their responses are summarized by age range below.</i> <p><b><u>10-13 year olds:</u></b></p> <ul style="list-style-type: none"> <li>• <i>Restaurants</i></li> <li>• <i>Hotels</i></li> <li>• <i>Road to Barrow</i></li> <li>• <i>Bigger gym/recreation facilities/elders &amp; youth center/bigger swimming pool</i></li> <li>• <i>Movie theatre</i></li> <li>• <i>Football and basketball camps</i></li> <li>• <i>Healthy/better community</i></li> <li>• <i>All phones to have Internet</i></li> <li>• <i>Newer bigger houses</i></li> <li>• <i>New playground</i></li> <li>• <i>New jobs – operations &amp; maintenance jobs, hotel jobs</i></li> </ul> <p><b><u>13-14 year olds:</u></b></p> <ul style="list-style-type: none"> <li>• <i>Road to Barrow</i></li> <li>• <i>More food/cheaper food/better healthier food</i></li> <li>• <i>Bowling ally</i></li> <li>• <i>More/bigger Stores</i></li> <li>• <i>More school programs</i></li> <li>• <i>No drugs</i></li> <li>• <i>ATM</i></li> <li>• <i>Banks</i></li> </ul>

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No.	Comment	Draft Page	Final Page	<p><b>Action</b>  <i>italics are additions; strikethroughs are deletions</i>                      Additional sources here are presented as in-text citations but are footnotes within the plan</p>
22	(continued) Add youth involvement input from discussion with Meade River students on April 17, 2017.	N/A	6	(continued) <u><b>14-18 year olds:</b></u> <ul style="list-style-type: none"> <li>• <i>College</i></li> <li>• <i>Restaurant</i></li> <li>• <i>Road to Barrow</i></li> <li>• <i>Hotel</i></li> <li>• <i>More houses</i></li> <li>• <i>New gym court</i></li> <li>• <i>New playground</i></li> <li>• <i>New community center</i></li> <li>• <i>Outdoor basketball</i></li> <li>• <i>Volleyball/basketball camp</i></li> <li>• <i>ASNA health camps</i></li> <li>• <i>New/bigger stores (AC Store)</i></li> </ul>
23	Additional narrative/clarification needed on completion of the 14(c)(3) process.	118	117	<i>In total, Atqasuk Corporation has selected and received over 73,000 acres of land under ANCSA in and around the community. The reconveyance of improved land on which the village is located and additional land for community expansion, rights-of-way, and other community needs from the Atqasuk Corporation to the City of Atqasuk, as stipulated in ANCSA section 14(c)(3) has not yet been completed.</i>
24	Updates to CIP funding to reflect 2017 funding allocations.	155	156	Section 11.1 Capital Project Planning: Atqasuk has had several significant capital projects over the last five years. The most substantial project is the Meade School renovation, which has received over <del>\$10</del> \$15 million in total funding <del>from the 2014, 2015 and 2016 capital funding cycles</del> <i>between 2014 and 2017</i> . The renovation is currently underway.