

Wainwright
Ulguniq
Comprehensive Plan
2045

Public Review Draft

March 26, 2024

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Wainwright Comprehensive Plan

Adopted by the North Slope Borough on [date]

North Slope Borough Assembly Ordinance #
North Slope Borough Planning Commission Resolution #
Wainwright Steering Committee Resolution of Support #



This plan was produced in part with National Petroleum Reserve – Alaska (NPR-A) funds made available through the State Department of Commerce, Community, and Economic Development.

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ACKNOWLEDGMENTS

The Wainwright Steering Committee provided invaluable guidance that shaped the contents of this comprehensive plan. Wainwright residents, through public meetings and surveys, have actively engaged in sharing local knowledge, understanding of community needs, and a vision for the future of the community. These efforts serve as the foundation of this planning effort.

The North Slope Borough Department of Planning & Community Services provided leadership for development of this Comprehensive Plan, including Planning Director Chastity Kayu Olemaun, Acting Deputy Tuuq Gutierrez-Edwards, Assistant to the Director Qinguan Roddy, Community Planning Division Manager George Owletuck, and Community Planner Barbara Morse.

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ACRONYMS

ADEC	Alaska Dept. of Environmental Conservation
ADF&G	Alaska Department of Fish and Game
AEA	Alaska Energy Authority
AEF	Arctic Education Foundation
AEWC	Alaska Eskimo Whaling Commission
AHFC	Alaska Housing Finance Corporation
ANILCA	Alaska National Interest Lands Conservation Act
ANCSA	Alaska Native Claims Settlement Act
ANWR	Arctic National Wildlife Refuge
AI/AN	American Indian and Alaska Native
AOI	Area of Influence
ARDOR	Alaska Regional Development Organization
AS	Alaska Statute
ASNA	Arctic Slope Native Association
ASRC	Arctic Slope Regional Corporation
ASTAC	Arctic Slope Telephone Association
ASTAR	Arctic Strategic Transportation & Resources
ATV	All-terrain vehicle
AWIC	Arctic Women in Crisis
BIA	Bureau of Indian Affairs
BLM	Bureau of Land Management
BUECI	Barrow Utilities & Electrical Cooperative Inc.
CBNG	Coalbed Natural Gas
CEMP	Community Emergency Response Plan
CIP	Capital Improvement Program
CIPM	NSB Capital Improvement Program Mgmt. Dept.
CO2	Carbon Dioxide
CWAT	Community Winter Access Trail
CY	Cubic yards
DEW Line	Distant Early Warning Line
DMV	Department of Motor Vehicles
DOT&PF	Alaska Department of Transportation and Public Facilities
EECBG	Energy Efficiency and Conservation Block Grant
EPA	Environmental Protection Agency
FLPMA	Federal Land Use Policy and Management Act
FUDS	Formerly Used Defense Sites
FY	Fiscal Year
GAL	Gallons

ACRONYMS (cont.)

GARR	Gates of the Arctic National Park & Preserve
GIS	Geographic Information Systems
GPM	Gallons per minute
HDPE	High-density polyethylene
HVAC	Heating, Ventilation, and Air Conditioning
HUD	Department of Housing and Urban Development
IAP	Integrated Activity Plan
ICAS	Iñupiat Community of the Arctic Slope
IHLC	Iñupiat Heritage, Language, and Culture
IRA	Indian Reorganization Act
IWC	International Whaling Commission
kW	kilowatt
kWh	kilowatt hour
LEPC	Local Emergency Planning Committee
MET	Meteorological Evaluation Tower
MFR	Multi-family residence
MBTA	Migratory Bird Treaty Act
MSWLF	Material Storage Waste Landfill
NAHASDA	Native American Housing and Self-Determination Act
NOAA	National Oceanic and Atmospheric Administration
NOV	Notice of Violation
NPR-A	National Petroleum Reserve – Alaska
NPRPA	Naval Petroleum Reserves Production Act
NSB	North Slope Borough
NSB Planning	North Slope Borough Department of Planning & Community Services
NSB PW	North Slope Borough Public Works Department
NSBMC	North Slope Borough Municipal Code
NSBEP&CR	North Slope Borough Economic Profile and Census Report
NSBSD	North Slope Borough School District
OC	Olgoonik Corporation
OCS	Outer Continental Shelf
PAPI	Precision Approach Path Indicator
PCE	Alaska Power Cost Equalization Program
PD	Per Day
PET-4	Naval Petroleum Reserve No. 4
PFD	Permanent Fund Dividend
POPs	Persistent Organic Pollutants
PRC	Project Review Committee
PY	Per Year

ACRONYMS (cont.)

RDD	Resource Development District
ROD	Record of Decision
SFR	Single-family residence
SPCC	Spill Prevention Control and Countermeasure
STEERING COMMITTEE	Representatives from Olgoonik Corporation, City of Wainwright, Village of Wainwright
SWOT	Strengths, Weaknesses, Opportunities, and Threats
SY	School Year
TDHE	Tribally Designated Housing Entity
TNHA	Tagiugmiullu Nunamiullu Housing Authority
TSS	Total Suspended Solids
TTLA	Tank Truck Loading Area
U.S.	United States
U.S.C.	U.S. Code
USDOE	U.S. Department of Energy
USDOI	U.S. Department of the Interior
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
UV	Ultraviolet
VEEP	Village Energy Efficiency Program
WIC	Women, Infants & Children
WTP	Water Treatment Plant
WWTP	Wastewater Treatment Plant

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Executive Summary



The Wainwright Comprehensive Plan is a foundational roadmap for the village's leadership, residents, and stakeholders involved in or planning to engage in the Wainwright area for the next two decades and beyond. It captures the collective aspirations, concerns, and priorities of the residents, developed through an inclusive process guided by community input.

Guiding Document for the Community. The plan represents a consolidated voice of the residents and serves as a guiding framework for village leadership and residents. Other stakeholders and governmental organizations at regional, state, and federal levels can use this document to learn about the community and assist in advancing priorities and initiatives. It forms the basis for capital planning, land use regulation, and coordination within the community and its Area of Influence.

Community-Driven Development. It is the culmination of collaborative efforts between community leaders and residents, aiming to identify, prioritize, and address critical issues and aspirations vital to the community's well-being and sustainability. It unites the community around shared goals.

Living Document. This is a living document, regularly updated and maintained to align with

the evolving needs, values, and priorities of the community. It emphasizes leadership and resident input in decision-making processes for both immediate and future initiatives.

Preservation of Values. The goals and strategies outlined in the plan strive to preserve the essence of the community by honoring the Iñupiaq culture, protecting the environment that is crucial for successful subsistence harvests, maintaining essential infrastructure, ensuring efficient services like healthcare, education, and housing, and upholding traditional and cultural values.

Long-term Impact. This plan considers the development of the community and its surrounding environment, focusing on critical areas vital to residents, such as infrastructure maintenance and expansion where needed, essential services, environmental conservation, and cultural preservation.

In essence, the Wainwright Comprehensive Plan stands as a testament to the community's commitment to ensuring the well-being of all residents, integrating community perspectives and cultural values that shapes decisions and investments for the community's future.

A comprehensive plan vision statement focuses on a community's values, sense of identity, and aspirations developed with resident input and guidance. It is included in the plan in Chapter 2.

WAINWRIGHT VISION STATEMENT

Wainwright is a healthy and thriving community where residents value close family bonds and uphold our traditional Iñupiat culture, language, and subsistence practices.

Traditional knowledge of the land and subsistence practices is passed on to younger generations. We recognize the importance of balancing the preservation of our cultural heritage with the incorporation of new technologies and knowledge that are compatible with our way of life. We take pride in being caretakers of the environment, relentlessly advocating for the protection of our ancestral lands and waters.

We are committed to securing affordable housing for all ages and incomes. We prioritize the maintenance of high-quality infrastructure and reliable community facilities to enhance the overall quality of life for all residents.

We foster a diverse and resilient economy by promoting and supporting local businesses that offer employment opportunities for our residents, as well as by taking advantage of remote employment opportunities. We recognize the importance of flexible employment that accommodates seasonal subsistence activities, the cornerstone of our way of life. Our dedication to promoting a diverse and sustainable economy strengthens the overall resilience and long-term prosperity of our community.

We embrace a cooperative and patient approach when making decisions that impact our entire community. By working together and maintaining a respectful dialogue, we are able to achieve collective goals that benefit our community. Our commitment to inclusive and collaborative decision-making ensures that all voices are heard and that our actions reflect the needs and priorities of our residents.

Turning a comprehensive plan’s vision statement and goals into implementable actions are critical to effective long-range planning. In this plan, each goal is accompanied by strategies that describe how the goal could 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, funding agencies, and/or other entities. The community is responsible for initiation and seeking assistance from other entities to move a strategy forward.

Iñupiaq Culture and Language

The preservation of the Iñupiaq culture and the Iñupiaq language are intrinsically linked. Iñupiaq Elders stress the importance of Iñupiaq as a language, in order to understand the Iñupiaq as a culture because without each other, they are not whole.

Comprehensive Plan Goals

- Goal 1. Facilitate preservation of the Iñupiaq language through improving language fluency.
- Goal 2. Preserve the Iñupiaq culture.

Subsistence

The Iñupiaq subsistence culture encompasses hunting, fishing, and gathering, as well as a deep connection and comprehension of the land, air, and waters. For the majority of Wainwright residents, subsistence represents an essential aspect of daily life. Safeguarding precious natural resources is of utmost importance for daily cultural and dietary sustenance and the well-being of present and future generations.

Comprehensive Plan Goals

- Goal 3. Protect subsistence rights and activities.
- Goal 4. Protect subsistence infrastructure.

Community Infrastructure

Wainwright has a significant network infrastructure, community facilities, and transportation systems, including a gravel road network, piped water and wastewater systems, electric power, and an airport runway. It is important to maintain this infrastructure for the health and safety of residents and expand when needed to accommodate the needs of the growing community.

Comprehensive Plan Goals

- Goal 5. Continue to maintain water, wastewater, electric power, and other facilities in good operating condition.
- Goal 6. Seek expansion and upgrade of infrastructure where needed.

Housing

Safe, healthy, stable, and access to housing are important for quality of life. There is a severe housing shortage across the North Slope, with multiple generations of families living in overcrowded conditions. Additionally, many homes need weatherization improvements and basic home repairs to ensure healthy living conditions.

Comprehensive Plan Goals

- Goal 7. Coordinate housing-related activities and resources.
- Goal 8. Seek ways to reduce costs of constructing housing to facilitate greater affordability and alleviate overcrowding.

Social Services

To facilitate both physical and social well-being, space for activities and social gatherings is needed. Quality social services, health care services, and community preparedness are essential to the overall wellbeing of the community.

Comprehensive Plan Goals

- Goal 9. Plan for current and future health and social service needs.
- Goal 10. Seek expansion of social services where needed.

Emergency Preparedness

Without year-round road access, Wainwright residents must rely on air transport for goods and services as well as medical and personal travel needs. The effects of climate change are leaving the community increasingly vulnerable to storm surges, flooding, and other disasters. Planning for vulnerable infrastructure and disruptions in air travel is essential to ensure continued effective functioning of the community.

Comprehensive Plan Goals

- Goal 11. Protect facilities in the event of an emergency or natural disaster.
- Goal 12. Collaboratively plan for effective emergency preparedness.

Economy

Without year-round road access, Wainwright residents must rely on air transport for goods and services as well as medical and personal travel needs. The effects of climate change are leaving the community increasingly vulnerable to storm surges, flooding, and other disasters. Planning for vulnerable infrastructure and disruptions in air travel is essential to ensure continued effective functioning of the community.

Comprehensive Plan Goals

- Goal 13. Facilitate the establishment of businesses and services and employment opportunities.
- Goal 14. Provide educational resources that prepare students for entering the workforce.

Community Cooperation

Facilitating opportunities within the village for meaningful public engagement and leadership cooperation is essential for planning for the future of the community.

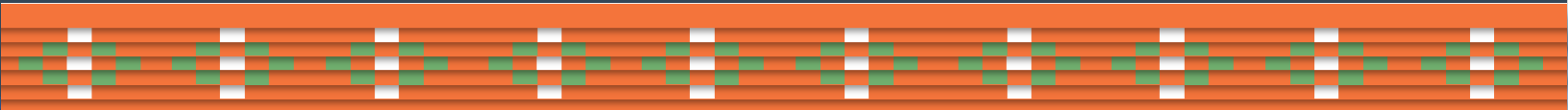
Comprehensive Plan Goals

- Goal 15. Facilitate greater coordination amongst leadership entities.
- Goal 16. Prepare students to be community leaders.

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Introduction



The Wainwright Comprehensive Plan

The Wainwright Comprehensive Plan summarizes the community's aspirations over the next twenty years and establishes a comprehensive framework of policies to achieve them. These policies are formulated based on feedback and discussions from community members and leadership, a review of data about the current state of the community, alignment with existing plans and priorities from various entities such as the City of Wainwright, Village of Wainwright, and Olgoonik Corporation (OC), cooperation with community partners, and an assessment of trends influencing the communities across the North Slope. This plan incorporates elements to articulate the community's principles, long-term vision, and the goals and strategies necessary to realize that vision over the next two decades.

In 2022, the community of Wainwright, with assistance from the North Slope Borough (NSB), launched the Wainwright Comprehensive Plan update. It was a village-wide community engagement effort to update the plan that was adopted in 2014.

When the 2014 plan was developed, Wainwright was positioned as a community that was integral to new oil and gas exploration and development offshore in the Chukchi Sea. The community experienced an influx of offshore workers and logistical needs, serving as a crucial staging area and providing logistical support. However, the expectation of providing support for offshore operations changed dramatically in 2015 when Royal Dutch Shell announced that it would no longer pursue offshore oil and gas development in the Arctic. Consequently, Wainwright is



unlikely to be significantly affected by oil and gas exploration development in the near future.

The Purpose of a Comprehensive Plan: Guiding Wainwright's Future

This comprehensive plan offers a range of strategies to tackle the challenges that the community is experiencing while also leveraging the unique characteristics that make Wainwright a great place to live. This plan integrates a range of community issues and concerns into a single document, covering topics such as land use, transportation, public facilities, housing, subsistence, education, and more.

While the Iñupiat of the North Slope have always faced change, impacts from climate change pose the most recent challenges. A lack of housing, the cost of maintaining infrastructure and facilities, and healthcare needs are also principal concerns in the community. This comprehensive plan is intended to assist the community in charting its future as it takes advantage of new opportunities and creates solutions to current and future challenges.

This comprehensive plan provides background information about the community which can be referenced when making community development or land use decisions and when seeking outside funding. Specifically, the plan is intended to:

- A historical overview and community context;
- Foundational information concerning housing, infrastructure, social service, and other needs anticipated capital needs over a 20-year planning horizon;
- A clear, concise, vision created by the community that reflects its values;
- Goals and strategies that address the community's issues and concerns;
- Current and future land use maps;
- Provide the foundation for development proposal comments, land use planning and regulation, investments in infrastructure, and land use policy decisions; and
- A section on implementation that offers an actionable roadmap so that the plan for understanding and accountability.

Given that this plan integrates the perspectives of village leadership and community members, upon adoption, it assumes the position of the principal policy document for the community. The plan offers guidance on a range of critical long-term planning and land management issues that are vital to the future of the community. Ultimately, this plan aims to conserve valued resources while encouraging development that meets the needs of the present population without compromising options for future generations.

Plan Users



Community leaders, the NSB, and other stakeholders can utilize this document as a blueprint for policy and investment decisions. Population trends and infrastructure needs are also factored into service planning to maximize the efficient and effective use of available funding. The plan's community data, maps, and policies facilitate the design of projects that align with community values and requirements while meeting local expectations.



Wainwright residents can use this plan to promote projects and measures that are consistent with local needs and resources.



The City of Wainwright, The Village of Wainwright, and the Olgoonik Corporation staff use the plan in planning for the future of the community and advocating for its residents.



The Wainwright Steering Committee can use this plan as a reference when making cooperative decisions for the community.



The North Slope Borough Assembly, as the regional government, can utilize comprehensive plans when evaluating land use proposals or actions specific to a community, including approval of subdivisions, borough permitting, and capital improvement recommendations. The borough also uses this plan to help guide the location and timing of community development and infrastructure investments. It is also used to plan for community needs based on trends and population projections and to consider the protection of important environmental and cultural resources. It may also be used to develop mitigation measures as conditions of permit approval.

The North Slope Borough Planning Commission and Assembly can use the plan when making policy, program, and funding decisions for Wainwright.



Federal and state agencies and potential project funders 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 included or consistent with policies of an adopted community plan.



The NSB, private landowners, developers, and Native corporations may use this plan to help guide development decisions and capital investments.

Basis for Comprehensive Planning

Title 29 of the Alaska Statutes provides the authority for comprehensive planning in Alaska. The North Slope Borough is responsible for planning, platting, land use regulations, and development of a borough-wide comprehensive plan. Alaska Statute and the NSB Municipal Code (NSBMC) 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” (AS §29.40.030 and NSBMC §2.12.170).

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 (NSB Planning) implements land use planning and regulation for the borough. Its goals include updating, maintaining, and implementing the North Slope Borough Areawide Comprehensive Plan, village comprehensive plans, as well as empowering community-level decision-making in social, economic, and development issues. Through the Community Planning and Development Division, NSB Planning also facilitates the annual capital project request process and develops of the NSB Six-Year Capital Improvement Plan that outlines anticipated capital needs over the current year and the next five years.

Past and Ongoing Wainwright Planning Efforts

Background for Planning: City of Wainwright

Prepared by Alaska Consultants in 1983, the Wainwright Background for Planning functioned much like both a comprehensive plan and a capital plan. It included information on the economy and population, land use, community facilities, and transportation. Detailed facility information and (then) current and future capital needs were contained within this historical document as well.

2005 Areawide Comprehensive Plan Community Profile. Prior to developing individual comprehensive plans for each NSB community, the 2005 NSB Areawide

Comprehensive Plan included community profiles for each village. The profiles provided background information on each community, including the economy, subsistence, income, housing, infrastructure, and land ownership and land use. They also included community issues that were gathered at a community meeting in 2004. Many issues were similar to those the community has voiced more recently, including overcrowding and the need for more housing, protecting subsistence use areas, the need for job training and providing local employment, and a lack of water and sewer connections to all homes.

2014 Wainwright Comprehensive Plan. The 2014 Wainwright Comprehensive Plan was developed when the community was at the center of oil and gas development and production offshore in the Chukchi Sea. At the time, major oil companies like Shell, ConocoPhillips, and Statoil were investing heavily in offshore leases that were approximately 80 miles from Wainwright. Wainwright hosted workers conducting exploration work. The plan included three future scenarios: no offshore oil and gas exploration or development; offshore oil and gas exploration, offshore oil and gas exploration and development. Not long after the plan was developed, offshore exploration efforts ceased.

This updated Wainwright Comprehensive Plan contains up-to-date information and has been reformatted to be consistent with other adopted comprehensive plans on the North Slope.

Community Engagement

Comprehensive planning is a process that aims to create a vision and framework for the development of a community. It involves analyzing the current state of the area, identifying goals for future growth, and formulating strategies to achieve those goals.

The comprehensive planning process is designed to be transparent and inclusive, to seek input and raise awareness. It is critical in the development of the Wainwright Comprehensive Plan that the residents have abundant and meaningful opportunities to participate, contribute, and review the draft plan. The steps for developing this plan are described below and illustrated in Figure 1.1.

Need

The first step in comprehensive planning is for local leaders to recognize the need for long range planning and seek develop a comprehensive plan to guide a community into the future.

Visioning

The planning process involves envisioning what the community could look like in the future. Through community meetings and discussions, community input guides the development of a vision statement and goals and strategies to implement that vision.

Research

Comprehensive planning relies on data and analysis to make informed decisions. Population trends, environmental conditions, and infrastructure capacities all help identify strengths, weaknesses, opportunities, and threats to the community's development.

Draft Plan

Once data is collected and goals have been developed, a draft plan is created. The plan provides background information on the community, including land use, public facilities, history and culture, to name a few. The plan is provided for public review, an opportunity for any community member to provide feedback on the contents of the plan and make recommendations on additions or changes.

Revisions

Although the plan goes through revisions many times during the development process, the most revisions come after the public review period.

Review

Once comments have been incorporated, the draft plan is finalized and prepared for review by governing bodies.

Adoption

Once the comprehensive plan is complete, it goes through a formal adoption process. For North Slope communities, the plan is reviewed by the City, Tribal government, and Native village corporation. With the recommendations for adoption from these three entities, the plan is reviewed by the NSB Planning Commission. The Planning Commission then recommends the plan for adoption to the NSB Assembly and the Assembly formally adopts the plan. At any point during this adoption process, changes can be made as requested by the reviewing entities. Once approved, the plan becomes an official document guiding future development decisions.

Implementation

Comprehensive planning is not a one-time event. As conditions in the community change, the plan must be updated. It is also important to monitor progress toward the plan's goals and adjust strategies as needed. The plan should be flexible enough to adapt to changing circumstances and new opportunities.

Public Engagement and Feedback

Community involvement is critical to developing, adopting, and implementing a comprehensive plan. Public input is gained through meetings, workshops, surveys, and online platforms to ensure that the plan reflects the needs and desires of the community.

Figure 1.1: Planning Process



In February 2022, the community held a future a Strengths, Weaknesses, Opportunities, and Threats (SWOT) workshop as an initial step in updating the comprehensive plan. A 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 and implementing strategies found in Chapter 2.

The NSB sought grant funds to continue to work on the Wainwright Comprehensive Plan update, temporarily stalling the plan’s development; National Petroleum Reserve – Alaska Grant Mitigation Funds (NPR-A) were provided for this update by the State of Alaska. The project was relaunched during the spring of 2023 with several leadership and community meetings, outlined below.

The City of Wainwright, Village of Wainwright, Olgoonik Corporation, collectively the Wainwright Steering Committee, and community residents worked together at these meetings to develop a shared understanding of the community today and to anchor the planning process that addresses issues for the future.

Collaboratively, Wainwright residents, village leadership, North Slope Borough Planning Department staff, other NSB employees that provide services in the village, and the Comprehensive Planning Stakeholder Committee representative for Wainwright developed this plan. Local village leadership includes the Mayor and City Council members, the Village of Wainwright Tribal Council President and Council members, and the President and Board members of the Olgoonik Corporation. These three leadership entities

meet regularly as the Wainwright Steering Committee to proactively work together in the best interest of the community. The NSB Planning Commissioner and Alternate Commissioner representing Wainwright also serve as community leaders.

Community Meetings

The following were used to work closely with the community in developing this plan:

- Public notices were posted throughout the village providing notification on meeting dates and locations;
- Meeting announcements were made on the North Slope Comprehensive Planning Facebook page;
- Informational materials were provided during meetings, including maps and comprehensive planning background, and process handouts;
- Comment forms were provided at community meetings for those that preferred to provide written input;
- A community workshop, including an introduction to comprehensive planning and a SWOT exercise was held on February 16, 2022;
- A community workshop, including an introduction to comprehensive planning and a SWOT exercise was held on April 19, 2023;
- A public review meeting was held on March 26, 2024 to present the contents of the draft plan and discuss revisions that the community would like incorporated.

Leadership Meetings

- An introduction to comprehensive planning meeting and SWOT exercise were held with the Wainwright Steering Committee on April 19, 2023;

- A review of the administrative draft of this plan was held with the Steering Committee on February 9, 2024;
- The final draft plan was presented to the Steering Committee at their regularly scheduled meeting on [date].

Community Surveys

An online and hard copy survey was distributed throughout the community. Copies of the survey were available at public meetings and at the ASRC VRR office in Wainwright. The Planning Team also posted flyers throughout the community with information on where to fill out a survey in-person or online, complete with a QR code. One resident response was submitted.

Monthly Updates to the Wainwright Steering Committee

The Planning Team provided monthly updates to the Steering Committee and participated at all quarterly meetings to report on the plan status and respond to questions.

QIT Advisory Committee

The QIT is an advisory committee that was created in 2015. It was originally intended to provide guidance to the NSB Planning Department and its contactors in developing comprehensive plans while also incorporating the requirements of public interest determination contacting. Over the years, the QIT has morphed into a dedicated group of NSB residents that meeting two – four times annually to discuss the status of comprehensive plans and provide guidance on their development and implementation. The committee is comprised of one resident from each village; several of the members have been on the QIT since its inception. While they each represent their own community, they also come together to provide guidance on all comprehensive planning

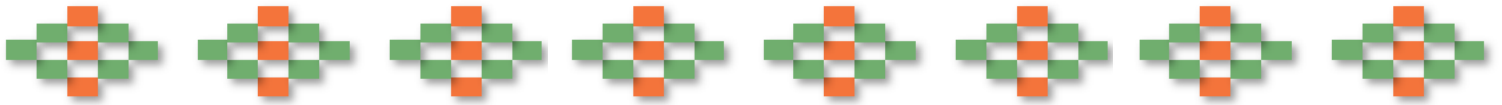
activities for the betterment of the North Slope region overall.

Public Input Summary

From community meetings, discussions with residents, and survey responses, a number of themes emerged.

- Subsistence activities are important to all of the community to fulfill dietary and cultural needs;
- Recreational activities and facilities are needed;
- Airline competition is needed to provide more choice and to guard against having no transportation service if the sole airline goes out of business;
- The need to prepare for the effects of climate change;
- Emergency preparedness;
- Additional capacity at the power plant;
- Public transit is needed
- Additional housing is needed to reduce overcrowded conditions;
- Improved infrastructure and additional capacity are needed before many new homes are constructed;
- Mail delays are a major issue and can cause food insecurity.

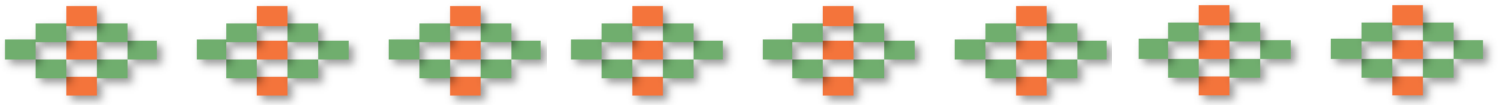
The following pages contain the discussions from the April 16, 2023 community SWOT exercise with both the community and community leadership. Statements during the meetings have not been edited and may contain errors or factual misstatements. The vision statement from the 2014 Wainwright Comprehensive Plan and information provided during the SWOT exercise provided the basis for the Vision Statement in Chapter 2.



Community Strengths

- Adaptability to climate change
- Voice of the Arctic
 - Possibility for more funding if we can express what is happening in our community
- Strategic location
 - Access to lagoon
 - Other traffic unseen
 - ASTAR
 - Tupkak bar road, access to the inlet, safe harbor
 - Rescue vessels will have access to ocean
 - Secondary way for hunters to get home when there are southwestern winds
 - Good for emergencies
- Wainwright has good cooperation no matter what the issues are, good support system
- Ocean and river are nearby
- Qargi Academy
- Community willing to share subsistence harvests
- Good EMT response team

¹ This SWOT analysis was transcribed from community discussion on April 16, 2023. The comments have not been edited and may contain factual misstatements.



Community Weaknesses

- Underground water and sewer system
- Need brighter streetlights
- Threat – climate change
- Mental health and temporary help services and community education and training for mental health
- Need childcare
- Bootleggers using the trail in winter
- Warm storage + mechanics
- More DMV visits, help to get SS cards and birth certificates (vital statistic support)
- Community cultural gathering space
- NSTC training needed
- Need for community to use school welding shop; electrical, carpentry and boiler training
- Local certifications/ trained personnel
- Scarcity of gravel, change to land. Scarcity of land. Land locked by Olgoonik. Land in town, locked up in probate. Outside of town locked up by Olgoonik. Cannot build new buildings, not a lot of buildings to share. Need more land.
- Lack of recreation for the middle age. Emphasizes on middle age. Parents who go to work everyday. Teenagers and young adults. Open gym is a 1.5 hours
- Need disaster preparedness
- Need water and sewer before housing
- Need wider roads, expand
- Power – already using maximum capacity of power in the winter with current housing present in the community
 - How will power generation be provided when 20 more houses are added to community? Fuel is the current power generation source – not efficient
 - Alternative power source: Husky Oil (80s, LNG drilling)
- Full list of items that are acceptable for purchase with food stamps
 - Majority of items being purchased are soda and candy
 - Produce/healthier items should be prioritized
- No community bus (senior bus only)
- Lack of housing

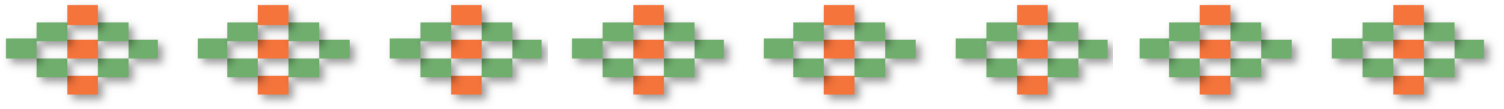
² This SWOT analysis was transcribed from community discussion on April 16, 2023. The comments have not been edited and may contain factual misstatements.



Community Opportunities

- Adequate support for students, more online courses options
- Community carving shop
- Warm storage for vehicle maintenance
- Senior van program improvements
- Public transportation program needed (but no taxi service)
- Public use terminal at the airport
- Opportunity to purchase corporation land for housing – lack of road access to new areas.
- Covid paved the way for online training.
- ASTAR is an opportunity – cost of goods will go down
- Road from DEW line for boat harbor
 - Would add to year-round access gravel mining
- Upgrade existing roads
 - Need access to silt, gravel (OC)
- Road to Barrow
 - Access to building materials
 - Goods can be transported by road instead of solely by air
- Runway upgrades
 - Expand towards dew line or towards creek
 - Cannot apply for hub zone
- Local hydroponics
 - Available fresh produce
 - Could lead to better diets/health
- Public-use areas
 - Possible subdivisions
 - Access to these public use areas
 - 20 -40 lots could be made available
 - 26 lots (City & OC) approved by NSB, only 20 homes, no front for funding for subdivision
- Alternative power source (natural gas)
 - Previous drilling conducted 17 miles outside of AIN
- Upgrade school
- More discussion and maintain better relationship with NSB
 - Possibility for local contracting for community projects (i.e. CWAT maintenance)

³ This SWOT analysis was transcribed from community discussion on April 16, 2023. The comments have not been edited and may contain factual misstatements.



Community Threats

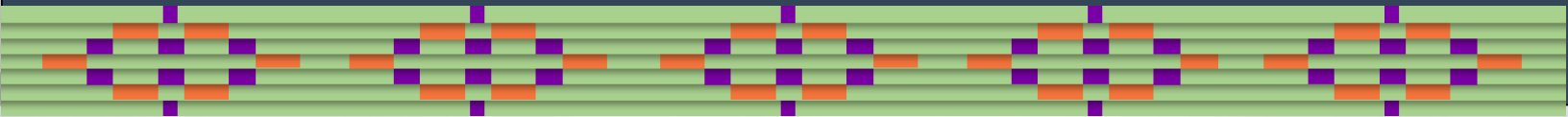
- Industrial consumption is a larger threat now
- Freight and mail shipments are slow; fresh shipments come in frozen
- Need more enthusiasm to work, not lack of jobs anymore.
- Erosion of coastline. We do have the seawall now. Move coastal erosion as a higher priority
- Oil and gas, do not see as a threat, see as an opportunity for more funding. Especially since we are in the NPR-A
- Need more Housing – infrastructure needs to be upgraded beforehand
- By-Pass Mail
 - At the mercy of a single air carrier (refer to issues faced when Raven Air shut down)
 - ASTAR
- Food security
 - 4-6 weeks to receive mail/goods
 - Unable to safeguard goods from wildlife and weather
 - Frozen goods arrive thawed in summer; all goods frozen upon arrival in winter
 - Few alternatives to ship mail/goods – other options are two to three times more expensive
- Representatives of Alaska do not reside in the state or understand the problems rural communities are facing
- Emergency preparedness
 - Potential future pandemics
 - Roads
- International activities
 - Russia active in the Arctic

⁴ This SWOT analysis was transcribed from community discussion on April 16, 2023. The comments have not been edited and may contain factual misstatements.

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2

Wainwright Vision



Plan Components

This comprehensive plan outlines the community's vision for 2045 and presents a comprehensive framework of strategies to achieve that vision. The strategies are grounded in public input and conversations, a review of data about current issues in the community, and alignment with existing plans and programs. Key components of the plan include articulating current values, the vision of what the community wants to achieve, and delineating goals and strategies to get there.

While this plan is divided into 11 subject-based chapters, its focus is centered on five foundational topics. As a result of community input, 14 community goals have been developed that provide the overall direction for the plan's

implementation. Strategies for reaching the goals are included in Chapter 3.

This plan is designed so that readers may focus on (a) specific section(s) of interest, versus reading the plan in its entirety. The eleven chapters of the plan and appendices are organized as follows:

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

Chapter 2: Vision outlines how the community wishes to grow over the next twenty years.

Chapter 3: Goals and Strategies has the goals of the plan and actions that will help meet those goals.

Values	Wainwright residents are guided by Iñupiat values that focus on kinship, sharing, language, subsistence, humility, and respect.
Vision	The residents of Wainwright have a vision of what they hope their community will look like in 20 years. This vision is shaped by the input and perspectives of both the community and its leadership.
Background	This plan includes background information that provides a foundation to the goals and implementing strategies.
Maps	Current and future land use maps illustrate how the looks today and where future growth and change can be focused
Implementation	Implementation is the cornerstone of this comprehensive plan. It provides strategies for the needs expressed by community residents.

Chapter 4: History, Government, and Culture provides an overview of both the local and regional governments involved in the administration of the community as well as a discussion of Wainwright's history and language.

Chapter 5: The People of Wainwright includes information on the historical, current, and projected future population of Wainwright.

Chapter 6: Natural Environment examines the natural environment including the location, vegetation, wildlife, endangered species, contaminated sites, and climate change.

Chapter 7: Subsistence includes discussion of the importance of the subsistence lifestyle to community residents.

Chapter 8: Public Facilities examines public facilities, including the water and sewer system, power generation, solid waste, gravel resources, and communications.

Chapter 9: Housing considers housing issues with both current and future needs.

Chapter 10: Economy, Education, and Health discusses education, health, and the economy in Wainwright.

Chapter 11: Land Use and Zoning provides information on land use and zoning in and around the community.

The references included as footnotes and at the end of the plan identify studies, reports, and other sources of information that aided in developing this plan.

Also included are appendices, which include resolutions of plan support from the community,

adaption strategies for climate change impacts, and Alaska Community Profile Maps.

WAINWRIGHT VISION STATEMENT

Wainwright is a healthy and thriving community where residents value close family bonds and uphold our traditional Iñupiat culture, language, and subsistence practices.

Traditional knowledge of the land and subsistence practices is passed on to younger generations. We recognize the importance of balancing the preservation of our cultural heritage with the incorporation of new technologies and knowledge that are compatible with our way of life. We take pride in being caretakers of the environment, relentlessly advocating for the protection of our ancestral lands and waters.

We are committed to securing affordable housing for all ages and incomes. We prioritize the maintenance of high-quality infrastructure and reliable community facilities to enhance the overall quality of life for all residents.

We foster a diverse and resilient economy by promoting and supporting local businesses that offer employment opportunities for our residents, as well as by taking advantage of remote employment opportunities. We recognize the importance of flexible employment that accommodates seasonal subsistence activities, the cornerstone of our way of life. Our dedication to promoting a diverse and sustainable economy strengthens the overall resilience and long-term prosperity of our community.

We embrace a cooperative and patient approach when making decisions that impact our entire community. By working together and maintaining a respectful dialogue, we are able to achieve collective goals that benefit our community. Our commitment to inclusive and collaborative decision-making ensures that all voices are heard and that our actions reflect the needs and priorities of our residents.

Plan Amendments and Updates

There are number of ways to update the Wainwright Comprehensive Plan.

- A minor change is a change that does not modify or add to the plan’s basic intent such as correcting grammar errors. Such changes can be made administratively and do not require additional approval.
- An amendment permanently changes the plan by adding to or modifying the basic intent. Such changes can be recommended by the City of Wainwright, Village of Wainwright, Olgoonik Corporation, the Wainwright Steering Committee, the public, or another elected or appointed body. The changes are approved by the NSB Planning Commission and Assembly.
- A more thorough update of the Wainwright Comprehensive Plan should be conducted every two to five years, beginning with a thorough review by the village leadership and NSB Planning Department staff. The review would focus on determining which implementing strategies have been accomplished and which may need to be revised, added, or deleted. Residents and other stakeholders should also be engaged during the update process.

Although this plan has a 20-year planning horizon, conditions, issues, and priorities will undoubtedly change over this period. Regular review and revision of the plan ensures that the goals and strategies respond to changing circumstances and needs within the village and it’s Area of Influence. To remain current and useful, this plan should be reviewed regularly 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 and implementing strategies.

Consistency with Adopted Plan Policies

The North Slope Borough Comprehensive Plan was adopted in 2019 by the NSB Assembly. Like all comprehensive plans, it is designed to guide future development, programs, and investments that align with a community’s vision. The NSB Comprehensive Plan reflects the values and circumstances of the regional community of the North Slope. By its mere existence, the 2019 Plan, as well as its previous iterations have also furthered local self-determination for control of North Slope land and resources.

The North Slope Borough Areawide Comprehensive Plan provides guidance on community development issues at the borough level. Each of the eight NSB community comprehensive plans are standalone documents that represents issues, needs, and interests at the local level. Yet there is consistency across planning documents.

Arctic Strategic Transportation and Resources (ASTAR) is an active project sponsored by the State of Alaska that, when complete, will identify a series of cumulative benefits that might be derived through the connections of communities in the North Slope and Northwest Arctic boroughs.

These cumulative benefits will include increased cultural connectivity, reduced costs to North Slope communities for dry goods, fuel, and consumables, decreased cost for rehabilitation of legacy wells in the National Petroleum Reserve – Alaska, more efficient development of

state and federal hydrocarbon resources, and increased economic activity providing job opportunities for the region. ASTAR will identify shovel ready projects for fostering economic investment in the region.⁵

NSB Six Year Plan. The NSB develops a 6 Year Plan every year that indicates recommendations for funding for the current year, and expectations for funding over the next five years.

Northwest Transportation Plan. This plan highlights key recommendations for improving transportation infrastructure in Northwest Alaska over a twenty-year timeframe. Its goal is to guide development of all transportation modes. The plan was last updated in 2022.

⁵ North Slope Borough. 2023. *Arctic Strategic Transportation Resources (ASTAR)*.

3

Goals and Strategies



Accomplishments since the Adoption of the 2014 Wainwright Comprehensive Plan

The community of Wainwright has successfully achieved an extensive list of accomplishments since the Comprehensive Plan was last updated in 2014, including strategies that were included in the plan. A few of these accomplishments are listed below.

Land

- The City of Wainwright has received its municipal entitlements under 14(c)3 of the Alaska Native Claims Settlement Act (ANCSA) from Olgoonik Corporation, making the City the primary landholder in Wainwright.
- Olgoonik sold six residential lots in the community to facilitate additional housing development. Four lots were sold to TNHA to be developed as residential housing; one lot remains available to shareholders of OC.

Capital Projects

- Additional street lighting has been installed.
- NSB Public Works is actively working on the new water plant building.
- There are improved communications with the Quintillion fiber optic line.

Community Health and Safety

- Approximately 223,515 pounds of solid waste and 12,708 pounds of hazardous waste were shipped out of the community during the summer of 2022. This included over 10,000 lead acid batteries and over

600 drums filled with mixed glycols, mixed fuels, and oily waste.⁶

- The health clinic has been renovated to provide better care for community members.

Childcare

- The Village of Wainwright is initiating the development of a childcare facility at the former national guard armory.

Education and Iñupiaq Culture

- In 2020, the community founded Qargi Academy, the only tribal school on Alaska's North Slope. The Academy provides access to education based in the Iñupiaq language and culture.⁷
- The Olgoonik Foundation awards college and training scholarships to Olgoonik shareholders and descendants.
- The Arctic Slope Community Foundation awards college and training scholarships to shareholders of the regional and village corporations of the North Slope, including Olgoonik Corporation shareholders and descendants.
- The Arctic Education Foundation (AEF) has recently created a Cultural Education Program that aims to educate Iñupiat youth about Iñupiat history and culture and to facilitate the passing of traditional knowledge to the next generation. AEF's new Whaling Workshop will be held in Wainwright in 2024 to guide youth in constructing umiaqs, or traditional skin boats. AEF also offers cultural education camps and workshop and scholarships for higher education.⁸

⁶ Norvell, Katey. Environmental Scientist, UMIAQ Environmental. Personal Communication.

⁷ Naiden, Alena. 2023. *North Slope's Only Tribal School Readies a New Crop of Graduates*.

⁸ Wiehl, Monica, Arctic Education Foundation Director. 2023. Personal Communication.

Comprehensive Plan Goals

A comprehensive plan's vision statement and goals are critical to effective long-range planning. Translating the vision statement and goals into implementable actions is the trademark of comprehensive planning. In this plan, each goal is accompanied by strategies that describe how the action could 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, development permitting and funding agencies, and/or other entities. For many of the strategies, the community is responsible for initiation and seeking assistance from other entities.

Because this comprehensive planning effort reflects concerns and issues confronting the community overall, the goals presented here are not in priority order.

Village leadership participating in and contributing to the formation of the plan's

development include the Wainwright Steering Committee as well as members of the Wainwright City Council, the Village of Wainwright Tribal Council, Olgoonik Corporation Board Members, Village Elders, hunters, local North Slope Borough School District (NSBSD) staff, and NSB staff providing services in the village also provided valuable input.

Each goal includes the Local Resources and a list of Suggested Collaborators that may assist the community in implementation. It is incumbent upon the community to identify its priorities and seek the resources for implementation.

Village leadership generally refers to the Steering Committee. In some cases, not all village leadership entities will be involved in an implementation strategy due to expertise or capacity. The North Slope Borough Planning & Community Services Department's Community Planner is available to assist the Wainwright community in implementing the goals included in this plan.



WAINWRIGHT GOALS

Goal One

Facilitate preservation of the Iñupiaq language through improving language fluency.

Goal Two

Preserve the Iñupiaq culture.

Goal Three

Protect subsistence rights and activities.

Goal Four

Protect subsistence infrastructure.

Goal Five

Continue to maintain water, wastewater, electric power, and other facilities in good operating condition.

Goal Six

Seek expansion and upgrade of infrastructure where needed.

Goal Seven

Coordinate housing-related activities and resources.

Goal Eight

Seek ways to reduce costs of constructing housing to facilitate greater affordability and alleviate overcrowding.

Goal Nine

Plan for current and future health and social service needs.

Goal Ten

Seek expansion of social services where needed.

Goal Eleven

Protect facilities in the event of an emergency or natural disaster

Goal Twelve

Collaboratively plan for effective emergency preparedness

Goal Thirteen

Facilitate the establishment of businesses and services and employment opportunities.

Goal Fourteen

Provide educational resources that prepare students for entering the workforce.

Goal Fifteen

Facilitate greater coordination amongst leadership entities.

Goal Sixteen

Prepare students to be community leaders.



Iñupiaq Culture and Language

The preservation of the Iñupiaq culture and the Iñupiaq language are intrinsically linked. Iñupiaq Elders stress the importance of Iñupiaq as a language, in order to understand the Iñupiaq as a culture because without each other, they are not whole.

Local Resources

The **Village of Wainwright** is a sovereign government that focuses on preserving and exercising the Tribe's inherent rights to conserve and develop Tribal land and resources and establish justice.

The **City of Wainwright** acts as the primary community representative organization with the NSB and State of Alaska. The City also manages municipal facilities.

The **Olgoonik Corporation** is the native village corporation for Wainwright. It is a major landowner and that provide shareholder opportunities and dividends.

Other Resources

The **North Slope Borough** has sixteen departments that can assist communities to advance community needs. The following departments may provide the greatest assistance for advancing programs or initiatives in this section.

- The NSB Iñupiat History, Language, and Culture Department seeks to preserve to the region's language and culture; any endeavor to expand language fluency and promote culturally enriching activities would benefit from the department's assistance.
- The NSB Department of Health and Social Services could assist with daycare-related strategies.

- NSB Administration and Finance (NSB Grants Division) could assist in seeking outside funding for initiatives.
- NSB Mayor’s Office may be able to provide assistance for initiatives or guidance on finding assistance.

The **North Slope Borough School District** (NSBSD) oversees the administration of 11 schools, including Alak School in Wainwright and oversees district-wide curriculum and initiatives.

Alak School provides education for pre-k through 12th grade students in Wainwright. Engaging with students is one way to garner innovative ideas and solutions as well as prepare the leaders of tomorrow.

Qargi Academy is a charter school in Wainwright that focuses on providing education with a foundation in Iñupiaq culture and values. It recently opened its doors to incorporate culture into the education and lives of its students, including daily Iñupiaq language learning.

The **Arctic Slope Native Association** (ASNA) promotes health and well-being in all communities across the North Slope and would be helpful in promoting language use in a daycare or similar setting.

Goal One: Facilitate preservation of the Iñupiaq language through improving language fluency.

Strategy 1.1 Incorporate an Iñupiat language immersion program when the daycare center by hiring fluent or semi-fluent community members.

Strategy 1.2 Advocate for expanding the NSBSD Iñupiaq Immersion Program. The program could be incorporated into classes other than language study and expanded to include all students at Alak School.

Strategy 1.3 Develop a program to pair young children with fluent speakers to speak only in Iñupiaq, especially in cultural activities and teaching subsistence.

Strategy 1.4 Use video games or other online tools to promote Iñupiaq language learning.

Strategy 1.5 Seek funding to revitalize the Iñupiaq language that would fund content, training, teachers, and reading and speaking opportunities including camps, community newspaper/newsletter, storytime, etc.

Strategy 1.6 Develop a program that encourage fluent and semi-fluent Native speakers to speak Iñupiaq at home, especially to children.

Goal Two: Preserve the Iñupiaq culture.

Strategy 2.1 Incorporate the Iñupiat Heritage, Language, and Culture Department oral historian(s) in documenting and promoting the history and culture of the Wainwright community.

Strategy 2.2 Have students conduct interviews with community Elders to hear and document stories of their youth.

Strategy 2.3 Develop a story night for community members to share cultural stories to the community.



Subsistence

The Iñupiaq subsistence culture encompasses hunting, fishing, and gathering, as well as a deep connection and comprehension of the land, air, and waters. For the majority of Wainwright residents, subsistence represents an essential aspect of daily life. Safeguarding precious natural resources is of utmost importance for daily cultural and dietary sustenance and the well-being of present and future generations.

Local Resources

The **Village of Wainwright** is a sovereign government that focuses on preserving and exercising the Tribe's inherent rights to conserve and develop Tribal land and resources and establish justice.

The **City of Wainwright** acts as the primary community representative organization with the NSB and State of Alaska. The City also manages municipal facilities.

The **Olgoonik Corporation** is the native village corporation for Wainwright. It is a major landowner and that provide shareholder opportunities and dividends.

Other Resources

The **North Slope Borough** has sixteen departments that can assist communities to advance community needs. The following departments may provide the greatest assistance for advancing programs or initiatives in this section.

- The NSB Planning & Community Services Department is responsible for regulating land use within the borough and is knowledgeable on federal and state regulations related to subsistence rights as well as the subsistence needs of residents of the North Slope.
 - The NSB Iñupiat History, Language, and Culture Department seeks to preserve to the region's language and culture. Protecting subsistence rights is in line with protecting the Iñupiat culture.
 - The NSB Wildlife Management Department not only monitors subsistence activities and the health of subsistence resources, but also advocates for residents' subsistence rights.
 - NSB Administration and Finance (NSB Grants Division) could assist in seeking outside funding for initiatives.
 - NSB Mayor's Office may be able to provide assistance for initiatives or guidance on finding assistance.
 - Both the departments of Capital Improvement Program Management (CIPM) and Public Works could contribute to maintaining existing subsistence infrastructure and in administering new funds.
-

Goal Three: Protect subsistence rights and activities.

Strategy 3.1 Advocate for co-management of subsistence between federal and state regulators and the Iñupiaq people, inclusion of Indigenous Knowledge in policies, and increased Iñupiaq representation in resource management decisions.

Strategy 3.2 Develop a communication system to coordinate subsistence hunting between different North Slope villages.

Strategy 3.3 As practicable, 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.

Goal Four: Protect subsistence infrastructure.

Strategy 4.1 Identify subsistence cabins that may be vulnerable to damage from thawing permafrost, fire, erosion, and/or flooding and consider appropriate mitigating action(s).

Strategy 4.2 Monitor ice cellars, record environmental conditions like humidity and temperature, and note changes throughout the food storage season.

Strategy 4.3 Identify storage needs for subsistence foods to determine how many ice cellars and/or community freezers are needed and seek funding for construction or purchase.



Community Infrastructure

Wainwright has a significant network infrastructure, community facilities, and transportation systems, including a gravel road network, piped water and wastewater systems, electric power, and an airport runway. It is important to maintain this infrastructure for the health and safety of residents and expand when needed to accommodate the needs of the growing community.

Local Resources

The **Village of Wainwright** is a sovereign government that focuses on preserving and exercising the Tribe's inherent rights to conserve and develop Tribal land and resources and establish justice.

The **City of Wainwright** acts as the primary community representative organization with the NSB and State of Alaska. The City also manages municipal facilities.

The **Olgoonik Corporation** is the native village corporation for Wainwright. It is a major landowner and that provide shareholder opportunities and dividends.

Other Resources

The **North Slope Borough** has sixteen departments that can assist communities to advance community needs. The following departments may provide the greatest assistance for advancing programs or initiatives in this section.

- The NSB Department of Public Works provides oversight and maintenance of many of the community’s public infrastructure.
- The NSB Department of Capital Improvement Program Management (CIPM) provides oversight of capially funded infrastructure projects in the community.
- NSB Administration and Finance (NSB Grants Division) could assist in seeking outside funding for initiatives.
- The NSB Port Authority plans for, finances, constructs, operates and maintains transportation related facilities and activities.

The **North Slope Borough School District** (NSBSD) oversees the administration of 11 schools, including Alak School in Wainwright.

Alak School is located in Wainwright and provides education for pre-k through 12th grade students.

Goal Five: Continue to maintain water, wastewater, electric power, and other facilities in good operating condition.

Strategy 5.1 Proactively engage with NSB and the State of Alaska Department of Transportation and Public Facilities (DOT&PF) on planned projects, project prioritization, policies, and studies.

Strategy 5.2 Advocate for regular inspections of infrastructure and asset management.

Strategy 5.3 Examine culverts and maintain adequate drainage of all residential properties, especially during and after spring ice breakup. Keep materials on-hand to maintain or repair culverts as-needed.

Strategy 5.4 Examine roads where safety could be improved through signage and install signs where needed.

Strategy 5.5 Examine roads for sinking and provide additional material to prevent erosion and water flow across the roadway where needed.

Strategy 5.6 Seek upgrades to the water and wastewater plants to facilitate additional housing development.

Strategy 5.7 Seek upgrades to the power plant to facilitate additional housing development.

Strategy 5.8 Seek the development of an access road to the DEW Line site.

(continued) Goal Five: Continue to maintain water, wastewater, electric power, and other facilities in good operating condition.

Strategy 5.9 Seek the completion of the new NSB Public Works building.

Strategy 5.10 Seek the investigation of new gravel resources to fulfill continued infrastructure and community needs.

Strategy 5.11 Conduct a facility space needs study for Alak School.

Strategy 5.12 Implement Energy Audits on Alak School, NSB facilities, and other buildings. as needed for minimize utility costs and save energy.

Strategy 5.13 Replace residential fuel tanks as needed.

Goal Six: Seek expansion and upgrade of infrastructure where needed.

Strategy 6.1 Seek funding to extend the seawall on the southern side of the community to protect the coastline and community from further erosion.

Strategy 6.2 Continue to seek funding for cultural center/recreational spaces.

Strategy 6.3 Extend roads, power connections, and water and wastewater service to platted parcels in the southern end of the community to facilitate the development of new housing development.

Strategy 6.4 Seek funding for the installation of boat ramps.

Strategy 6.5 Coordinate with NSB, the State of Alaska, and the federal government on outstanding contaminated sites in the Wainwright area and seek remediation funding.

Strategy 6.6 Investigate additional funding opportunities for 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.



Housing

Safe, healthy, stable, and access to housing are important for quality of life. There is a severe housing shortage across the North Slope, with multiple generations of families living in overcrowded conditions. Additionally, many homes need weatherization improvements and basic home repairs to ensure healthy living conditions.

Local Resources

The **Village of Wainwright** is a sovereign government that focuses on preserving and exercising the Tribe's inherent rights to conserve and develop Tribal land and resources and establish justice.

The **City of Wainwright** acts as the primary community representative organization with the NSB and State of Alaska. The City also manages municipal facilities.

The **Olgoonik Corporation** is the native village corporation for Wainwright. It is a major landowner and that provide shareholder opportunities and dividends.

Other Resources

The **North Slope Borough** has sixteen departments that can assist communities to advance community needs. The following departments may provide the greatest assistance for advancing programs or initiatives in this section.

- The NSB Housing Department provides resources and guidance on managing NSB-owned property and assisting residents in maintaining their homes.
- The NSB Planning & Community Services Department is responsible for regulating land use within the borough. The Department is able to provide assistance on housing initiatives for North Slope communities.
- NSB Mayor’s Office may be able to provide assistance for initiatives or guidance on finding assistance.
- Both the departments of Capital Improvement Program Management (CIPM) and Public Works could contribute to managing the development of additional housing and maintaining essential services for residents.
- NSB Administration and Finance (NSB Grants Division) could assist in seeking outside funding for initiatives.

Tagiugmiullu Nunamiullu Housing Authority (TNHA) is a regional housing authority acting on behalf some North Slope communities and can coordinate with the community on financing and constructing housing.

Goal Seven: Coordinate housing-related activities and resources.

Strategy 7.1 Undertake a lot-by-lot study to determine ownership status issues, safety needs, viability of property to be used for infill housing as appropriate, etc.

Strategy 7.2 Assess the need for housing resources to support those with unexpected emergencies.

Strategy 7.3 Prepare one housing plan for Wainwright as a proactive planning resource for multiple agencies to ensure housing is available for all income levels.

Strategy 7.4 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, TNHA, etc. to coordinate housing activities.

Strategy 7.5 Promote financial literacy programs offered by TNHA, NSB Housing, lenders, and non-profits that help prepare residents for homeownership.

Goal Eight: Seek ways to reduce costs of constructing housing to facilitate greater affordability and alleviate overcrowding.

Strategy 8.1 Encourage, support, and seek funding sources to construct multi-family buildings, accessory residential dwelling units (i.e. smaller detached home on the same lot, etc.) to alleviate the overcrowded conditions and provide more affordable options through the designation of specific locations for these buildings.

Strategy 8.2 Explore funding opportunities for Tribal housing authorities, elder housing, and low-income housing, such as federal and state grants.

Strategy 8.3 Develop more effective collaborations and partnerships to make effective use of CWAT to reduce the cost of living and availability of goods.

Strategy 8.4 Seek grant funds to supplement funding from NSB for weatherization efforts, passive ventilation systems, and other alternative building techniques to reduce energy consumption in existing houses and reduce costs for homeowners.

Strategy 8.5 Investigate the feasibility of a program that provides housing maintenance assistance for homeowners, especially elders, and sells supplies for housing maintenance at or near cost to facilitate affordability.



Social Services

To facilitate both physical and social well-being, space for activities and social gatherings is needed. Quality social services, health care services, and community preparedness are essential to the overall wellbeing of the community.

Local Resources

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Other Resources

The **North Slope Borough** has sixteen departments that can assist communities to advance community needs. The following departments may provide the greatest assistance for advancing programs or initiatives in this section.

- The NSB Department of Health and Social Services is involved in many of the community's health and social programs.
- Both the departments of Capital Improvement Program Management (CIPM) and Public Works could contribute to maintaining existing subsistence infrastructure and in administering new funds.

Iḷisaḡvik College provides post-secondary education to meet the needs of residents and employers on the North Slope. The College is engaged in many programs that support communities, such as offering programs that train medical aides.

Goal Nine: Plan for current and future health and social service needs.

Strategy 9.1 Investigate the feasibility of hosting visiting doctors more frequently to provide health care in-person, especially near the beginning of the school year to conduct annual physicals for students.

Strategy 9.2 Investigate the options for both mental and physical health support and resources, such as traveling therapists, teleconference or video appointments, and making sure mental health information and resources are readily available at the health clinic.

Strategy 9.3 Support and accommodate drug and alcohol education and suicide prevention education in the community.

Strategy 9.4 Encourage regular cancer screening for residents and coordinate with the NSB Health & Social Services Department and village health clinic to facilitate access to physicians.

Goal Ten: Seek expansion of social services where needed.

Strategy 10.1 Investigate the possibility of having more than one village dental health aide to provide routine oral care for residents.

Strategy 10.2 Investigate the feasibility of providing regularly scheduled public transportation services and actively pursue NSB Capital Improvement Program funding for a community bus(es).

Strategy 10.3. Evaluate the current health clinic facility and equipment against both current and future residents need and proactively plan for equipment, repairs, renovations, and/or expansion.

Strategy 10.4 Seek funding and training for certifications for the planned daycare facility.



Emergency Preparedness

Without year-round road access, Wainwright residents must rely on air transport for goods and services as well as medical and personal travel needs. The effects of climate change are leaving the community increasingly vulnerable to storm surges, flooding, and other disasters. Planning for vulnerable infrastructure and disruptions in air travel is essential to ensure continued effective functioning of the community.

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Other Resources

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- The Risk Management Division within the NSB Department of Administration and Finance oversees all emergency management and disaster coordination efforts for the borough.
 - Both the departments of Capital Improvement Program Management (CIPM) and Public Works could contribute to maintaining existing subsistence infrastructure and in administering new funds.
 - NSB Administration and Finance (NSB Grants Division) could assist in seeking outside funding for initiatives.
 - NSB Mayor’s Office may be able to provide assistance for initiatives or guidance on finding assistance.
 - The Search and Rescue Department responds to emergency situations, such as search and rescue missions, and medical evacuation.
-

Goal Eleven: Protect facilities in the event of an emergency or natural disaster.

Strategy 11.1 Identify utilities and community facilities that may be vulnerable to damage caused by climate-related impacts including melting permafrost, fire, erosion, and/or flooding, including power lines, water tank, water treatment plant, and power plant. Consider appropriate action(s), potentially including facility relocation.

Strategy 11.2 Identify homes that may be vulnerable to damage from thawing permafrost, fire, erosion, and/or flooding and consider appropriate mitigating action(s).

Strategy 11.3 Develop a long-range plan for the potential relocation of community infrastructure (water lines, sewer lines, roads) currently threatened by coastal erosion.

Strategy 11.4 Integrate a surge protector and second power supply system to mitigate power flux, outages, and generator overloads.

Goal Twelve: Collaboratively plan for effective emergency preparedness.

Strategy 12.1 NSB and community leadership form and maintain an active Local Emergency Planning Committee (LEPC) to manage hazard mitigation planning and preparedness. The Committee will monitor, update as needed, and implement the Hazard Mitigation Plan to prepare for and respond to supply chain challenges, airlines disruptions, housing and health needs during a pandemic, redundant facilities during unplanned outages, flooding, fires, pests, and other hazards. The Committee will also be engaged in the development of the Community Emergency Response Plan (CEMP) and evaluate past hazards and responses to adequately prepare for potential future disasters.

(continued) Goal Twelve: Collaboratively plan for effective emergency preparedness.

Strategy 12.2 Develop emergency response and hazard mitigation plans concurrent with the NSB CEMP development to ensure that the community is well-prepared in the event of an emergency.

Strategy 12.3 Develop a village-specific adaptation plan identifying hazards associated with the thawing of permafrost in and near the village and other climate-related impacts on the environment that are likely to affect community infrastructure with options for counteracting impacts or avoiding hazards.

Strategy 12.4 Disseminate information and tools, such as family disaster supply kit contents, to residents and businesses about disaster preparedness to protect both people and assets.

Strategy 12.5 Prepare for disruptions to the healthcare, travel, and delivery of goods to the community.

Strategy 12.6 Designate space to function as emergency or quarantine housing.

Strategy 12.7 Encourage families to prepare for disasters with contingency plans for child and Elder care.

Strategy 12.8 Assess Wainwright's vulnerability to disruptions in airline service and work with NSB and others to advocate for additional airlines to serve the community.

Strategy 12.9 Coordinate with the NSB Search & Rescue Department ensure continued joint management of the volunteer program for both training and response.



Economy

Training local residents and seeking new economic planning and development opportunities are critical to ensuring that community members have access to employment to support their families.

Local Resources

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Other Resources

The **North Slope Borough** has sixteen departments that can assist communities to advance community needs. The following departments may provide the greatest assistance for advancing programs or initiatives in this section.

- NSB Administration and Finance (NSB Grants Division) could assist in seeking outside funding for initiatives.

- NSB Mayor’s Office may be able to provide assistance for initiatives or guidance on finding assistance.

Iḷisaḡvik College provides post-secondary education to meet the needs of residents and employers on the North Slope. The College is engaged in many programs that train the local workforce.

Goal Thirteen: Facilitate the establishment of businesses and services and employment opportunities.

Strategy 13.1 Encourage the NSB to start an Alaska Regional Development Organization (ARDOR) program and develop work plans for economic development, including comprehensive economic development strategies to aid Wainwright in better planning its economic future.

Strategy 13.2 Engage in efforts to create a trained local workforce, including collaborative efforts with Iḷisaḡvik College and the State of Alaska, through 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.

Strategy 13.3 Investigate burgeoning distance employment opportunities available online.

Strategy 13.4 Seek funding for an economic development plan and program to identify new potential business and job opportunities based on local resources.

Strategy 13.5 Seek funding to establish workspaces for locals to operate businesses that the community needs, such as vehicle repair shop/space and restaurants.

Strategy 13.6 Establish a village storefront to loan equipment and tools and offer home repair technical assistance.

Goal Fourteen: Provide educational resources that prepare students for entering the workforce.

Strategy 14.1 Evaluate the existing vocational education programs within the community and how they address needs, including training for carpentry and vehicle mechanics.

Strategy 14.2 Develop a how-to employment library, focusing on job skills, financial aid, and other topics.

(continued) Goal Fourteen: Provide educational resources that prepare students for entering the workforce.

Strategy 14.3 Promote existing scholarship opportunities and continue to develop and expand scholarships to meet the needs of students and employers.

Strategy 14.4 Develop an apprenticeship program, which would provide training to create new skills in villages, supported by a regional network for technical assistance.



Community Cooperation

Facilitating opportunities within the village for meaningful public engagement and leadership cooperation is essential for planning for the future of the community.

Local Resources

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Other Resources

The **North Slope Borough** has sixteen departments that can assist communities to advance community needs. The following departments may provide the greatest assistance for advancing programs or initiatives in this section.

- The NSB Planning & Community Services Department is responsible for managing the annual capital improvement program funding process.
- NSB Administration and Finance (NSB Grants Division) could assist in seeking outside funding for initiatives.
- NSB Mayor’s Office may be able to provide assistance for initiatives or guidance on finding assistance. The Mayor’s Office also oversees the Mayor’s Youth Advisory Council (MYAC).
- Both the departments of Capital Improvement Program Management (CIPM) and Public Works could contribute to maintaining existing subsistence infrastructure and in administering new funds.

NSBSD oversees the administration of 11 schools, including Alak School in Wainwright and oversees district-wide curriculum and initiatives.

Alak School provides education for pre-k through 12th grade students in Wainwright. Engaging with students is one way to garner innovative ideas and solutions as well as prepare the leaders of tomorrow.

Goal Fifteen: Facilitate greater coordination amongst leadership entities.

Strategy 15.1 Ensure that the NSB Village Deputy and NSB Liaison for Wainwright are involved in local initiatives and is provided training for effective involvement in a multitude of issues facing the community. Work with the Village Deputy and other borough staff in the community to disseminate information to residents, especially related to capital investments.

Strategy 15.2 Seek continued guidance and training on pursuing project or program funding, including the NSB Capital Program.

Strategy 15.3 Work collaboratively on researching and submitting funding proposals for community projects.

Strategy 15.4 Ensure land ownership maps are accurate and identify areas for new utilities and housing development.

Strategy 15.5 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.

Goal Sixteen: Prepare students to be community leaders.

Strategy 16.1 Encourage student programs that foster leadership skills, such as student council, peer mentoring activities, and mentorship opportunities with community leaders.

Strategy 16.2 Encourage youth and other residents to attend meetings where governance, capital infrastructure planning and land use planning is discussed to gain a better understanding of community needs.

Strategy 16.3 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.

Strategy 16.4 Contact the U.S. Postal Service to coordinate hiring of postmaster and contingency plan for absences.

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4

History, Culture, and Governance



A Brief History of Wainwright

Wainwright is located along a wave-eroded coastal bluff on the west side of a narrow peninsula, which separates Wainwright Inlet from the Chukchi Sea. For countless generations, the Iñupiat and their ancestors have thrived in the northern region of Alaska, embracing the lands and waters as home. The residents of Wainwright hold a deep connection to their oceanic surroundings, identifying themselves as the Tagiumiut – the people of the sea. Over the years, the community has been significantly shaped by various factors, including reindeer herding, exploration for oil and gas resources, and military engagements, all of which have left a lasting impact on their way of life.

Wainwright is located on a bluff facing the Chukchi Sea, approximately 70 miles southwest of Utqiagvik. The community is approximately three miles from the mouth of the Kuk River and within the National Petroleum Reserve – Alaska. The area around Wainwright has a long history of human occupation. There are many historic and contemporary hunting and fishing camps in this area.

In and around the Wainwright Inlet and the Chukchi Sea coast, the land and waters have been used since time immemorial for hunting and fishing by the Utukamiut (people of the Utukok River) and Kukmiut (people of the Kuk River).⁹ The Utukamiut and Kukmiut people settled the region, thriving on the bounty of plants and animals in the rivers, lakes, sea, and on the land. They traditionally followed the migratory patterns of wildlife with seasonal settlements along the river and coastline.

Wainwright Inlet is fed by the Kuk River, a 35-mile river that flows north into the Inlet roughly six miles southeast of the village. The Kuk River has the second largest watershed area, at 4,275 square miles. The river is frozen for more than half the year and floods each spring, as the snow and ice from the mountains and the tundra melts into its many tributaries.

In 1826, the Wainwright Inlet was named by Capt. F.W. Beechey for this officer, Lt. John Wainwright. An 1853 map indicates that the name of the village as *Olrana*. Its Iñupiat name was Olgoonik. Wainwright's origins as a settled community go back to 1904 when the Alaska Native Service built a school and instituted medical and other services. The selection of the present townsite is believed to have been largely dictated by ice conditions at the time the first schoolhouse building materials were landed. Once built, the school acted as a magnet in encouraging permanent settlement here.

The post office was established in 1916. Wainwright was incorporated as a fourth-class city in 1962 and re-classified as a second-class city in 1971. Coal was mined at several nearby sites for village use; the closest was about 7 miles away. Today, though, most houses are heated by fuel oil. A U.S. Air Force Distance Early Warning (DEW) Station was constructed nearby during the early 1950s.

Early economic activity in Wainwright centered around reindeer. Concern by the Bureau of Education over dwindling Alaska Native food resources led to the introduction of reindeer herds at all schools and church missions in western and northwest Alaska.

⁹ Village of Wainwright. 2019. *Wainwright History*.

By 1918, Wainwright had three herds with a total of 2,300 reindeer. By 1924, there were four herds with about 8,000 head of reindeer and by 1934, locally owned herds included 22,000 animals. However, a combination of overgrazing, changes from individual to corporate ownership of herds and the introduction of open herding led to a dramatic decline in the number of reindeer. The surviving animals mixed with migratory caribou herds and today there are no domesticated reindeer on the Arctic coast.

Coal was another community economic asset. Most coal was stripped from the north bank of the Kuk River about 6 miles inland, although some was taken from the beach. It provided a relatively inexpensive means of heating homes; but fuel oil was seen as being more efficient and little coal is used in the village today.

Aluakpak, a historical coal mining site located approximately 15 miles inland from Wainwright, holds a notable position on the National Register of Historic Places. In the late 19th century, Wainwright residents began mining coal from this area to meet their household and school heating needs following the introduction of iron stoves. Unlike coastal communities that relied on other fuel sources, like driftwood, the interior villages and camps depended on the consistent supply of coal.

During the fall, families would make their way from Wainwright to the Kuk River, where fish camps were located. At Aluakpak, families would gather coal for family camps. On occasion, passing ships would also utilize coal from Aluakpak.¹⁰

At the time of the 1939 Census, Wainwright's population was only slightly less than that of

Utqiagvik. However, largely because of the Navy's exploration program in Naval Petroleum Reserve No. 4 between 1944 and 1953, Utqiagvik grew rapidly between 1939 and 1950. By contrast, Wainwright's population declined by a third during that same period. This is believed to have occurred mainly because a number of Wainwright families moved to Utqiagvik and elsewhere in search of wage employment.

Passage and implementation of the Alaska Native Claims Settlement Act has also had an impact on the local economy. In 1971, the U.S. Congress passed ANCSA which settled Native land claims by cash payment and land grants. ANCSA also created village and regional Native corporations; the Arctic Slope Regional Corporation (ASRC) was created as the regional corporation for the North Slope region and was incorporated in 1972.

Today, the North Slope Borough is the major source of employment and income in Wainwright, as it is in all villages in the borough. Since its incorporation in 1972, the borough has assumed responsibility for a wide range of local government services and has embarked on an ambitious capital improvements program. Together, these activities have led to the creation service and temporary construction jobs for village residents.

Subsistence is central to life in Wainwright. Residents hunt bowhead and during the spring and fall, also hunting caribou and other land and marine mammals throughout the year. In early summer, the community gathers for Nalukataq, the feast after a successful whaling season. At this festival and on other occasions, villagers perform traditional Iñupiat dances.¹¹

¹⁰ Voice of the Arctic. 2023. *In Unity There is Strength*.

¹¹ Arctic Slope Regional Corporation. 2023. *Our Communities*.

Wainwright's Iñupiaq Culture and Language

The residents of Wainwright honor cultural ties to ancestors and the land through traditional Iñupiaq values. The Iñupiat highly regard kinship and respect for Elders, the use and preservation of the Iñupiaq language, and sharing food and knowledge of animals with a deep respect for the environment which provides fresh water, clean air, and subsistence foods.

The Iñupiat people of Wainwright lead a subsistence lifestyle, depending on fishing, gathering, and hunting of marine and land mammals to obtain food and maintain a traditional way of life. Activities throughout the year revolve around the harvest of whales, seals, walrus, fish, birds, and land animals such as caribou. Salmonberries, willow leaves, wild rhubarb, stinkweed, and Eskimo potatoes, as well as clams and other beach foods are commonly gathered foods.

The Iñupiat culture places great importance on the bowhead whale. The entire community participates in the preparation and hunt for the bowhead whale, ensuring that the traditions and skills are passed down to future generations. Wainwright's whaling crews hunt the Bowhead in the spring and fall, sharing their catch with the entire the community.

Nalukataq marks the end of a successful spring whaling season. Whaling captains lead the community in celebrating at Nalukataq, a festival for sharing harvested food, and characterized by the Eskimo blanket toss and Eskimo dancing.

The NSB works to preserve the history, language, and culture of the North Slope region, in part through the Iñupiat Heritage, Language, and Culture (IHLC) Department. The NSB is committed to safeguarding the history, language, and culture of the North Slope region. IHLC's primary objective is to document, preserve, and sustain the region's rich history, language, and culture while ensuring that cultural resources are given due consideration. IHLC maintains the borough's Traditional Land Use Inventory, which is a historical account of the land, people, and villages of NSB. The department also collaborates on development projects to ensure that traditional subsistence activities and values at cultural, historic, and archaeological sites are not affected. The department is also focused on preserving oral history through traditional land use studies, historical accounts, stories, legends, and life histories using various media formats. The Heritage Center in Utqiagvik serves as a gathering space and an educational venue for visitors interested in cultural revitalization efforts.

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IÑUPIAT VALUES

PAAQLAKTAUTAIÑÑIQ

Avoidance of Conflict

The Iñupiat way is to think positive, act positive, speak positive and live positive.

NAGLIKTUUTIQAĠNIQ

Compassion

Together we have an awesome power to accomplish anything.

IŁAGIIGÑIQ

Family and Kinship

As Iñupiat people, we believe in knowing who we are and how we are related to one another. Our families bind us together.

QIÑUIÑÑIQ

Humility

Our hearts command that we act on goodness. We expect no reward in return. This is part of our cultural fiber.

QUVIANGUNIQ

Humor

Indeed, laughter is the best medicine.

ANJUNIALLANIQ

Hunting Traditions

Reverence for the land, sea, and animals is the foundation of our hunting traditions.

IÑUPIURAALLANIQ

Knowledge of Our Language

With our language, we have an identity. It helps us to find out who we are in our mind and in our heart.

PIQPAKKUTIQAĠNIQ SULI QIKSIKSRAUTIQAĠNIQ UTUQQANAANUN ALLANULLU

Love and Respect for our Elders and One Another

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.

QIKSIKSRAUTIQAĠNIQ IÑUUNIAĠVIGMUN

Respect for Nature

Our Creator gave us the gift of our surroundings. Those before us placed ultimate importance on respecting this magnificent gift for their future generations.

AVIKTUAQATIGIIGÑIQ

Sharing

It is amazing how sharing works. Your acts of giving always come back.

UKPIQQUTIQAĠNIQ

Spirituality

We know the power of prayer. We are a spiritual people.

4 in 10

of the 7,000 indigenous languages spoken today are at risk of disappearing

The Iñupiat language is an integral to the cultural identity of the Iñupiat people. Expanding fluency is of great importance to North Slope Borough and its residents. Unfortunately, the number of fluent Iñupiaq speakers has been declining for at least the past three decades, as evidenced by NSB Economic Profile and Census Report (NSBEP&CR or Census Report) of Iñupiat language usage. Elders who became fluent as children are aging and gradually passing away. Their children, now middle age, did not always learn Iñupiaq fluently for a variety of reasons. Many children of fluent speakers are not fluent themselves and may be unable to teach their own children. The trend intensifies with each generation. This increasingly alarming trend has led to a lack of Iñupiaq proficiency amongst younger generations.

Beginning in the early 1900s through the 1970s, Native Alaskan children were taken from rural communities that lacked either primary or secondary schools. They were sent to boarding schools run by the Bureau of Indian Affairs (BIA), by churches, or later, by the State of Alaska. Many students attended boarding schools in-state. However, there had been over 1,000

students from Alaska attending out-of-state boarding schools, most notably in Oregon, Oklahoma, and New Mexico. Many Native children were not allowed to speak their language at boarding schools and even received physical punishment when they did. Students' feeling a loss of culture and identity were common; many found it difficult to return home and feel accepted because they had missed out on learning important traditional skills.¹² While the State of Alaska was required under 1976 *Tobeluk v. Lind* to build a system of village high schools serving communities with eight (now ten) or more students, boarding schools have had a long lasting effect on the former students and their families and communities. Loss of language fluency of the former students and their decedents is one significant repercussion.

The Iñupiaq language, along with all Alaska Native languages, is endangered. The Alaska Native Language Preservation & Advisory Council estimates that there are approximately 500 - 1,500 highly proficient Iñupiaq speakers in Alaska and 5 - 50 highly proficient second language speakers.¹³ The 2019 NSB Census reported that approximately 22 percent of the North Slope Iñupiaq population is fluent, with a fluency range from speaking fluently and preferring to speak Iñupiaq to understanding Iñupiaq well and speaks enough. About a third of the North Slope population is able to understand and follow along in an Iñupiaq conversation. The report continues that there is a progression with age being highly associated with fluency.

¹² Hirshberg, Diane and Suzanne Sharp. 2005. *Thirty Year Later: The Long-Term Effect of Boarding Schools on Alaska Natives and Their Communities*.

¹³ Alaska Department of Commerce, Community and Economic Development. 2023. *Alaska Native Language Preservation & Advisory Council*.

“Each Alaska Native language is a treasure beyond value, holding cultural knowledge of a unique people, a unique history, and a unique way of viewing life.”

The Alaska Native Language Preservation & Advisory Council
2022 Biennial Report to the Governor and Legislature

The North Slope Borough's 1993/1994 census effort provides evidence from thirty years ago of a gradual decline in the use of the Iñupiaq language among residents across the North Slope, including Wainwright. According to the 1993/94 NSB Census, 44 percent (258 of 584 resident) spoke Iñupiaq fluently in Wainwright.¹⁴ Five years later, 42.1 percent (273 of 649 people) spoke Iñupiat fluently in Wainwright. By 2003, the percentage of fluent Iñupiaq speakers dropped significantly, to 27.7 percent (154 of 556 residents).

The 2019 NSB Census Report included a more comprehensive questionnaire about language use in North Slope communities than in previous census years. The report indicates that 16 percent of Wainwright residents understand Iñupiaq well but hardly speak it, while 54 percent range from understanding and speaking some to not understand more than a few words. Ten percent of Wainwright residents speak Iñupiaq fluently and also prefer it; 3.4 percent speak it fluently but prefer another language. On the North Slope, of residents 60 – 99 years of age, 84 percent speak Iñupiaq fluently and 90% understand it as a fluent speaker while five percent of children 12 – 18 years of age speak it fluently and 15 percent understand fluently.

The Census Report notes that Wainwright is the only community with a majority of households where Iñupiaq is a significant part of home conversations (60 percent, 49 of 82 households). The remaining seven communities, the majority of household heads reported feeling more comfortable speaking English.¹⁵

The loss of native Iñupiaq speakers continued to decrease, to 23.6 percent of residents (106 of 556 people) in 2010. In 2015, there was a slight uptick in the number of speakers, to 25.3 percent (113 of 550 people) spoke Iñupiaq fluently in Wainwright. More recently, the 2019 Census Report indicated a precipitous decrease from earlier years, with only 12.6 percent of the Wainwright population (40 of 555 residents) speaking fluently.¹⁶

However, the news isn't all bad. The 2019 NSB Census Report reports that nearly a third of Wainwright's Native Alaskan population speaking Iñupiaq to some degree. And Wainwright is the only community that has a majority (60 percent) of households where

¹⁴ North Slope Borough. 1994. *1993/1994 Economic Profile and Census Report Volume II*. Prepared by Robert C. Harcharek, Ph.D

¹⁵ North Slope Borough. 2019. *2019 Economic Profile and Census Report*.

¹⁶ Ibid

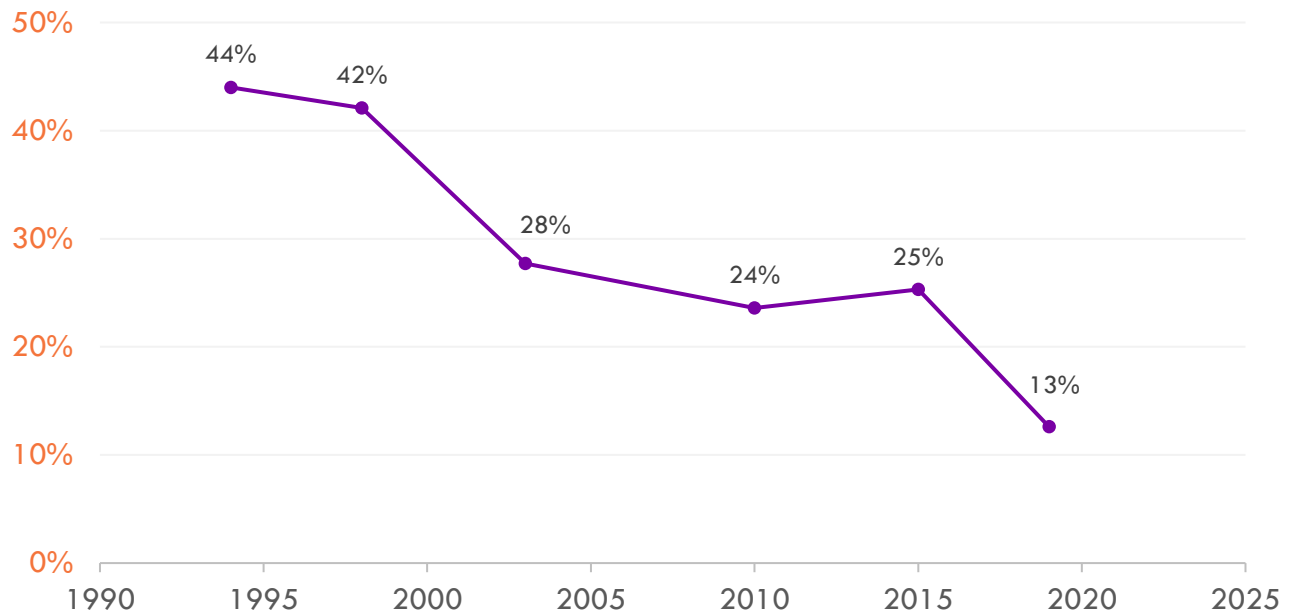
Iñupiaq is a significant part of home conversations. In the rest of the NSB communities, a majority of household heads feel more comfortable speaking English. The proportion of household heads preferring English hovers around fifty percent, increasing to 72 – 80 percent in Kaktovik, Point Hope, and Point Lay. Unfortunately, almost no household heads under the age of 50 speak “mostly” Iñupiaq at home across the entirety of the North Slope.¹⁷

Because of the dramatic decline in fluent Native Iñupiat language speakers, the NSBSD has made efforts to strengthen the Iñupiaq language by offering language classes utilizing the Accelerated Second Language Acquisition Method and supported with a customized computer based language-learning tool.¹⁸ To assist adults in learning or re-learning Iñupiaq, the NSB Iñupiat History, Language and Culture

13%
of Wainwright residents
are fluent in Iñupiaq

Department sponsored the production of an online Iñupiaq language program in partnership with the Rosetta Stone program for Endangered Languages. The program, Rosetta Stone Iñupiatun, is available for tablets and smartphones to facilitate learning.

Figure 4.1: Percent of Fluent Iñupiat Speakers in Wainwright



¹⁷ North Slope Borough. 2019. *2019 Economic Profile and Census Report*.

¹⁸ North Slope Borough School District. 2023. *About Iñupiaq Education*.

Governance

Wainwright is governed by both municipal and tribal entities, representing the local and regional levels of government.

Local Governance

City of Wainwright. The City of Wainwright was incorporated in 1962 as a second-class city and operates as a subdivision of the North Slope Borough and the State of Alaska. A second-class city allows the City to engage in planning, platting, and land use regulations, levy a property tax and/or a sales tax, and other powers not prohibited by law. The City also has the authority for eminent domain with voter approval. The City Council consists of seven members who are elected at-large, with one member serving as the mayor, elected by the council. The mayor oversees the day-to-day operations of the city.

Village of Wainwright. The Village of Wainwright operates as a federally recognized sovereign tribal government. Its governance and oversight are entrusted to a seven-member Tribal Council, which assumes responsibility for the implementation and management of programs and activities. Established under the authority of the Indian Reorganization Act (IRA) of 1934, the Village of Wainwright's mission is to safeguard and exercise the Tribe's inherent sovereign rights and powers, to protect and enhance Tribal land and resources in accordance with Tribal law, customs, and federal regulations, and to establish a system of justice within the community.

ANCSA Corporations

Olgoonik Corporation. Olgoonik Corporation was established by the Alaska Native Claims Settlement Act of 1971. The corporation owns more than 175,000 acres of land surround Wainwright. Guided by a dual mission, the corporation's Iñupiat board of directors strives to achieve financial success to create shareholder opportunities while also preserving and safeguarding the community and its cultural heritage.

Arctic Slope Regional Corporation. Established in 1972 after the passage of ANCSA, ASRC is a private for-profit regional corporation that represents the business interest of its approximately 13,000 Iñupiaq shareholders that primarily live in the eight North Slope communities, including Wainwright. Based in Utqiagvik, ASRC is the largest Alaska-owned company, employing more than 15,000 people worldwide.¹⁹ The Corporation's operations are strongly based in natural resources, holding title to approximately five million acres of land.

Regional Governance

Iñupiat Community of the Arctic Slope. ICAS serves as the regional tribal government for all villages in the North Slope region. Similar to the Village of Wainwright, it was established in 1971 under the Indian Reorganization Act. ICAS is dedicated to conserving and preserving tribal lands and resources, addressing subsistence and environmental concerns, establishing and administering justice systems and social services based on Iñupiat Tribal law and custom, and enhancing the range and quality of services offered to current tribal members and future generations. The overarching goal of ICAS is to

¹⁹ Arctic Slope Regional Corporation. 2023. *Operations*.

ensure the well-being and prosperity of the Iñupiat people in the region.

North Slope Borough. Wainwright is situated within the North Slope Borough, which is a regional home-rule government encompassing 94,763 square miles of land in northern Alaska. The NSB is responsible for providing essential public services to the community of Wainwright, such as water and sewer service, trash collection and disposal, road maintenance, airport management and maintenance, as well as planning and zoning activities. The NSB also possesses the authority to levy property taxes, currently at a mill rate of 18.5, with the ability to increase it up to 20.0 mills. This taxation authority enables the NSB to generate revenue for funding essential services and initiatives that benefit the residents of Wainwright and the broader region it covers.

The North Slope Borough maintains a Planning Commission composed of eight members and eight alternates, with one regular member and one alternate member representing each community within the North Slope region. These commissioners are appointed by the NSB Mayor and confirmed by the NSB Assembly. The Planning Commission functions as a body of dedicated citizens serving the local government. Its role encompasses both decision-making responsibilities, such as issuing permits, granting variances, and approving plats, as well as providing advisory support to the council or assembly on matters related to the comprehensive plan, land use regulations, and community development as a whole. The commission's primary objective is to offer an informed perspective on development needs and challenges within the community, while

serving as a sincere advisor to the council, assembly, and the community at large. Additionally, the Planning Commissioners act as representatives of their respective communities, utilizing their positions to bring forward concerns and issues to the attention of the North Slope Borough administration.

The NSB also has an Assembly whose members are elected by residents of the North Slope Borough and serve their constituents during their elected term of office. The members enact laws, appropriate North Slope Borough School District and departmental funds, establish mill levies, act as the Board of Equalization, confirm department directors and board and commission appointments, and certify NSB elections. There are a total of eleven members on the Assembly, out of which five represent seven villages across the North Slope. Among them, Kaktovik and Anaktuvuk Pass share a representative, while Atqasuk and Point Lay also have a shared representative. The remaining six members represent the Utqiagvik community.²⁰

Cooperation and Collaboration

Wainwright Steering Committee. The community has established a Steering Committee that is made-up of representatives from the City, Village, and the Village Corporation to work in close coordination on issues affecting the community. The Steering Committee meets quarterly. Olgoonik Corporation assumes the responsibility for assembling the agenda while the meeting facilitation rotates amongst the three entities.

²⁰ North Slope Borough. 2023. *Assembly Members*.

5

The People of Wainwright



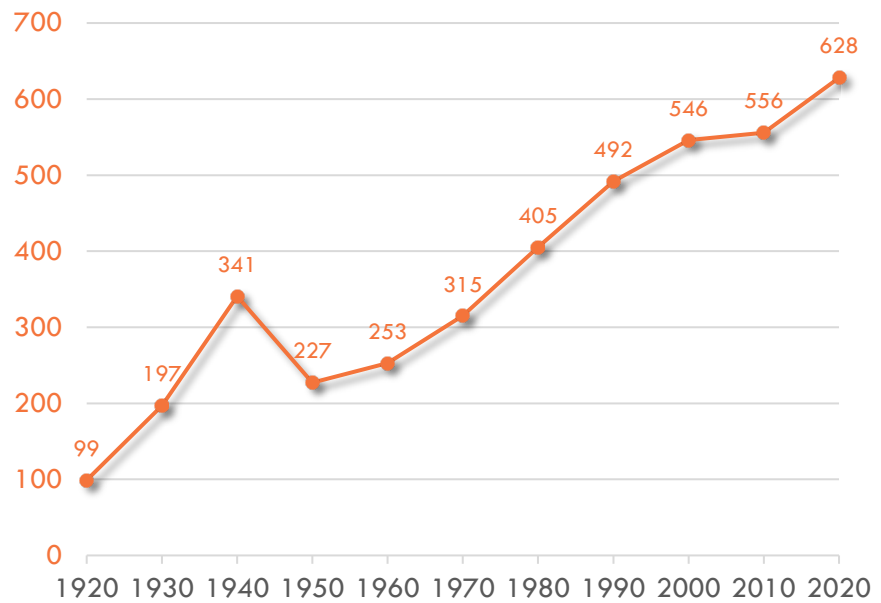
The people of Wainwright a tight knit community of primarily Alaska Native people that have occupied this region for thousands of years. This section provides information on age, race, and population growth on the people of this community.

The Wainwright area has been settled for thousands of years although it was not a traditional village site. Early U.S. Census reports report settlements in the Wainwright area, “From Point Hope to the eastward we find a series of villages, inhabited principally by reindeer hunters. Along that dreary, low icebound strip of coast between Point Hope and Point Barrow the scattered Inuit settlements also depend upon reindeer, seal, and walrus for their subsistence. From Point Barrow eastward to the boundary the settlements are few and widely scattered...”

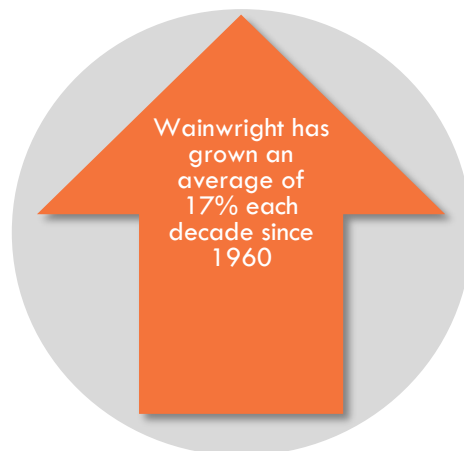
The reliability of early census efforts on the North Slope is uncertain due to the difficulties associated with locating nomadic populations in a vast and physically inhospitable region.²¹

The NSB conducts its own census on a regular schedule, typically every five to seven years; they have been conducted in 1988, 1992, 1998, 2003, 2010, 2015, and 2019. Historically, the NSB census has gathered information from nearly all village households and a large percentage of households in Utqiagvik. This effort provides

Figure 5.1: One Hundred Years of Growth

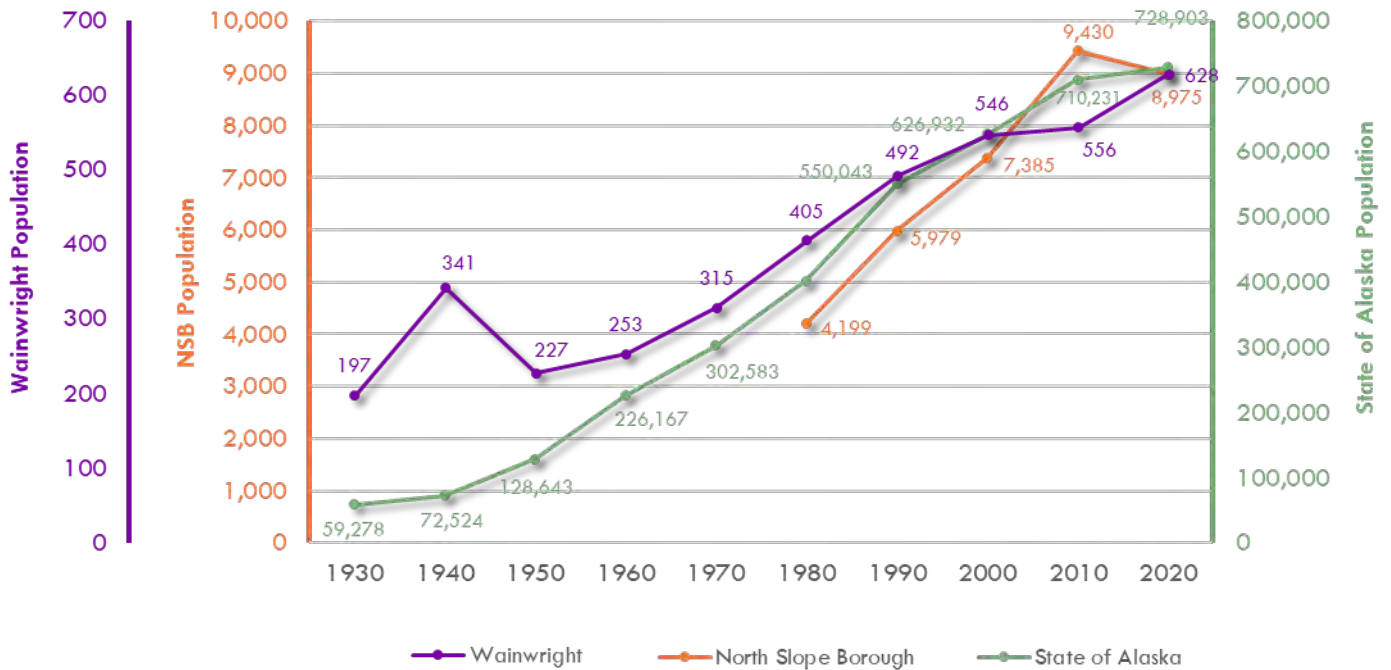


valuable information on North Slope residents, including employment and training, income, education, housing, subsistence, health, language, food insecurity, voting, and other topics. The information from these census efforts is used for a variety of projects and programs, from developing long range comprehensive plans such as this one, to grant applications at the regional and Tribal level, to



²¹ U.S. Department of the Interior, Mineral Management Service. 1988. *Demographics and Employment Alaska Communities Volume H.*

Figure 5.2: State of Alaska, NSB, and Wainwright Population 1930 – 2020



understanding the plummeting levels of Iñupiaq language fluency and health disparities. The NSB census is an important tool for matching programs to needs for the borough community and provided the foundation for this chapter.

The population estimates by the State of Alaska rely on the U.S. Decennial Census. However, in 2010, the federal census failed to accurately count the population of each village on the North Slope. As a result, the State of Alaska continued to perpetuate this undercount. To rectify this issue, the North Slope Borough appealed the state census counts in order to obtain more accurate population figures for each community. These population estimates are crucial because each resident contributes approximately \$20,000 in tax revenue to the borough.²²

In 2020, the North Slope Borough sought the cooperation of city and Tribal governments within its jurisdiction to assist with the appeal process. Nearly every community participated in counting all village residents, resulting in an increase of 152 residents compared to the State of Alaska's count of 8,975.^{23, 24} The total population estimate, including the Prudhoe Bay population, reached 17,924. The North Slope Borough Planning & Community Services Department expects that they will need to appeal the state census every year to maximize the funding owed to the borough.²⁵

Historical Population

Although the Iñupiat have occupied the Wainwright area for thousands of years, the size

²² Bergerson, Jason. Director, Nuiqsut Community Development Foundation. 2021. *Personal communication.*
²³ Alaska Department of Commerce, Community, and Economic Development. 2021. *FY 2022 Adjusted Population.*
²⁴ Includes 427 people outside of the communities.
²⁵ Gutierrez-Edwards, Tuuq. Assistant to the Land Management Administrator. 2021. *Personal communication.*

of the population was first officially recorded by the U.S. government in its 1890 decennial census. The federal government determined that approximately 72 people resided in and near Wainwright in 1890, to include Wainwright Inlet, Kugmiut, camps on Kuk River, Setorokamiut, Nuklwok, Nutnago and Shinnowok. Although Wainwright was formally established in 1904, the community did not appear on the U.S. Census in 1900 or 1910. Since 1920, the size of the community has experienced overall increase, with just one decade of decline, between 1940 and 1950.

Wainwright experienced consistent population growth since 1950, aligning with the overall growth trends across the North Slope Borough. In 1990, there were reportedly 492 residents, increasing by 56 percent over the previous two decades. In 2010, the U.S. Census reported 556 residents while the North Slope Borough had also conducted its own door-to-door census, determining that there were 546 residents. The 2019 NSB Census reported 555 residents whereas just one year later, the 2020 U.S. Decennial Census estimated a total of 628 residents, an increase of thirteen percent since the previous decennial census in 2010.

Table 5.1 provides a historical perspective of Wainwright's population beginning in 1890. Complementing Table 5.1 is Figure 5.1, a graphic depiction of the population changes between 1920

Table 5.1: Wainwright Population, 1890 - 2020

Year	Population	Source
1890	72	U.S. Census Includes Wainwright Inlet and the native settlement Kugmiut, camps on Kuk River, Setorokamiut, Nuklwok, Nutnago and Shinnowok.
1900	–	U.S. Census
1910	–	U.S. Census
1920	99	U.S. Census
1930	197	U.S. Census
1940	341	U.S. Census
1950	227	U.S. Census
1960	253	U.S. Census
1970	315	U.S. Census
1980	405	U.S. Census
1990	492	U.S. Census
1993	584	NSB Census
1998	649	NSB Census
2000	546	U.S. Census
2003	556	NSB Census
2010	556	U.S. Census
	546	NSB Census
2015	550	NSB Census
2019	555	NSB Census
2020	628	U.S. Census

and 2020 using the U.S. Decennial Census population. Figure 5.2 illustrates state and local population changes over a ninety-year period.

people unemployed has also grown significantly, from 17.5 percent in 1998 to 43.3 percent in 2019.²⁶

Community Characteristics

This section includes information on the Wainwright community on age, household size, income, and race. The most notable changes over the past two decades are the size of the labor force has diminished significantly even as the population has growth. The percentage of

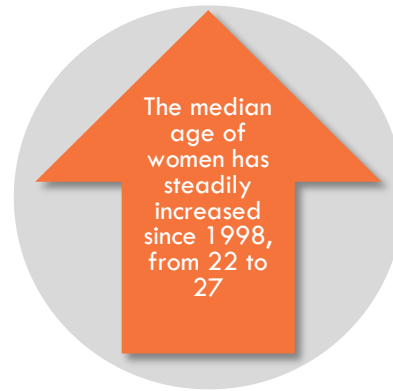


Table 5.2: At-A-Glance Wainwright Resident Characteristics 1998 – 2019

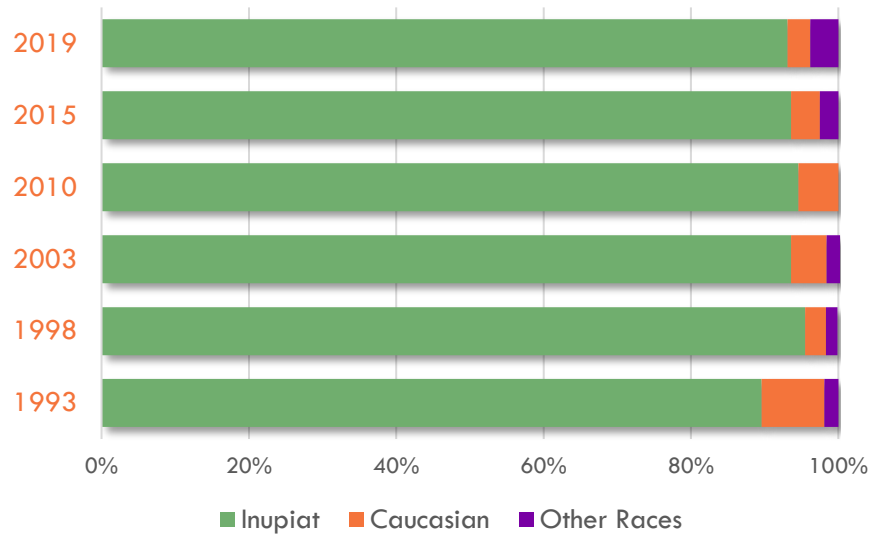
Resident Characteristic	1998	2003	2010	2015	2019
Total population	649	556	546	550	555
Female	45.30%	45.9%	49.1%	48.3%	47.5%
Male	54.7%	54.1%	50.9%	51.7%	52.5%
Median age	24	25	26	26	27
Median age of females	22	24	26	26	27
Median age of males	26	26	26	27	27
Iñupiat	93%	93.6%	94.6%	93.6%	93.1%
Caucasian	2.6%	4.8%	5.4%	3.9%	3.1%
Other	1.3%	.6%	-	2.5%	3.8%
Fluent Iñupiat speakers	42.1%	27.7%	23.6%	25.3%	12.6%
Size of the labor force	374	221	259	305	159
Percent of labor force with full time employment	51.1%	39.8%	46.7%	35.4%	43.3%
Percent unemployed	17.5%	17.4%	24.7%	28.8%	40.9%
Average household size	3.82	3.53	3.71	3.62	3.66
Per capita income	\$13,714	\$28,320	\$28,000	\$13,933	\$15,533
Per capita Iñupiat income	\$12,451	\$26,201	\$25,200	\$11,522	\$12,780
Average household income	\$51,103	\$46,193		\$52,581	\$70,673
Average Iñupiat household income	\$49,751	\$44,073	\$58,889	\$46,862	\$67,389

²⁶ North Slope Borough. 2019. *2019 Economic Profile and Census Report*.

Over the past two decades, Iñupiat residents have consistently made up at least 93 percent of the population in Wainwright, with minor fluctuations of less than two percent during this period. Although the racial composition has remained unchanged, there has been a notable decline in the number of fluent Iñupiat speakers in recent years. In 1993, 42 percent of Wainwright residents were fluent in the Iñupiat language. However, this percentage has steadily and significantly decreased, reaching 12.6 percent in 2019.²⁷ Further discussion on the decline of Iñupiat language usage can be found in Chapter 4.

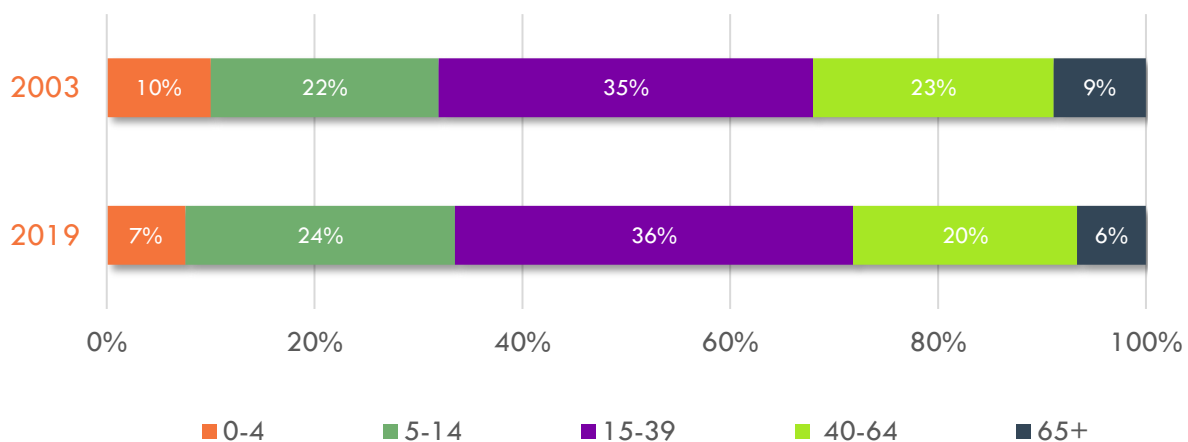
While Wainwright is a young community, with 40 percent of its population under the age of 20 and

Figure 5.3: Race



73 percent under the age of 44, it is still the oldest community on the North Slope (Point Lay residents are the youngest).²⁸ As shown in Table 5.3, in 2019, Wainwright had a young population with 31.5 percent of its residents aged 15 and under, slightly less than the North Slope Borough at 33.3 percent.^{29, 30} The percentage of the

Figure 5.4: Resident Age Distribution, 2003 and 2019



²⁷North Slope Borough. 2019. *2019 Economic Profile and Census Report*.

²⁸Ibid

²⁹Ibid

³⁰Alaska Department of Labor and Workforce Development. 2019. *Alaska Population Overview: 2019 Estimates*.

Table 5.3: Resident Age Distribution, 2003 – 2019

Age Range	Wain.	NSB	Wain.	NSB	Wain.	NSB	Wain.	NSB
	2003		2010		2015		2019	
Ages 0 -4	10.0%	9.9%	12.0%	11.7%	10.5%	11.8%	7.1%	11.2%
Under 15	31.5%	31.8%	30.7%	28.9%	30.2%	31.5%	31.5%	33.3%
15 - 64	59.9%	62.3%	62.5%	66.1%	63.0%	62.8%	62.3%	60.9%
65+	8.6%	5.8%	6.8%	5.0%	6.7%	5.7%	6.2%	5.8%
Youth Dependency Ratio	52.1%	56.4%	49.8%	46.8%	32.9%	54.5%	33.3%	58.6%
Age Dependency Ratio	15.0%	9.7%	10.5%	7.8%	6.7%	9.3%	6.2%	9.8%
Total Dependency Ratio	67.1%	66.1%	60.3%	54.5%	39.6%	63.8%	39.5%	68.4%

Wainwright community that is 15 and younger has remained constant over the last twenty years.

The dependency ratio in Wainwright measures the number of dependents aged 0-14 and 65 and older in comparison to the total population within the labor force, which includes individuals aged 15-64. This ratio provides insights into the proportion of non-working individuals compared to those of working age, helping to understand the economic burden carried by the workforce in supporting the young and elderly population. In Wainwright, the total dependency ratio has experienced a significant decrease over the past decade, indicating that a higher percentage of the community's population is within the working age range and able to support the younger and older community members. Both the percentage of pre-kindergarten children and individuals over the age of 65 have decreased over the last twenty years. For a detailed breakdown of age demographics in Wainwright and the North Slope Borough, refer to Table 5.3.

Additionally, Figure 5.4 offers a visual representation of the age distribution between 2003 and 2019, highlighting the declining percentages of young children and elders in the population.

Population Growth

The primary factor behind the population growth in Wainwright is natural increase, a higher number of births in comparison to deaths. Between 2000 and 2022, a total of 311 new residents were born in the community, while 97 individuals passed away, resulting in a net increase of 214 residents. This consistent trend is graphically represented in Figure 5.6, illustrating the sustained viability of births over the course of two decades. The annual number of births ranged from a minimum of 9 in the years 2011, 2020, and 2022, to a peak of 23 in 2000. Conversely, the number of deaths varied between one and seven per year during the same period. Importantly, births outnumbered

deaths, contributing significantly to the overall population growth in the community.

Data on resident in-migration and out-migration in North Slope communities like Wainwright is not collected by the U.S. and NSB censuses. Out-migration typically involves high school graduates leaving for college, individuals seeking employment opportunities elsewhere, or residents relocating to be closer to family members in other communities. In contrast, in-migration refers to new residents moving to the village to live with or near family or for employment purposes. One potential indicator of these migration patterns in Wainwright is the number of individuals applying for the annual Alaska Permanent Fund Dividend (PFD), as the PFD program tracks dividend recipients by zip code and community.

The State of Alaska reports that some regions of the state, including the Northern³¹ and

Southwest, generally lose residents of all ages; many remain in-state but move to more urban areas. The Northern region has experienced a net migration loss for decades. Due to high birth rates, the population grows despite the net outflow.³²

Figure 5.5 presents the combined number of adult and child PFD applicants residing in Wainwright from 2000 to 2022.^{33, 34} Throughout this twenty-two-year period, the total number of

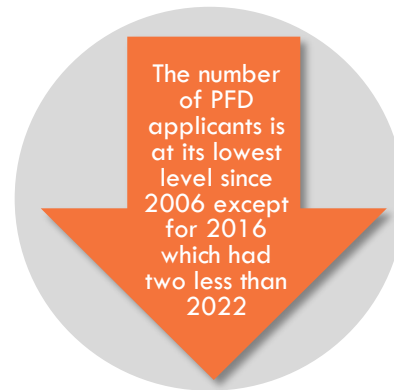
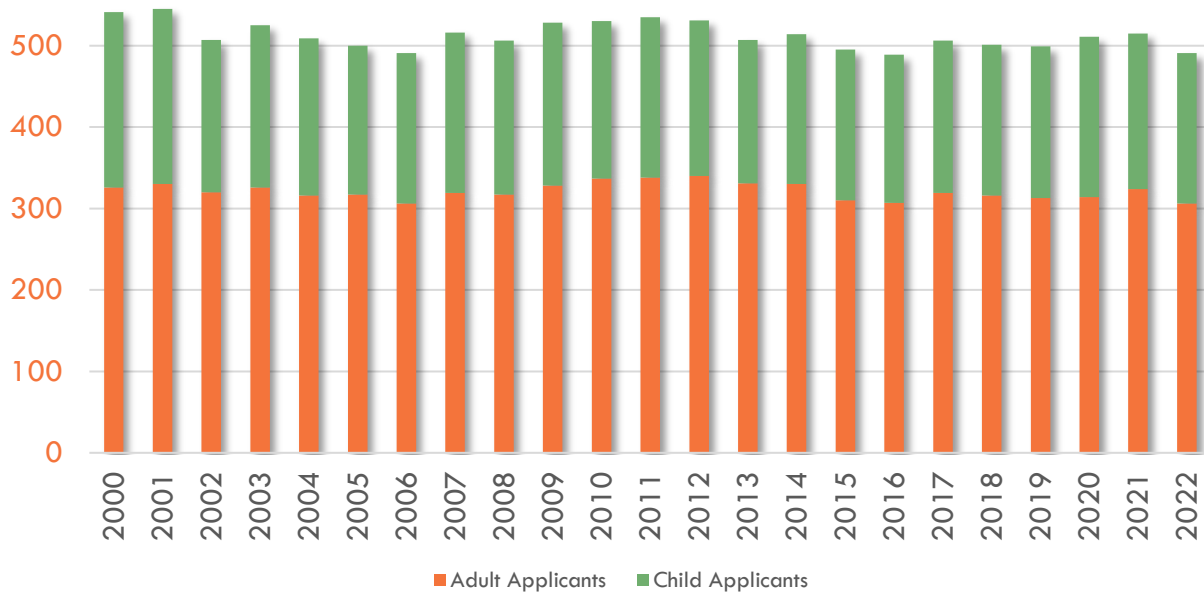


Figure 5.5: Permanent Fund Dividend Applicants, 2000 – 2022



³¹ The Northern Region includes the North Slope and Northwest Arctic boroughs and the Nome area.
³² Alaska Department of Labor and Workforce Development. 2021. *Alaska Economic Trends: Migration by Age*.
³³ Alaska Department of Revenue. 2023. *Alaska Permanent Fund Annual Reports 2000 – 2017*.
³⁴ Alaska Department of Revenue. 2023. *Wainwright PFD Applicants for 2018 – 2022*. Personal Communication.

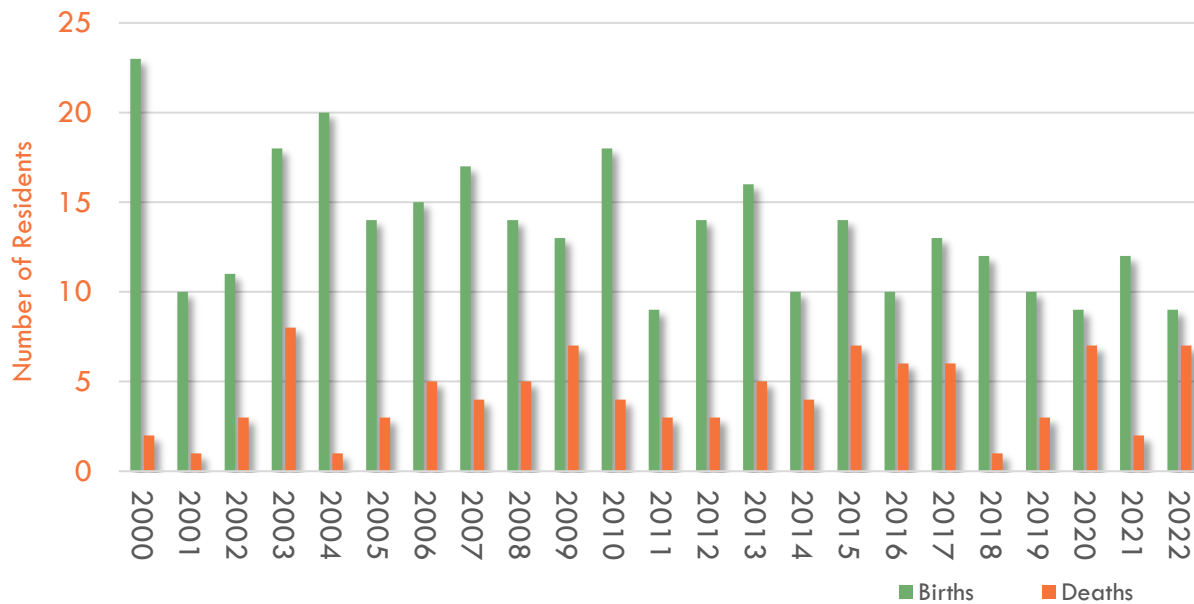
applicants has remained relatively steady. The highest combined total of PFD applicants was observed in 2001, with 545 applicants, while the lowest number of applications occurred in 2011, with 216 applicants. Although there have been fluctuations, the overall trend indicates a decrease, with 30 fewer applicants in 2020 compared to 2000, despite an increase of 82 residents in Wainwright over the same timeframe.

In years where both U.S. Census data and PFD applicant counts are available, the number of PFD applicants has been lower than the population count, with differences ranging from 5 in 2000 to 117 in 2020. The State of Alaska utilizes PFD applications, in addition to birth and death data and the U.S. Census, to estimate community populations. However, relying solely on PFD applications can result in an undercount of the population and inaccurate estimates.³⁵ Various reasons may lead some Alaska residents to choose not to apply for the PFD dividend, such

as avoiding jury duty or other obligations, having the dividend garnished for unpaid taxes or child support, or simply not desiring additional benefits.³⁶

Estimating population figures for small rural communities in Alaska poses challenges, despite annual determinations by the U.S. Census Bureau and the State of Alaska. The State of Alaska relies on trend lines derived from previous U.S. Decennial Census data, as well as PFD applications, birth and death rates, and migration patterns, to estimate populations. However, the 2015 NSBEP&CR identified issues with rural Alaska population estimates, partially due to the U.S. Decennial Census being an estimate based on a combination of surveys and administrative reports.³⁷ The U.S. Census Bureau reported that for the 2010 Decennial Census, approximately 74 percent of households returned their census forms by mail, while census workers physically counted the remaining households through door-to-door

Figure 5.6: Births and Deaths, 2000 - 2022



³⁵ North Slope Borough. 2015. *2015 Economic Profile and Census Report*.
³⁶ Theriault Boots, Michelle. 2016. *Why some Alaskans don't apply for the PFD*.
³⁷ North Slope Borough. 2015. *2015 Economic Profile and Census Report*.

visits.³⁸ Conducting accurate counts in rural Alaskan villages can be challenging due to factors such as limited accommodations, harsh weather conditions hindering community access, and the potential misclassification of occupied houses as vacant. These factors contribute to the potential for inaccuracies in population counts for village communities.

Population Growth Projections

Estimations of future population sizes are essential for guiding effective planning processes. One crucial aspect is land use planning, where population projections help determine the allocation of resources, and zoning regulations. Economic development initiatives heavily rely on accurate population forecasts to assess market demand, identify growth opportunities, and attract investment. These projections also inform transportation planning by estimating current needs and infrastructure expansions or improvements. Healthcare providers utilize population projections to anticipate the demand for medical services and allocate resources accordingly.

Infrastructure capacity assessments rely on population projections to evaluate the adequacy of existing infrastructure systems such as water supply, wastewater treatment, energy networks, and school facility capacity. These projections inform decisions on infrastructure upgrades or expansions to meet the needs of the population today and into the future. By understanding future population sizes, policymakers can develop strategies to balance need with funding resources.

Despite the usefulness of population projections, it is important to acknowledge the

inherent uncertainty associated with these estimates. Numerous factors contribute to this uncertainty, including the availability of employment opportunities that may retain residents in Wainwright. It is possible that additional opportunities for employment will become available as the reliability of the internet facilitates remote work. The availability of land plays a significant role as well, as it directly affects housing options.

Population projects can help community leaders make informed decisions that balance community needs, and the sustainable management of resources, and funding requests.

Utilizing a linear trend projection as a method for estimating population growth assumes that the population of Wainwright will increase or decrease by a consistent number of people in each future decade. This approach relies on calculating the average per decade change observed between two or more interval years and applying it uniformly to future time periods. While this relatively straightforward method is often as accurate as more complex techniques, it has certain limitations when applied to small and rural communities like Wainwright. Population projections for small communities can be particularly challenging; even small changes are amplified. Unforeseen conditions can unrealistically magnify population projects.

An annual growth rate of one percent assumes that there is a relatively stable job market that does keeps many residents in-village. Wainwright has grown at greater than one percent per year since 1960. However, without sufficient housing to accommodate a growing population, assuming a higher growth rate might

³⁸ U.S. Census Bureau. 2020. *Decennial Census*.

not be reliable. Based on this projection, the estimated population for Wainwright in 2045 is 805 people. On the other hand, a linear trend projection using U.S. Decennial Census data from 2000 and 2020 suggests a population of 731 in 2045. Both figures are included in Table 5.4. Additionally, Figure 5.7 includes a projection using the average growth rate of 16.7 percent per decade over a span of 60 years. It is important to note, however, that while this estimate may be suitable for a high-growth scenario, it may be less reliable due to

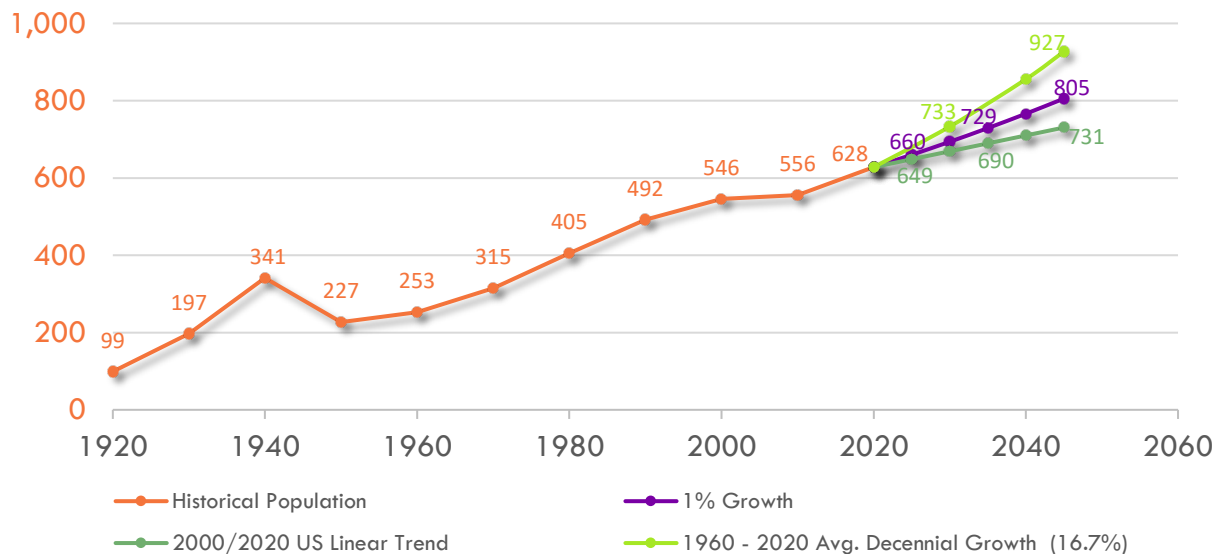
fluctuations in over the 60-year period. Sustained growth rates of 16 percent per decade are unlikely to occur consistently.

Given the potential challenges and uncertainties associated with projecting population in small communities like Wainwright, it is crucial to approach projections with caution. Projections should be regularly reassessed and updated to account for changing conditions to ensure that they remain responsive to evolving circumstances.

Table 5.4: Population Projections

Percent Projection						
Rate of Growth	2020 (base year)	2025	2030	2035	2040	2045
1% growth	628	660	694	729	766	805
Linear Trend Projection						
U.S. Decennial Years	2020 (base year)	2025	2030	2035	2040	2045
2000 and 2020	628	649	669	690	710	731

Figure 5.7: Population Projections



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6

Natural
Environment



Physical Setting

Wainwright is situated on a narrow peninsula that separates Wainwright Inlet from the Chukchi Sea. The community is located within the Arctic Coastal Plain, a treeless region that covers the entire coastal zone bordering the Arctic Ocean characterized by flat terrain with numerous lakes and covered in tundra vegetation and small shrubs, with small willow trees along the rivers. The Kuk River, a 35-mile-long stream, flows northward and joins the Wainwright Inlet approximately 6 miles southeast of Wainwright. The watershed of the Kuk River spans across an area of 4,275 square miles. The Wainwright quadrangle primarily drains into the Kuk River and eventually into the sea via the Wainwright Inlet. During the summer months, from mid-July to September, both the Chukchi Sea and the rivers that feed into it are ice-free.

The upper layer of soil in Wainwright consists of windblown silts overlaid by a thin peaty tundra mat that supports various types of vegetation.³⁹ Underneath the vegetative mat, there are layers of permanently frozen mixtures and lenses composed of marine and alluvial clay, silt, sand, and gravel. This permafrost layer extends continuously in the Wainwright area and can be several hundred feet deep. Surface geological deposits in the region include coal, marine sand, bedrock, coastal sand, and gravel. As per the Circumpolar Arctic Vegetation Map,⁴⁰ Wainwright is characterized by wetland complexes dominated by sedges, grasses, mosses, and dwarf shrubs. Common vegetation found in the area includes salmonberries, cranberries, and willow.

Thawing and runoff processes in the region can lead to erosion along slopes, riverbanks, and bluffs. This erosion occurs as a result of the melting ice and snow during warmer periods. In the case of tundra lakes, the thawing process can bring about changes in the shorelines. Some lakes may grow larger due to increased runoff, while others may become smaller as they drain and dry up. These natural processes of thawing, runoff, and changing shorelines are characteristic of the dynamic nature of tundra ecosystems. The interplay between climate, water, and land shapes the landscape and influences the ecological dynamics of the region.

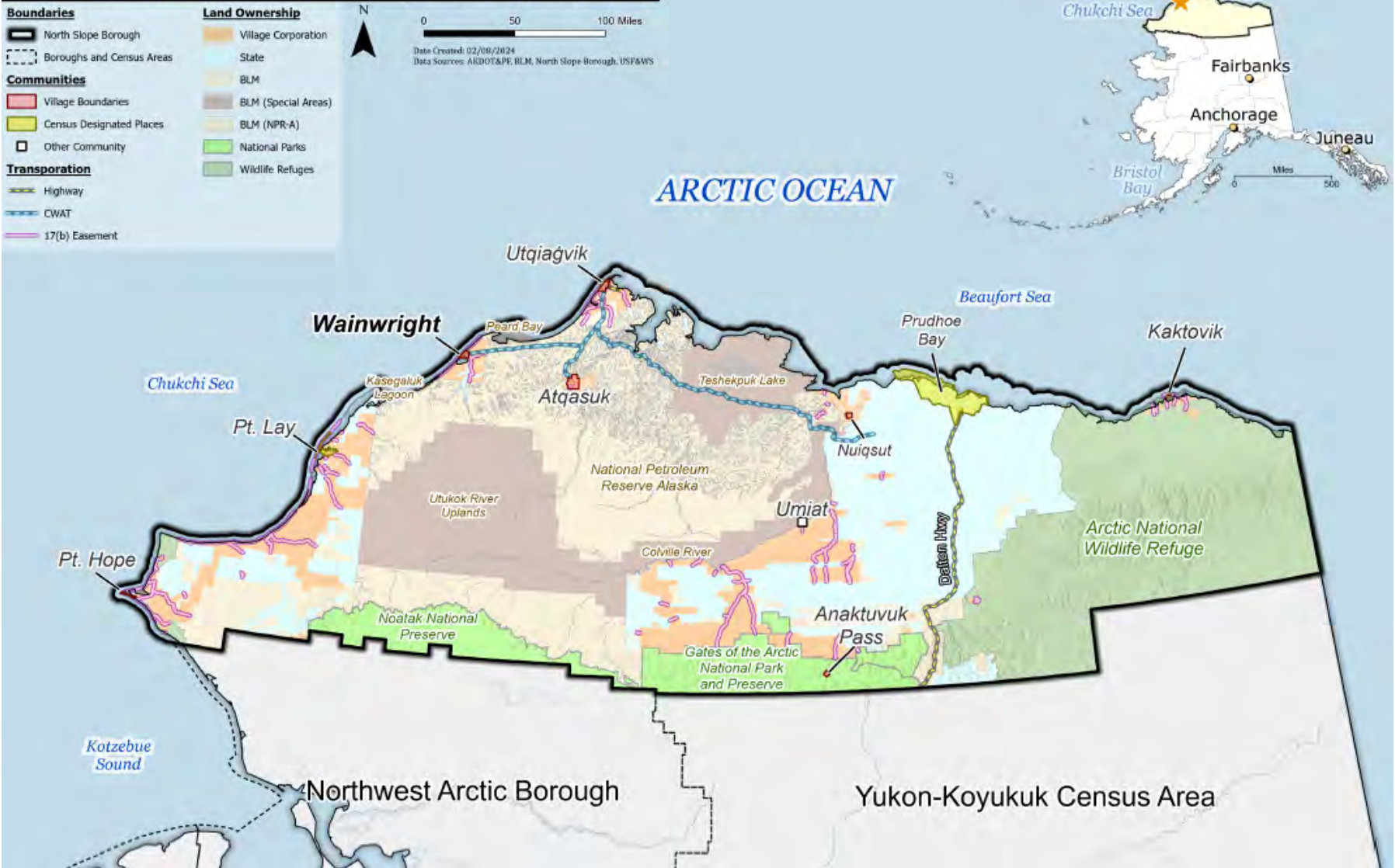
Wildlife

The North Slope Borough is teeming with an abundance of wildlife. The lands and waters of northern Alaska provide a habitat for migratory birds, land mammals, marine mammals, invertebrates, and fish, which also provide valuable subsistence resources for the local residents. Wainwright and its surrounding lands and waters are also rich in wildlife. Similar to the North Slope Borough, the Arctic Coastal Plain of northern Alaska provides a habitat for migratory birds, land mammals, marine mammals, invertebrates, and fish, which are vital sources of subsistence goods and food for the local community. The presence of thousands of shallow lakes in the Wainwright area provides essential habitat for a variety of bird species, including waterfowl, shorebirds, songbirds, and snowy owls. These lakes also serve as a crucial source of community water.

³⁹ According to a USGS survey conducted in 1983

⁴⁰ Circumpolar Arctic Vegetation Map (CAVM) Team. 2003. *Circumpolar Arctic Vegetation Map*.

Map 6.1: Wainwright North Slope Borough Vicinity



During late March through early May, migratory birds make their way to coastal breeding areas where they engage in feeding, breeding, and nesting activities in arctic bays, lagoons, and river outlets. Throughout the short summer season, the North Slope becomes home to countless birds, including seabirds, waterfowl, shorebirds, songbirds, upland birds, and raptors.⁴¹ Like in other areas, migratory birds arrive in coastal breeding areas between late March and early May for feeding, breeding, and nesting activities. All native birds in Alaska, with the exception of grouse and ptarmigan protected by the State of Alaska, are federally protected under the Migratory Bird Treaty Act (MBTA) of 1918. This act prohibits the "take"⁴² of migratory birds, their feathers, or their nests.⁴³ The original MBTA of 1918 closed the migratory birds' season between March 10th and September 1st of each year and provided only limited exceptions for Alaska Natives. In 1997, the U.S. Congress ratified treaty amendments that made it legal for residents of villages within subsistence harvest areas to take migratory waterfowl for subsistence use during the traditional spring season. The amendments also required that a meaningful role be provided to Alaska Natives in the development and implementation of regulations affecting the non-wasteful taking of migratory birds, leading to the formation of the Alaska Migratory Bird Co-Management Council. Subsistence migratory bird regulations are now developed annually by the U.S. Fish and Wildlife Service based on

recommendations of the Alaska Migratory Bird Co-Management Council.⁴⁴

Numerous fish species can be found in the Chukchi Sea, including cod, flounder, cisco, whitefish, sculpin, herring, and smelt.⁴⁵ Additionally, the rivers and tributaries that flow into the Chukchi Sea offer spawning and rearing habitats for anadromous fish species. Anadromous fish are those that spend parts of their life cycle in both freshwater and saltwater environments.

The Chukchi Sea is home to various marine mammals such as bowhead, beluga, and gray whales, as well as ringed, bearded, and spotted seals, walrus, and polar bears. These marine mammals play a crucial role in the marine ecosystem and provide essential subsistence resources. They rely on a diverse range of food sources, including fish, benthic invertebrates, and other marine mammals.

Terrestrial mammals and furbearers play a significant role in providing subsistence resources for Wainwright residents. The area is home to caribou from the Teshekpuk Caribou Herd, which find relief from insects in their summer grounds along the Chukchi Sea coast.⁴⁶ Other terrestrial mammals found in the area include foxes, ground squirrels, lemmings, brown bears, moose, muskoxen, porcupines, wolves, and wolverines.⁴⁷

The Chukchi Sea supports a diverse biological system including marine mammals such as

⁴¹ North Slope Borough. 2023. *Migratory Birds*.

⁴² "Take" means taking, pursuing, hunting, fishing, trapping, or in any manner disturbing, capturing, or killing or attempting to take, pursue, hunt, fish, trap, or in any manner capture or kill fish or game as defined by Alaska Statute. §16.05.940. *Fish and Game Definitions*. www.akleg.gov/basis/statutes.asp#16.05.940.

⁴³ U.S. Fish & Wildlife Service. 2017. *Timing Recommendations for Land Disturbance & Vegetation Clearing: Planning Ahead to Protect Nesting Birds*.

⁴⁴ U.S. Department of the Interior. 2016. *Federal Subsistence Management Program: An Overview*.

⁴⁵ Johnson, S. W., A. D. Neff, and M. R. Lindeberg. 2015. *A handy field guide to the nearshore marine fishes of Alaska*.

⁴⁶ North Slope Borough. 2023. *Teshekpuk Caribou Satellite Collar Maps: Caribou Collar Satellite Maps*.

⁴⁷ Alaska Department of Game & Fish. 2023. *Species*.

beluga, bowhead and gray whale; pacific walrus; bearded, ribbon, ringed, and spotted seal; and polar bear, among others.⁴⁸ Benthic organisms provide food for marine mammals that forage on the bottom of the ocean, such as the pacific walrus. Marine mammals provide many subsistence resources and activities important to the residents of Wainwright.

The Alaska Department of Fish and Game (ADF&G) maintains the Catalog of Waters Important for the Spawning, Rearing or Migration of Anadromous Fishes. This catalog lists various freshwater and anadromous fish species known to inhabit the streams and lakes surrounding Wainwright, particularly the rivers that flow into the Wainwright Inlet. Examples of these fish species include chum salmon, pink salmon, Bering cisco, least cisco, and rainbow smelt.⁴⁹ The Kuk River, along with the rivers that drain into it, namely Kungok and Ivisaruk rivers, and further upstream the Kaolak, Ketik River, and Avalik rivers, are included in the Catalog due to their importance for chum salmon and pink salmon. Listing in the Catalog requires approval from the ADF&G according to Alaska Statute §16.05.871. This approval is necessary if any agency or individual intends to undertake a hydraulic project, alter the natural flow or bed of these rivers, or use wheeled, tracked, or excavating equipment or log-dragging equipment in the riverbed.⁵⁰

A Changing Climate

Residents of Wainwright have witnessed rapid environmental transformations. They have observed a rise in the intensity and frequency of storms, higher water temperatures, and a decrease in the coverage of river and sea ice. In particular, the freezing of the Chukchi Sea and rivers has been occurring later, while the ice has become thinner. Conversely, thawing has been taking place earlier than usual. These changes have resulted in increased difficulties and hazards for overland travel during winter.

The warming temperatures have significantly affected fishing and subsistence practices, which play a vital role in supplementing store-bought goods and providing essential food and resources. The reduction in winter sea ice extent has had a significant impact on these activities. Consequently, the fishing and subsistence practices have been adversely affected, and it is expected that the environmental impacts on these practices will continue to escalate in the future.

In Wainwright, temperatures can vary significantly throughout the year, with a wide range from -56°F to 80°F. On average, the temperatures in winter hover around -22°F, while in summer, they reach an average of 44°F. August stands out as the month with the highest precipitation in Wainwright, receiving an average of 2.1 inches of rain. During the winter months, the area experiences strong and gusty winds, and fog is prevalent during the summer months.

Climate change poses a significant and concerning challenge for Arctic communities like

⁴⁸ North Slope Borough. 2014. *List of Common Species on the North Slope*.

⁴⁹ Alaska Department of Game & Fish. 2023. *Species*.

⁵⁰ Alaska Statute §16.05.871. *Protection of Fish & Game*.

Wainwright. The Arctic region is experiencing a phenomenon known as Arctic or polar amplification, which means it is warming at a much faster rate than the global average.⁵¹ This accelerated warming has profound effects on Wainwright and its residents.

One of the noticeable impacts of climate change reported by Wainwright residents is the increase in temperatures. Warmer temperatures have become more common, altering the local climate patterns. Additionally, there has been an observed increase in precipitation, leading to changes in the precipitation patterns and potentially affecting the local ecosystem.

The changing climate has also brought about greater weather variability. Residents may experience more extreme weather events, including storms, heavy rainfall, or unusual weather patterns. These variations in weather can have implications for the community's infrastructure, livelihoods, and overall well-being.

Another notable impact of climate change in Wainwright is erosion. Rising temperatures contribute to the melting of permafrost, which destabilizes the land and leads to increased coastal erosion. This erosion poses a threat to the community's infrastructure and coastal habitats, impacting the residents' way of life. Moreover, climate change has altered the timing of winter freezes and spring thaws. Residents have reported later freezing periods in winter, which can impact traditional activities like ice travel and hunting. Additionally, earlier spring thaws can have implications for the timing of wildlife migrations and availability of resources.

Climate change is also affecting fish and wildlife. Early snowmelt, reduced water levels during the late season, and higher temperatures are some of the climate-related challenges that can affect fish in the Arctic. Turbidity and changes in habitat are also concerns, as thaw-related bank erosion leads to increased sediment deposits and the collapsing of cut banks alters the riverbed. These sediment deposits are subsequently carried downstream, causing the river to become shallower. Shallower waterways can impede boat travel, also affecting locals' ability to subsistence hunt and fish. Changes in plant habitats can affect diets of animals and warming temperatures invite new invasive plant and animal species alike, competing with those already existing in the region.

Overall, the effects of climate change in Wainwright are significant and diverse, ranging from temperature changes and precipitation patterns to erosion and shifts in seasonal timing. These impacts pose challenges to the community's resilience and way of life, necessitating adaptive measures and addressing the underlying causes of climate change.

| A Warmer, Wetter Wainwright

Current projections indicate that Wainwright, along with most of Alaska, will experience significant increases in average temperatures. This rise in temperatures is expected to result in increased precipitation since warmer air has a higher capacity to hold moisture.

In terms of seasonal changes, Wainwright is projected to have winters that are less cold; extreme cold temperatures may occur less frequently. On the other hand, summers are anticipated to become warmer and wetter.

⁵¹ Rantanen, M., Karpechko, A.Y., Lipponen, A. et al. *The Arctic has warmed nearly four times faster than the globe since 1979.*

Specifically, the months of July and August are expected to see the greatest increase in precipitation. These months may experience higher levels of rainfall compared to historical averages. Additionally, November and December are projected to undergo the most significant changes in average temperatures, with warmer, milder winters than have been experienced in the past.

As temperatures continue to rise, it is likely that Wainwright and its surrounding region will experience an increase in extreme weather events. These events may include thunderstorms, coastal storms, storm surges, heavy rain, and high windstorms. Conversely,

occurrences of extreme cold in winter are expected to decrease in frequency.

Figures 6.1 and 6.2 depict historical average temperatures and precipitation compared to estimated future temperature and precipitation changes in a medium emissions scenario, with the decade 2090 – 2099 projected have 50+°F average temperatures during July and August compared to 44°F historically and between 0°F and -5°F during February and March compared to -15°F to -22°F historically. Likewise, average precipitation is predicted to increase, especially during the summer, by approximately fifty percent during the months of June and July 2090 – 2099.⁵²

Figure 6.1: Average Monthly Temperatures

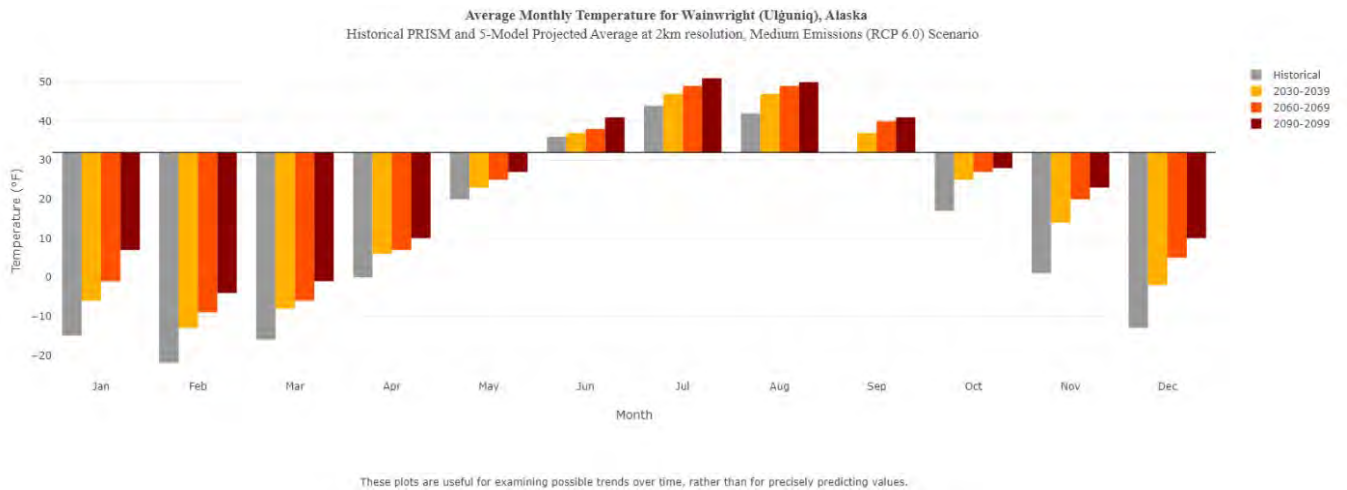
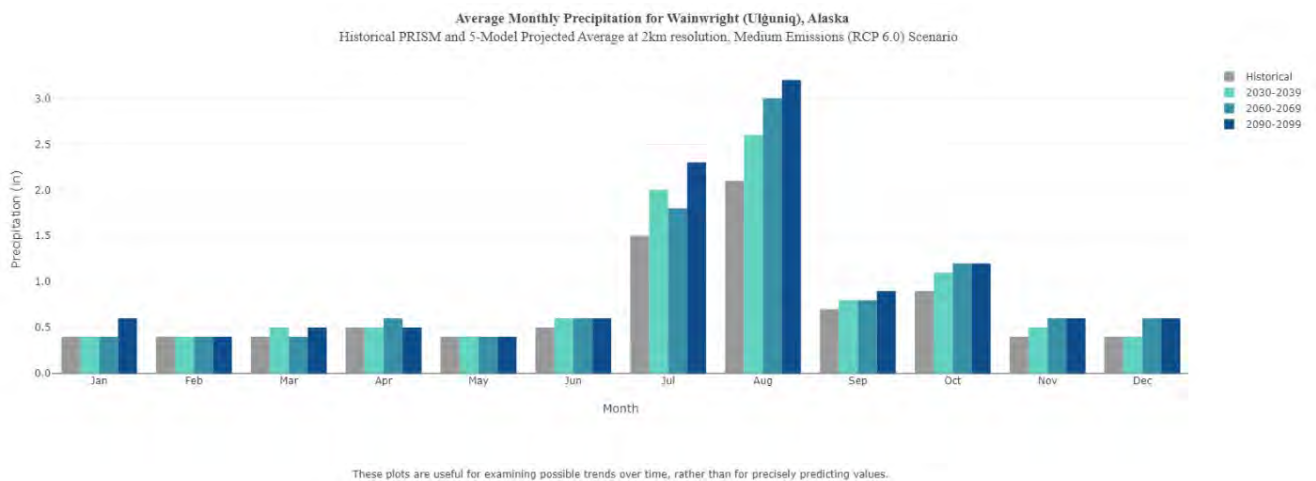


Figure 6.2: Average Monthly Precipitation



Permafrost Degradation and Erosion

The Arctic landscape of Wainwright is characterized by permafrost, a subsurface layer of soil which remains frozen year-round. Wainwright currently sits atop a layer of continuous permafrost but that is anticipated to change over the next several decades. Projections indicate that Wainwright will be free of permafrost within 10 feet of the surface layer by the end of this century.⁵³ Permafrost degradation has wide ranging implications for buildings and infrastructure, as the resulting ground subsidence may lead to damage to foundations, utility lines, and collapse of structures, as well as damage to trails and roadways. As much as 50 percent of all Arctic infrastructure may be at high risk of damage from permafrost degradation by 2050, according to current projections.⁵⁴ According to the University of Alaska, Fairbanks Scenarios Network for Alaska + Arctic Planning,

Wainwright’s permafrost has abundant large ice wedges close to the surface, high thaw susceptibility, and the community already faces severe existing issues due to permafrost degradation.⁵⁵

Additional impacts from permafrost degradation include sink holes and impacts to buried utilities, increased rates of erosion, loss of traditional Iñupiat ice cellars, and degradation or loss of traditional subsistence hunting and travel routes, as formerly firm tundra thaws and transitions into less-traversable wetlands. This can lead to complications with food security in communities which rely on subsistence hunting and gathering as Wainwright does. Damage to airport runways or barge landings may compound this issue, making resupply to a remote location such as Wainwright more difficult. Thawing permafrost is driving losses of ice cellars, which are used to store perishable



This ice cellar has collapsed since the photo was taken.
Erikson, Li. 2012

⁵³ Scenarios Network for Alaska. 2023. *Community Climate Charts: Wainwright (Ulġuniq), Alaska.*

⁵⁴ Hjort, J., Streletskiy, D., Doré, G. et al. *Impacts of permafrost degradation on infrastructure.*

⁵⁵ Scenarios Network for Alaska. 2023. *Community Permafrost Data: Wainwright, Alaska.*

foods such as whale meat. As the ground temperature rises and cellars thaw, it becomes more difficult to dry and properly preserve perishable foods. While some ice cellars in Wainwright are still functional, many have degraded from thawing while others have been lost entirely due to erosion.

Permafrost degradation may also exacerbate other impacts from climate change such as sea level rise and coastal flooding. Bluffs which protect a community from the encroaching sea may erode and collapse, increasing the likelihood of coastal flooding, further erosion, and danger to homes and facilities near the shore. Many buildings in Wainwright are adjacent to sections of coast eroding at a maximum rate of 2.6 ft per year. Homes have previously been relocated due to erosion, and after a storm in 1986, four homes were left hanging over the bluff.⁵⁶ Map 6.2 presents rates of erosion along different parts of the coast in Wainwright.

Subsistence and a Changing Ocean

Food security is one of the community of Wainwright's major concerns as it can take four to six weeks to ship food and goods to the community and frozen goods often arrive thawed, while non-frozen goods arrive frozen in the winter.⁵⁷ Due to these and other such logistical difficulties and the remoteness of the community, the residents of Wainwright rely heavily on seafood from an ocean that is rapidly changing along with the climate. As temperatures rise and Arctic Sea ice cover grows thinner, a decrease in shore fast ice, which acts as a barrier protecting the coast from harsh winter storms and high seas, further increases coastal erosion. Reductions in winter sea ice are also complicating subsistence hunting activities,

and the residents of Wainwright are adapting. Spring whalers historically utilized the remnant winter ice shelf to their advantage, but the decline of sea ice and changing winds often make this infeasible. In response to these changing conditions, some of Wainwright's whalers now utilize boats capable of handling rough seas and hunt in the autumn rather than spring, as the spring ice cover is usually too thin and treacherous for hunters to stand on.

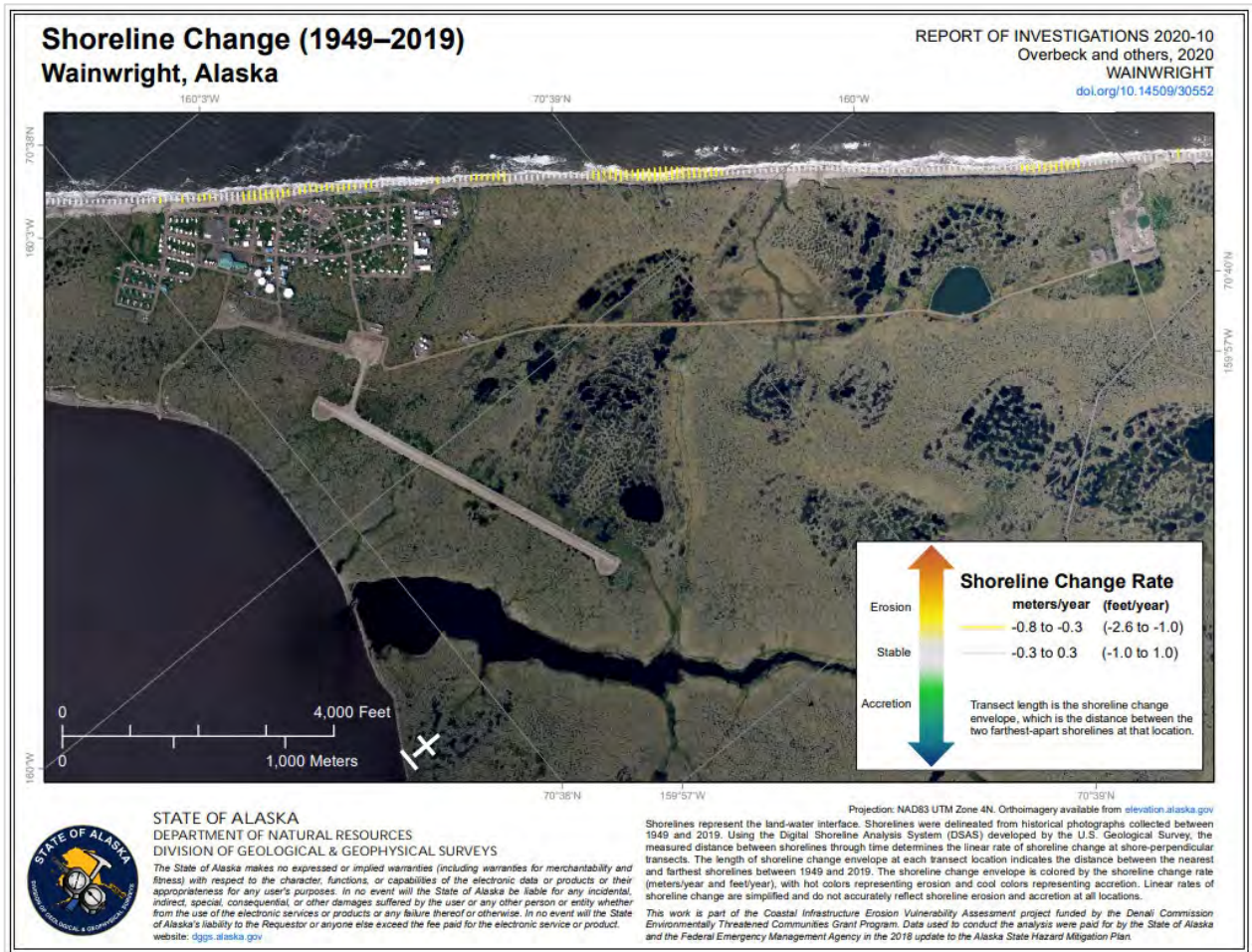
Warmer waters and thinner ice are not the only changes occurring in the Arctic Ocean. Ocean acidification is a less commonly known impact of greenhouse gas emissions and climate change which may necessitate further adaptation to changing conditions for the residents of Wainwright. As carbon dioxide (CO₂) concentrations in the atmosphere increase, the world's oceans absorb more of this CO₂ into their waters. This leads to a drop in pH levels, or an increase in acidity. This increased acidity has profound implications for food webs and subsistence hunting and fishing, as it makes it more difficult for calcifying organisms such as clams and oysters to maintain their shells. Subsistence resources such as walrus rely on shellfish for nutrition. This anti-calcifying effect also impacts phytoplankton, the tiny, shelled photosynthetic organisms responsible for primary production in oceanic food webs. Ocean acidification therefore has the potential to disrupt the entire food web from the bottom up and decrease biomass of larger species which subsistence hunters rely on.

An acidifying, warming ocean is also more likely to produce toxic algal blooms, which may further complicate the subsistence lifestyle in

⁵⁶ U.S. Army Corps of Engineers. 2008. *Alaska Baseline Erosion Assessment: Erosion Information Paper, Wainwright, Alaska.*

⁵⁷ Community of Wainwright. 2023. *Strengths, Weakness, Opportunities, Threats Workshop.*

Map 6.2: Shoreline Change, 1949 - 2019



Wainwright. Beyond being unsightly and unpleasant smelling, toxic algal blooms can harm or even kill marine life and the people that subsist on them, while creating large anaerobic dead zones in the water which are entirely absent of fish and other wildlife. Toxic algal blooms may also sicken and kill seabirds, such as in 2009 when a 90-mile toxic algal bloom with birds floating in it was sighted off the coast by hunters in Wainwright, and in 2011 an outbreak of an unknown illness sickened or killed a large number of seals and walrus, but no cause was ever confirmed.⁵⁸ Climate change may lead to an increased frequency of these large die-offs,

which may threaten subsistence harvests and the people who depend on them.

Vulnerable Infrastructure

U.S. researchers working in Northern Alaska, their international colleagues with expertise in other parts of the Arctic, and local experts from Alaska’s North Slope, including regional planners, project managers, and policy makers are working together to address the effects that thaw-susceptible soils have on roads and other community infrastructure. The 2023 Permafrost & Infrastructure Symposium, held in Utqiagivk,

⁵⁸ Brubaker M., Bell J., Dingman H., Morales R., Tagarook. 2014. *Climate Change in Wainwright, Alaska, Strategies for Community Health*.

Point Lay, and Wainwright, is one step in creating strategies to improve Arctic infrastructure.

One system that is experiencing failure due to heating of thaw-susceptible soils is the 25-year-old water and sewer system in Wainwright. Pipes were buried underneath the gravel roadways throughout the community to connect each household and facility to a communitywide system. To mitigate the challenges posed by the extreme Arctic climate, many of these underground connections are equipped with heat trace technology, primarily the sewer pipes and the lateral connections of water and sewer to each home or facility. The NSB staff in Wainwright monitors the system for leaks in pipes, electrical issues with the heat trace, and instances of frozen water and sewer lines.

The system is experiencing significant issues. Heat trace failures are one such issue. Because the system is below ground, it must be dug up when sections need repair or replacement or when heat trace needs replacing. While heat trace may last an average of ten years, replacement is time consuming and expensive. Considering all the communities utilize below-ground heat trace, the NSB is investing more than anticipated during the system's initial conception on maintenance.⁵⁹

When the pipes in Wainwright freeze, it can result in the interruption of critical services, which has implications for the community, particularly at the health clinic, impacting the overall well-being and daily lives of the residents.

Access to water is crucial for providing quality healthcare services. The absence of running water due to frozen pipes can hinder the ability to perform necessary medical procedures,



Underground water and sewer system in Wainwright
UMIAQ Design

sanitation practices, and other essential tasks. This can lead to delays or even the temporary closure of the clinic, preventing community members from accessing medical attention.

Due to heat trace and other maintenance and climate change-related issues with the water and sewer system, such as subsidence and sinkholes, the NSB is now designing an above ground system for the community of Point Lay. While Wainwright is not experiencing sinkholes and the extent of subsidence is not as extensive as Point Lay, the Wainwright system is fraught with similar issues. An above ground replacement system will be needed in the future.⁶⁰

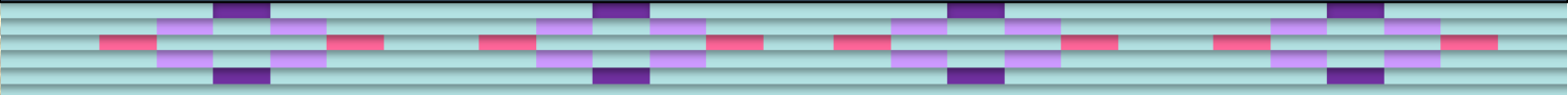
⁵⁹ Holmes, Travis. Principal Engineer, UMIAQ Design and Municipal Services. 2023. Personal communication.

⁶⁰ Ibid

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7

Subsistence



Subsistence in Wainwright

The lives of North Slope residents are deeply intertwined with subsistence practices, which are integral to the way of life in the region. The gathering and utilization of wild animals, fish, and plants serve as vital resources that contribute not only to the economy but also to the preservation of the traditional Iñupiat culture. Subsistence encompasses a comprehensive understanding of the land, climate, environment, and wildlife, as well as the profound respect and reverence in hunting, gathering, harvesting, and consuming the abundance of nature.

Moreover, subsistence represents a collection of cultural and spiritual traditions, values, and skills that are crucial for the survival and well-being of both individuals and the community as a whole. Central to the subsistence way of life for the Iñupiat is the fundamental principle of sharing, which forms the bedrock of customs and practices.

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 Act⁶¹ (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.”

Although the term *subsistence* encompasses the utilization of natural resources to fulfill physical needs, it may not fully capture the spiritual, cultural, and communal significance of harvest activities. For the Alaska Natives of the North Slope, subsistence represents a profound bond with the land and their Iñupiat ancestors who have imparted traditional wisdom across

⁶¹ ANILCA, the act passed in 1980 that designated more than 100 million acres of federal land in Alaska as new or expanded conservation system units, includes a priority for subsistence use over non-subsistence use. ANILCA also requires that an evaluation be completed for impacts of land use on subsistence (Section 810) and that reasonable access be provided for subsistence on public lands (Section 811).

generations. It goes beyond mere sustenance, encompassing a deep-rooted connection to ancestral heritage and a way of preserving cultural identity.

In 1980, the passage of ANILCA led to the designation of over 100 million acres of federal land in Alaska as new or expanded conservation system units. This act emphasizes the priority of subsistence use over non-subsistence use. Additionally, ANILCA mandates the evaluation of the impacts of land use on subsistence (Section 810) and the provision of reasonable access for subsistence activities on public lands (Section 811).

The Federal Subsistence Management Regulations for the Harvest of Wildlife on Federal Public Lands in Alaska, published by the U.S. Department of the Interior, are specific rules designed for subsistence users.⁶² These regulations govern the seasons, harvest limits, methods, and determinations for customary and traditional use concerning the subsistence taking of wildlife. The implementation of these subsistence harvest regulations is carried out with the support of the U.S. Department of the Interior's (USDOI) Federal Subsistence Management Program, which seeks to enable rural Alaskans to maintain a subsistence way of life on federal public lands.⁶³ The program is structured into regional advisory councils, with the North Slope Regional Advisory Council being responsible for representing the interests of the North Slope community.

The NSB Department of Wildlife Management serves as an indispensable asset for North Slope residents by engaging in a wide range of activities dedicated to advocating for the

enduring and sustainable practice of subsistence living. The department actively contributes to the conservation and responsible management of wildlife and fish populations, striving to ensure their sustained health, thereby enabling residents to perpetually engage in traditional subsistence harvesting methods. By combining scientific research, indigenous ecological wisdom, and effective leadership, the department ardently promotes the sustainability of subsistence harvesting.⁶⁴

Village Area of Influence

The Wainwright Area of Influence (AOI) is a designated planning boundary that encompasses areas beyond the community and identifies the customary and frequently utilized traditional lands for subsistence activities. The main objective of establishing the AOI is to safeguard areas of significant cultural importance to local residents by regulating permitting activities. As part of the permit application process, applicants will need to consult with relevant authorities to determine the final permit stipulations and ensure the preservation of and access to these areas.

The Wainwright AOI extends hundreds of miles from the community, as shown in Map 6.3. The AOI is large and changes over time, partly because many subsistence species are migratory. Bowhead whales and caribou alike may migrate thousands of miles, arriving in the AOI at a specific time in the season and/or their life cycle. Migratory birds may spend only a few weeks of their year within the AOI, using routes that change over time. The Wainwright AOI covers over 20,340 square miles and

⁶² U.S. Department of the Interior. 2023. *Federal Subsistence Management Regulations for the on Federal Public Lands in Alaska*.

⁶³ U.S. Department of the Interior. 2023. *Federal Subsistence Management Program*.

⁶⁴ NSB Wildlife Management Department. 2024. *Wildlife Management*.

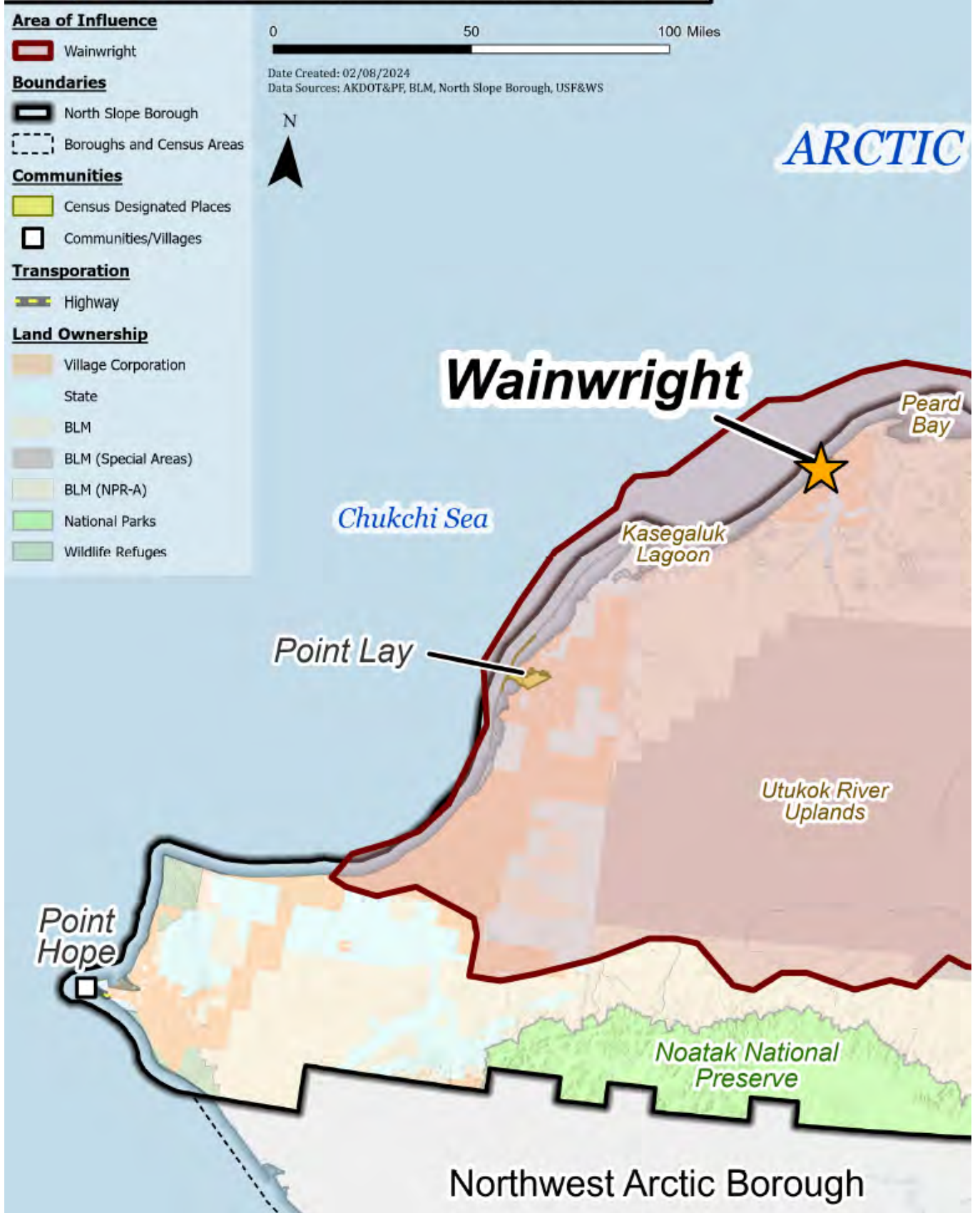
encompasses historic subsistence areas. It is generally bound by the following areas:

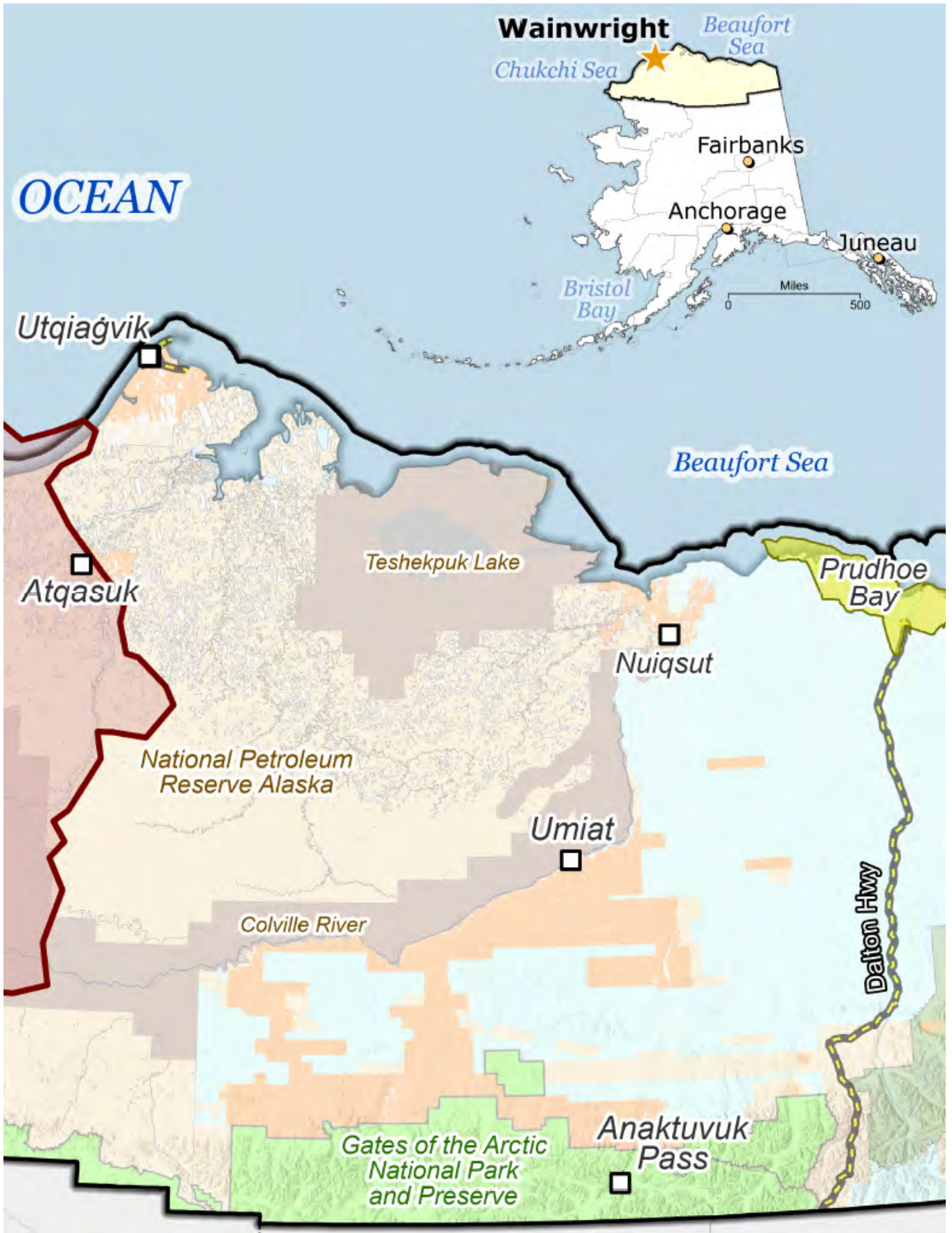
- North into the Chukchi Sea, about halfway to Utqiagvik, including Peard Bay;
- South just beyond the southern border of the Utukok Uplands Special Area;
- West into the Chukchi Sea and along the coastline; and
- Just beyond Atqasuk to the east;

The subsistence areas and practices of the community are influenced by the seasonal availability of resources. The AOI coincides with the areas of influence of neighboring villages, like Atqasuk, Point Lay, and Utqiagvik, as is fitting with the cultural values for sharing and subsistence. The AOI is not intended to be exclusive, but rather describes the area within which key subsistence resources are harvested and family traditional uses occur.

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Map 6.3: Wainwright Area of Influence





Wainwright Traditional Use Conservation Plan

The Wainwright Traditional Council developed a management strategy for subsistence use of the land in and around Wainwright. In 2008, the Wainwright Traditional Council working with the U.S. Environmental Protection Agency (EPA) and the Nature Conservancy, developed the Wainwright Traditional Use Conservation Plan. The plan's Guiding Principles are included on the following page.

The Wainwright Traditional Use Conservation Plan indicates that the Wainwright Traditional Council will work towards developing capacity in the area of wildlife and wildlife habitat management, including capacity for using Geographic Information Systems (GIS). It is important to generate these jobs that local people can obtain through training in the community.

- A habitat and wildlife monitoring program will be implemented into the plan to guarantee accountability by agency or resource developers.
- A precautionary approach should be used when either development or management of lands is considered, especially in areas where habitat for wildlife is highly sensitive to disturbance.

The TUACP report maps illustrate that there is a core area around the village of Wainwright that is highly significant for both successful subsistence hunting and for the viability of several sensitive species. This core area coincides closely with the Deferral Area delineated by the BLM. Because of its significance, this area is suitable for long-term conservation management. Following are specific conclusions:

- The villagers of Wainwright have been hunting in this, their Traditional Use Area, for many generations.
- Certain places within the Traditional Use Area are consistently and heavily used by the villagers to hunt and harvest wildlife and for travel.
- By consolidating the heavily used areas for hunting and harvesting caribou, fish, waterfowl, and marine mammals, we can denote a core subsistence area.
- Core areas alone are not sufficient to meet all the needs of subsistence users; the entire Traditional Use Area has been—and is—used for subsistence, and new areas may take on increased importance under a changing climate.
- Several sensitive species also use the Wainwright Traditional Use Area, including two species listed as “threatened” under the Endangered Species Act and several identified on BLM’s sensitive species list.
- There is a great deal of overlap among the core subsistence areas, areas used by sensitive species, and the Deferral Area, suggesting that the Deferral Area encompasses a landscape that is highly significant for both subsistence and species diversity and that this is an area deserving of long-term conservation management.
- Maintenance of subsistence and biological values depends not only on how land and wildlife is managed in the Wainwright Traditional Area but also in areas beyond its boundaries that are important for migration, overwintering, or other parts of species’ life cycles.

WAINWRIGHT TRADITIONAL USE CONSERVATION PLAN

GUIDING PRINCIPLES

The Iñupiat people of Wainwright will maintain a deep connection to the land that has been used by our ancestors for thousands of years. This relationship to the land has a critical importance to the survival of our Native culture.

- Recognize and respect the importance of subsistence, and how it is tied to the health, culture, society, and economies of Arctic communities and its peoples.
- Understand and respect the history of stewardship and self-governance of North Slope land, water, plants, and animals by Native Peoples.
- The Wainwright Traditional Council is a federally recognized Tribe and exercises its inherent right to negotiate with local, State, and federal agencies (Bureau of Land Management) on a government-to-government relationship.
- Acknowledge the extensive traditional knowledge about the environment held by the Iñupiat peoples living in the Arctic.
- Management of Arctic resources shall sustain diverse and abundant wildlife and ecosystems in perpetuity, while providing for cultural, social and economic development that supports a healthy, secure and sustainable quality of life.
- Whether it is oil development or hard rock mineral development, the Iñupiat people of Wainwright will review all proposals in a timely manner to analyze, comment and submit recommendations.
- Data will be collected using valid methods and ethical guidelines created and agreed upon by the TUACP committee. This is to ensure accuracy and authenticity of the information gathered.
- As traditional use areas are documented on the maps, the original Iñupiat place name should be used before the English name that was given by the westerners that did not speak or understand Iñupiat. For the benefit of agencies and developers, English names should be placed in parenthesis.
- Within the thousands of miles of the traditional use area, there are areas that should be designated as special areas. Such areas may include old burial sites, caribou migration corridors, traditional hunting camp sites, food gathering sites (berry picking or medicinal plant sites), cultural ceremonial sites, fish-bearing lakes, fishing sites, polar bear and brown bear den areas, and marine mammal and migratory bird areas.
- In areas where habitat is sensitive and critical for wildlife or high intensity areas, a limit or restriction should be placed on motorized transportation that can harm the habitat or disturb the normal patterns of the wildlife (such equipment as all-terrain vehicles (ATV), rollogons, and aircrafts, etc.).
- In the case of a special traditional use area including a heavily used caribou migration route in the path of the pipeline, the use of underground pipes should be considered for the width of the migration path.
- When Traditional Ecological Knowledge (TEK) and conventional science data is gathered while conducting the project, credit will always be given to those providing information and will be cited in the final draft.

Subsistence Harvest and Sharing

While the term subsistence implies the use of natural resources for physical needs, it may not always convey the spiritual, cultural, and community importance of harvest activities. For Alaska Natives of the North Slope, subsistence is a connection to the land and to Iñupiat ancestors who have passed down traditional knowledge through the countless generations. It is not only a way of life, but also the joy of living from the gifts that the Creator provides. Figure 7.1 provides a graphic representation of the importance of the subsistence culture.⁶⁵

In Wainwright, the residents depend on a wide variety of seasonal resources, such as terrestrial and marine mammals, fish, and waterfowl. Subsistence is a vital aspect of life on the North Slope, as it not only nourishes the community but also preserves the community's cultural heritage. Sharing these resources is a long-standing tradition deeply ingrained in Iñupiaq values. This act of sharing extends to family and community members, elders, and those who cannot participate in hunting or fishing. Both the givers and receivers take pride in this tradition.

Regardless of income level, residents heavily rely on subsistence resources due to the high cost of store-bought food. As a result, subsistence activities and the sharing of harvests within the community carry immense importance. Hunting, fishing, and gathering are essential subsistence activities, especially for Iñupiaq households, as they provide a crucial source of food. The primary resources for subsistence in Wainwright consist of whale, caribou, fish, birds, and seal. According to the North Slope Borough Economic Profile and Census Report, more than 94 percent

of Iñupiat households in Wainwright used subsistence foods in 2019. This high number has only decreased very slightly since 1998, when 100 percent of residents reported using subsistence foods.⁶⁶ Sixty-nine percent of households reported that half or more than half of their diet came from subsistence foods.⁶⁷

Table 7.1: Iñupiat Households Use of Subsistence Foods, 1998 – 2018

1998	2003	2010	2015	2019
100%	92.0%	94.9%	95.0%	94.1%

Sharing is a central value of the subsistence economy, where community members generously distribute harvested food among elders and those unable to participate the subsistence harvest activities.

Wainwright is one of the North Slope communities with a high proportion of low-income households; it also has a very high dependence on subsistence foods. According to the NSB Census, a lack of income is not a hindrance to the consumption of subsistence foods even given the costs associated with purchasing and maintaining equipment and supplies for successful harvesting. In fact, North Slope communities with the highest proportions of low-income households have the most, if not the great majority, of households with a very high dependence on subsistence foods.⁶⁸

Since 1998, NSB Census surveys reveal consistent sharing of subsistence foods to Iñupiat (and other) households throughout the North Slope. Beginning in 2010, there has been a

⁶⁵ North Slope Borough. 2019. *2019 Economic Profile and Census Report*.

⁶⁶ Ibid

⁶⁷ Ibid

⁶⁸ Ibid

small but statistically significant increase in the proportion of Iñupiat households that depended on other households for the majority subsistence foods in their households' diet. In the last decade slightly more than 40 percent of Iñupiat households have depended on other households for more than half of the subsistence foods in their diet.

In 2018, nearly 94 percent of Wainwright residents reported giving away subsistence foods. Thirty-nine percent of Iñupiat households in Wainwright reported receiving half or more of their diet from others.⁶⁹

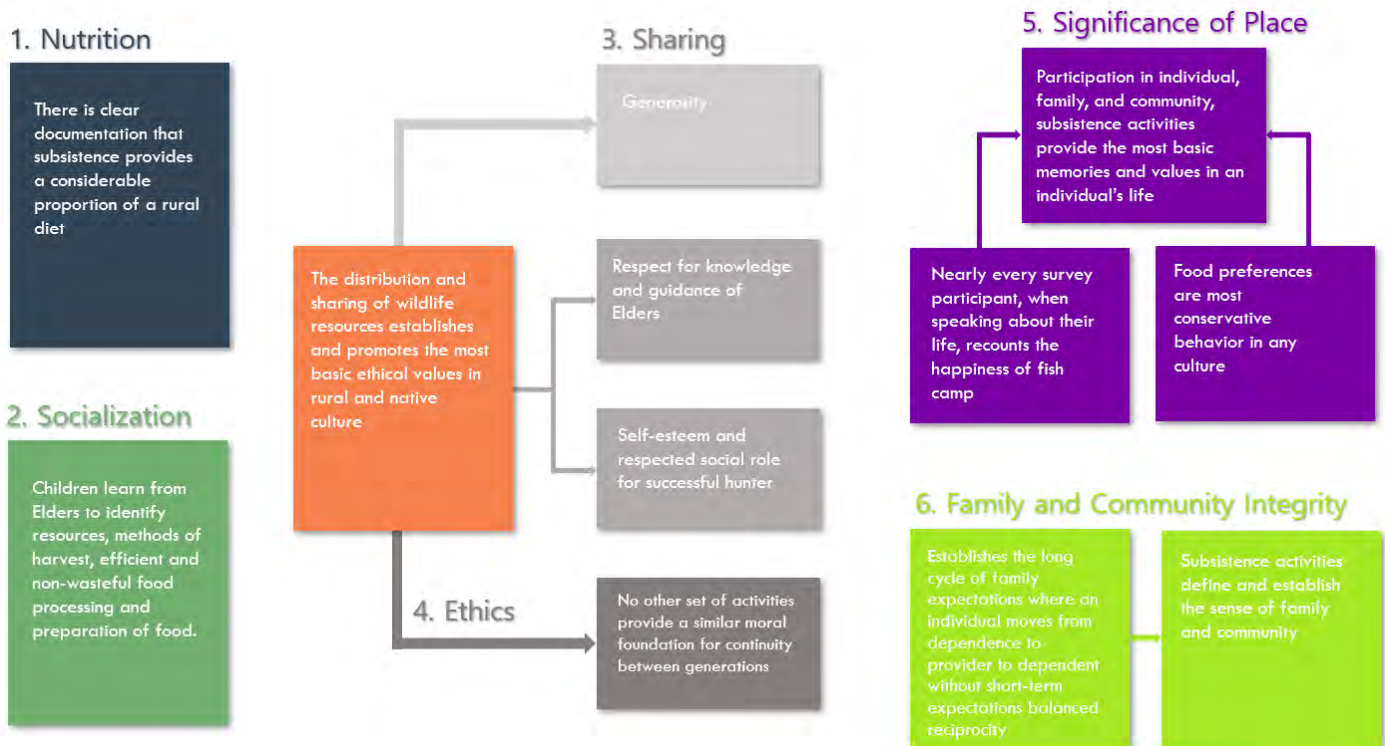
Aġviq (Bowhead Whale). Subsistence harvesting of aġviq provides important nutritional and cultural needs for many Alaska

Native communities. The Alaska Eskimo Whaling Commission (AEWC), comprised of 11 communities, locally manages the Alaskan harvest through an agreement with the U.S. National Oceanic and Atmospheric Administration (NOAA). The level of allowable harvest is determined under a quota system established by the International Whaling Commission (IWC). The quota is based on the nutritional and cultural needs of Alaskan Natives as well as on estimates of the size and growth of the Bering-Chukchi-Beaufort seas stock of aġviq.

A recent change to the IWC's aġviq quota system for subsistence harvesting has been approved, effectively allowing Alaska whaling crews to continue harvesting bowhead whales year-to-year quota fluctuations through a one-time

Figure 7.1: The Cultural Importance of Subsistence

Source: 2015 NSB Economic Profile & Census Report



⁶⁹ North Slope Borough. 2019. 2019 Economic Profile and Census Report.

seven-year extension with limited renewals to safeguard whale stocks.⁷⁰ The aġviq quota for Wainwright is seven strikes per year.⁷¹

Sisuaq (Beluga whale). Primarily the villages of Wainwright and Point Lay hunt belugas, conducting drive hunts and striking one or two whales from the pod.⁷²

Ugruk (Bearded Seal) and Natchiq (Ringed Seal). During the summer months, residents hunt for ugruk and natchiq.

Nanuq (Polar Bear). Nanuq are not harvested in high numbers. If they are harvested, it is usually during or after the fall whaling season. The Marine Mammal Protection Act of 1972 allows coastal-dwelling Alaska Natives to harvest polar bears for subsistence purposes, including making and selling handicrafts. Both the voluntary Inuvialuit-Iñupiat Polar Bear Management Agreement and the U.S.–Russia Polar Bear Bilateral Agreement recognize the importance of conserving female polar bears with their cubs and therefore prohibit their harvest for non-Natives.⁷³

Tuttu (Caribou). Caribou hunting fluctuates in response to changes in herd size, migration routes, and herd health. These fluctuations have potential links to climate change as noted above, as disease, access to lichen, and predation are influenced by climate change and in turn influence hunting and harvesting opportunities.⁷⁴

Globally and within Arctic Alaska, there is evidence that caribou populations are

declining.⁷⁵ ⁷⁶In the U.S., of the four tracked caribou herds, three peaked sometime between 2003 and 2010 only to decline 57 percent by 2017.⁷⁷ The climate change factors contributing to caribou decline include:

- Increasing temperatures in some areas bring an expansion of less nutritious shrubs.
- Increase of parasitic infections.
- Increased frequency of winter icing (making access to lichen much more difficult).
- Increased tundra fires create vast areas that caribou tend to avoid.

Harvest of tuttu occurs along the coast during the summer by boat and inland during the winter by snow machine. Over half of hunting efforts involve day trips. While tuttu hunting occurs year-round, most occur during July and August when tuttu are in their prime condition. Tuttu are one of the primary subsistence species harvested by Wainwright residents.

Fish. Wainwright residents actively fish in nearby waterways and the Chukchi Sea. The most commonly harvested fish is Tipuk (whitefish)

Birds. Wainwright residents hunt niġlingaq (geese) and amauligruaq (eider) during the summer months. Gathering eggs is also a common subsistence activity. Hunting typically occurs between April and October with the majority of harvests in May, June and September.

⁷⁰ Grove Oliver, Shady. 2018. *Arctic whalers strike win for quota renewals at commission meeting.*

⁷¹ North Slope Borough. 2023. *Alaska Eskimo Whaling Commission (AEWC).*

⁷² Lowry, L.F. et al. 2019. *Distribution, Abundance, Harvest, and Status of Western Alaska Beluga Whale, Delphinapterus leucas, Stocks.*

⁷³ U.S. Fish & Wildlife Service. 2023. *Alaska Native Handicrafts/Marine Mammals.*

⁷⁴ North Slope Borough. 2019. *2019 Economic Profile and Census Report.*

⁷⁵ Sullivan, Cody. 2018. *Reindeer and Caribou Declining Arctic-Wide.*

⁷⁶ North Slope Borough. 2019. *2019 Economic Profile and Census Report.*

⁷⁷ Sullivan, Cody. 2018. *Reindeer and Caribou Declining Arctic-Wide.*

Plant Resources. Commonly harvested plants on the North Slope include asiaq (blueberry), ippiq (pink plumes), aqqik (salmonberry), quaġaq (sour dock), qunulliq (wild rhubarb, mountain sorrel), kavlat (bear or blackberry), paungat (crowberry), kimmigñaq (low-bush cranberry), uġruq (sphagnum moss), uqpiit (willow), argiagnaq (puffball), sargigruaq (stinkweed or wormwood), and nauriat (plants and flowers). If and to what extent these plants are collected can vary year-to-year. There are undoubtedly other subsistence plants that are not included here. All plants were collected during the warmer months, from June through September when the ground is snow-free.

Subsistence Seasons

Subsistence patterns are determined by the seasonality of the resources as well as residents' ability to travel by boat during open water

seasons or by snow machine in winter. While some species are harvested year-round, many species are harvested seasonally. The following description of subsistence activities for Wainwright provides a seasonal summary of use, and Table 7.2 illustrates the harvest by season.⁷⁸

Subsistence Vulnerabilities: Climate Change

Climate change is one of the drivers of food insecurity for Iñupiat families on the North Slope by affecting access to and harvest of wildlife resources. Warming air and soil, melting permafrost, tundra fires, erosion and subsidence, and devastating coastal storm surges are all linked back to the Earth's changing climate.

The warming climate has both terrestrial and marine consequences. On land, the melting

Table 7.2: Major Subsistence Resource Hunting Season Harvests

Resource	Winter			Spring			Summer			Fall			
	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	
Aġviq Bowhead Whale					L	M	H	M		L	H	L	
Sisuaq Beluga						M	H	M					
Ugruk, Natchiq Bearded Seal, Ringed Seal							L	M			M	L	
Tuttu Caribou									M	H	H	H	
Niglingaq Geese							H	M			L		
Eidar amauligruaq and qijalik							H	M			L		
Fish				L	L						H	M	
										Blank = No harvest activity		L = Low harvest activity	
										M = Medium harvest activity		H = High harvest activity	

⁷⁸ Stephen R. Braund and Associates. 1989. *North Slope Subsistence Study Wainwright.*

permafrost causes erosion and subsidence, making travel more challenging. Tundra fires are becoming more severe and prolonged, leading to a scarcity of food for caribou.⁷⁹ Additionally, the northward migration of woody plants alters plant communities, affecting caribou migration patterns and food availability.⁸⁰

In marine ecosystems, the significant reduction in multi-year ice forces hunters to travel longer distances for their prey, resulting in higher costs and safety risks. The changing ice conditions also impact the well-being and survival of marine mammals. For example, ringed seals are now less abundant and scattered over wider areas, further increasing the challenges faced by hunters in terms of costs and safety.⁸¹ Moreover, diseases affecting subsistence resource species, limited access to essential food like lichen for caribou, and increased predation greatly influence animal and human health. A warming climate can easily create uninhabitable conditions. Changes to the environment and habitats affects subsistence activities and can affect food security for local communities.

Thirty-two percent of Wainwright residents reported they did not get enough subsistence food because resources were not abundant in 2019. Residents have reported that the most significant reason for not being able to get enough subsistence foods is climate change. Over half of Iñupiat household heads in Wainwright (51.7 percent) attributed climate change as one reason that negatively affected harvesting in 2019.⁸²

Anticipated changes in subsistence harvests are expected to occur over time due to the

availability of multiple resources. It is common for people to offset a poor year of one resource by relying more on another resource that is more abundant. During a year with a scarcity of caribou, individuals might increase their harvesting of fish or seals. A decline in subsistence harvests could lead to dependence on expensive store-bought food as the only alternative.

Unfortunately, the store-bought foods available in places like Wainwright often lack nutritional value when compared to the traditional subsistence foods they replace. Take, for example, bowhead whale, which is rich in omega fatty acids, protein, vitamins A, D, E, and essential minerals.⁸³ The reduction in subsistence activities may mean that residents end up paying more for foods that are significantly less healthy than the nutritious subsistence foods they've relied on.

The preservation of essential food sources is also influenced by the shifting climate. Excessively wet or warm conditions can hinder the proper air drying of fish, caribou, and seal. Residents have noticed that the rising temperatures in both the air and soil have led to a longer freezing time for whale meat and blubber.

For generations, Arctic inhabitants have relied on ice cellars, which are dug deep into the permafrost, as a natural and cost-effective means of refrigeration. They are important for food storage year-round. In recent years, ice cellars have been failing across the Arctic. In April 2014, an assessment of Wainwright's ice cellars revealed that 15 were still in use and 19 had been abandoned. Some of the abandoned ice

⁷⁹ Waldman, Scott. 2017. *Scientific American*. *Lightning-caused fire rise in Arctic as the region warms*.

⁸⁰ North Slope Borough. 2019. *2019 Economic Profile and Census Report*.

⁸¹ Ibid

⁸² Ibid

⁸³ North Slope Borough. 2007. *Traditional Foods are Healthy Foods*.

cellars had been affected by breaks in the underground water and sewer system. Climate change and the subsequent thawing of permafrost are contributing factors.⁸⁴

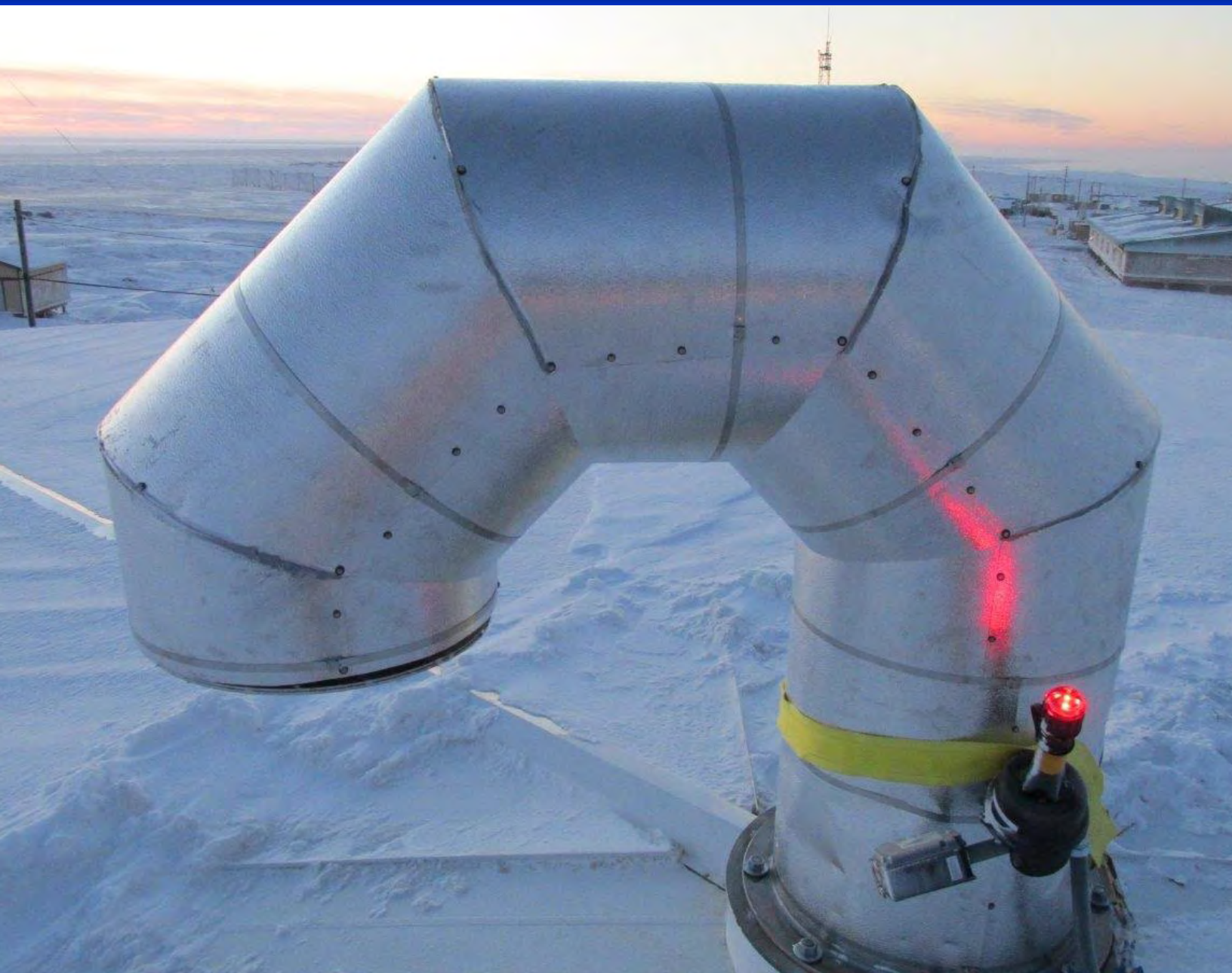
Climate change is forcing changes to subsistence activities. These changes encompass alterations in the timing of seasons, methods of travel, wildlife well-being, availability and behavior of animals, harvest success, and the techniques employed in food preparation and storage.

⁸⁴ Brubaker M., Bell J., Dingman H., Morales R., Tagarook. 2014. *Climate Change in Wainwright, Alaska, Strategies for Community Health*.

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8

Public Facilities



The foundation of any community is its public infrastructure and facilities, including its transportation network, water and sewer system, power infrastructure, public safety, and community gathering spaces. Together, these components play a pivotal role in shaping the overall functioning of the community. The significance of these public facilities becomes even more pronounced in the unique context of the Alaska Arctic region. Here, the extreme environmental conditions and isolation demand careful planning, thoughtful construction, and vigilant maintenance of facilities. Their proper functioning becomes paramount to ensure the safety, comfort, and cohesiveness of all residents.

Like many communities in rural Alaska and the North Slope, Wainwright has aging infrastructure and high maintenance costs but also valuable resources in the network of facilities that powers the community. This chapter examines public facilities in Wainwright, focusing on both existing conditions and future needs.

Recreation and Community Use Facilities

Postal Service. The City of Wainwright operates a Post Office in the community under contract with the U.S. Postal Service. In June 2023, the post office closed until further notice; there hadn't been a postmaster to sort mail and the U.S. Postal Service hadn't included Wainwright on its hiring website. Residents are frustrated that essential food and other necessities aren't being delivered. This isn't the first time that mail wasn't delivered. Without mail delivery, this roadless community does not receive food for the grocery store, diapers and formula for young children, medications, and other necessities. It is not only U.S. Postal Service staff that is important for mail delivery. The entire community relies on one airline to deliver the mail, as well as providing transportation outside the community and delivering other supplies, like food, medication, and household needs. Having just one airline is a concern for many reasons. This issue is addressed further in Chapter 8: Public Facilities.



Many communities in rural Alaska benefit from the Alaska Bypass Mail Program that provides subsidies to air carriers and allows shippers to bypass the post office by delivering goods, mostly groceries, directly to the airlines and bypass the postal service. Bypass mail program allows pallets containing 1,000 pounds to be shipped by air from Alaskan urban areas, such as Anchorage and Fairbanks, to remote rural, mostly Alaska Native villages that are subsidized by the U.S. Postal service. Orders go to mainline carriers that fly between Anchorage and hub communities, like Kotzebue or Dillingham. If the mail is going to a smaller village, it is transferred to another airline. For Utqiagvik and the outlying communities that connect through Utqiagvik, bypass mail is first trucked to Deadhorse and is then loaded onto a mainline carrier to Utqiagvik. This allowed these extremely remote Native villages to import significant amounts of food and goods that if shipped under normal air postage rates would cost two or three times the subsidized rates.^{85, 86}

Recreational and Community Use Facilities. Recreational facilities are limited in Wainwright. Alak School has a gymnasium and playground. The City of Wainwright also owns a ballfield and playground; NPR-A Mitigant Grant funds have been awarded to provide additional lighting at the ballfield. A City-owned community center is used for larger gatherings. A substantial interior renovation has recently been completed.

The community has expressed the need for additional facilities for recreation. The City has received several grants to assist in increasing the number of options for recreation. Funds for an outdoor skatepark have been awarded and the community is determining the best location for

installation. Second phase grant funds have also been awarded for a recreation and youth center facility. This project will provide space for youth to gather and indoor community cultural and recreation needs.⁸⁷

The community is also seeking funds for designing and constructing a cultural center.

Childcare. The Village of Wainwright owns the former national guard armory at 911 Church Street. They are working to convert the building into a childcare facility. The Tribe has received funds from the U.S. Department of Housing and Urban Development (HUD) and Senator Murkowski's office. The Village of Wainwright has also partnered with Arctic Slope Native Association to train childcare workers, adding both jobs in the community and care for those that need to work. The facility renovation is expected to take place in 2025.⁸⁸

Telecommunications. Wainwright is connected to internet services via fiber optic cables. Quintillion, an Alaska company formed for the purpose of building, owning, and operating terrestrial and submarine fiber optic cables in Alaska, developed a subsea communication network linking six Alaska communities to provide high-speed internet and communication capabilities. The Quintillion Fiber Optic Project consists 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). The fiber optic cable ties into a terrestrial fiber optic cable in Deadhorse.

⁸⁵ North Slope Borough. 2019. *2019 Economic Profile and Census Report*.

⁸⁶ Mancl, Cassandra. 2023. *Wainwright Post Office Closed Indefinitely Due to Staffing Issues*.

⁸⁷ Carson, Janet. City of Wainwright. 2023. Personal communication.

⁸⁸ Hagle, Griffin, Chief Executive Officer. TNHA. 2023. Personal communication.

In June 2023, internet and cell service were disrupted in Wainwright and across Northern Alaska when a 1,200-mile fiber cable owned by the broadband company Quintillion suffered a break from an ice scouring event.⁸⁹ The outage affected internet connectivity, cellular service, 911 calls, and the ability of making credit card charges. Residents relied on back-up internet and cell phone connectivity via satellite while waiting for Quintillion to make repairs to the fiber optic line.⁹⁰ While cell service and internet service were restored to the village using satellites, buffering and dropped calls were commonplace. This event underscored the need for redundancy to ensure that there is a back-up system should an outage like this occur again. Arctic Slope Telephone Association Cooperative (ASTAC) is seeking funding to install a set of microwave towers that connect Atqasuk to the Dalton Highway that may have potential for a Wainwright connection as well.⁹¹

Public Safety

The NSB is responsible for providing emergency response across the seven borough villages with services including police, fire, and search and rescue. Each of these departments are headquartered in Utqiagvik. The borough, however, maintains various emergency management branches in the villages themselves, as well as a police presence in Prudhoe Bay.⁹²

Public Safety Service. The NSB Police Department staffs a 24-hour police station with two officers and two jail cells. The NSB Fire Department operates a fire station in

Wainwright that includes fire response equipment and an ambulance. The Fire Department provides a pumper apparatus capable of pumping 1,250 gallons per minute (gpm) of water and a pumper/water tender apparatus capable of pumping 750 gpm for a total of 2,000 gpm. The Fire Department provides 24-hour emergency medical assistance to residents.

Public Works Facility

Construction of a new Public Works shop is underway. A temporary fabric structure was erected to keep equipment warm while the old building was demolished and the new one is being built. The new shop is located in the same location as the old one had been, requiring the NSB to tear down the building, remediate the contaminated soil, and begin construction on the new facility. The building is expected to be finished in 2023.

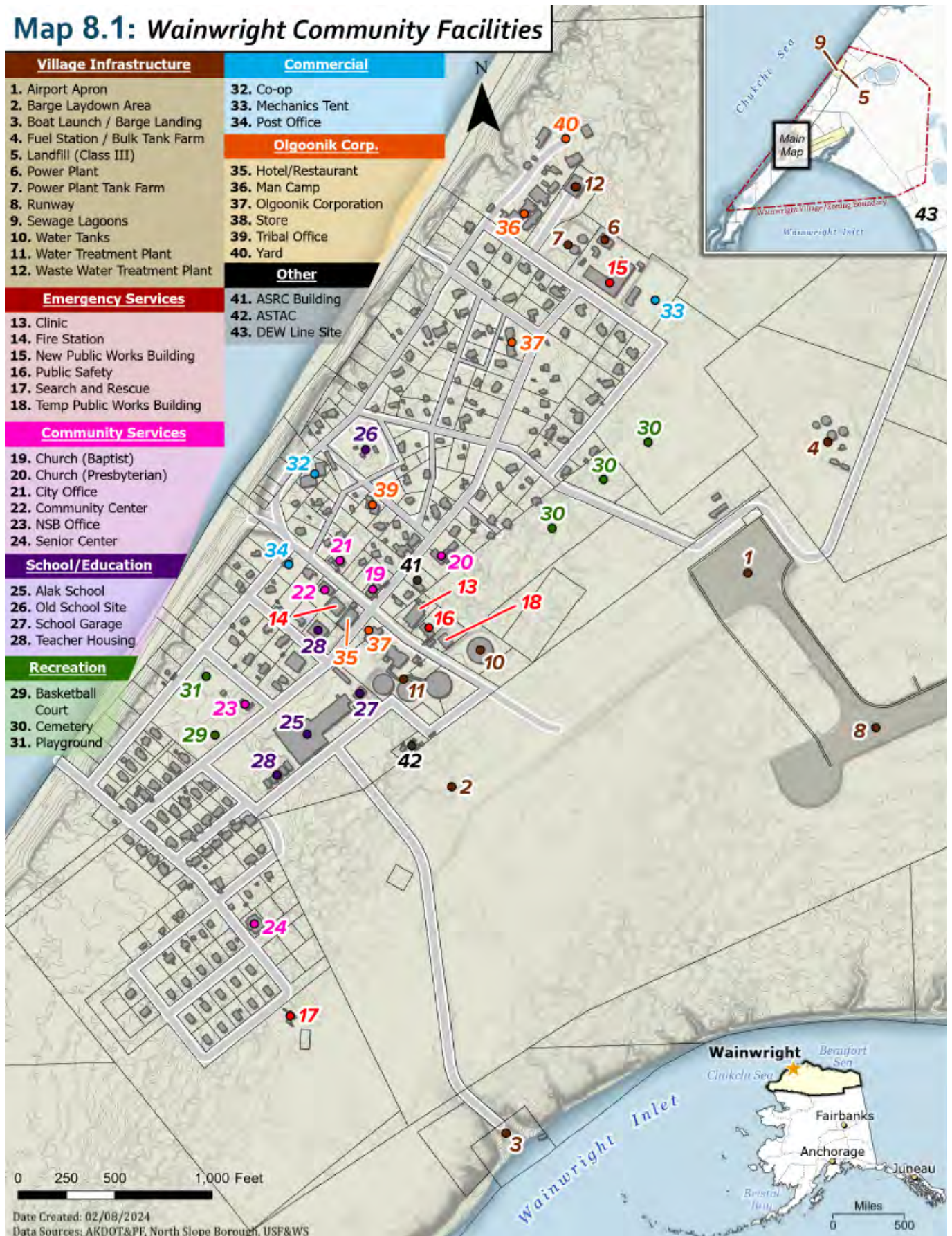
⁸⁹ Roth, Emma. 2023. *Satellite internet is on the way after Arctic fiber is cut unplugs part of Alaska.*

⁹⁰ Klecka, Joey and Cadotte, Joe. 2023. *Broad outage affecting North Slope due to undersea fiber cut, company says.*

⁹¹ Fairbanks, Paul, Chief Services Officer, ASTAC. 2023. Personal communication.

⁹² North Slope Borough. 2019. *North Slope Borough Areawide Comprehensive Plan.*

Map 8.1: Wainwright Community Facilities



Water and Wastewater

Water. The water facilities in Wainwright are owned and operated by the NSB. The water treatment plant was constructed in 1988, with major renovations and an addition in 1998 and additional minor renovations in 2012.⁹³ A Water Treatment Building Shop was constructed in 1982; with few renovations over the years, including door replacements in 2013. A \$10 million renovation is currently underway.

The main water source in Wainwright is the freshwater lake northeast of the community. Fresh water is pumped from nearby Freshwater Lake from a floating intake and pumped to the treatment plant and storage tanks. The tanks are filled during the summer months using a 6-inch High Density Polyethylene (HDPE) pipe placed on grade from the water treatment plant to the Fresh Water Lakes located east of the landfill. In optimum operating conditions, 230,000 gallons can be pumped in one day, and pumping typically occurs from spring thaw around June to freeze-up in September. The pump and intake structure are removed seasonally. After the water is transported from the freshwater lakes, the water is pumped through the Water Treatment Plant. In the plant, water is pre-heated, filtered, strained, cleansed, and treated chemically before being pumped for storage in the reservoir tanks or pumped into buried water mains. The four water tanks in the community have a combined storage capacity of 9.9 million gallons. From these tanks, potable water is distributed to homes through a buried pipeline, shown in Map 8.2. Water is stored in the four warmed storage tanks for winter use. The water treatment plant can treat up to 250,000 gallons per day. After treatment, the water is stored into the storage tanks, eventually distributed

throughout the community in buried, forced water mains. There are two buried force main systems that supply water throughout the community.

The smaller of the two freshwater lakes, called Freshwater Lake 1, is owned by the NSB, deeded to them from OC and dedicated for public use. The second, larger lake (Freshwater Lake 2) is owned by the OC, and by verbal agreement, water is pumped for use in the village. The pump is moved interchangeably between lakes depending on wind conditions and water quality. Certain wind directions can sometimes stir up sediment in one or the other of the lakes resulting in a higher content of suspended sediment. In cases such as this, the water with best quality is pumped.

The water depth in Fresh Water Lake 2 is measured several times a year by NSB PW employees and is documented. NSB Public Works department reported that water depth averages between 6.5 feet to 8 feet in depth year around. During long periods of low precipitation, the level is lower but has not dropped below 6.5 feet in depth. Annual monitoring has shown that both lake levels maintain at the current levels and replenishment rates are steady enough to meet current pumping demands.

The 2014 Comprehensive Plan indicated that residents identified a good water source east of the DEW Line site. If future development brings new roads and increased access to portions nearer the DEW line site, this water source may be considered as either an alternative water source or even a replacement source. It is limited today due to lack of access.

⁹³ North Slope Borough. 2019. *Wainwright Repair and Replacement Schedule*.

The borough funded installation of a piped water system that was constructed in 1996. The system has not been expanded since its original installation, although there have been new service hook-ups, the most recent of which was in 2020 for the Olgoonik Corporation store. There are currently 181 homes and facilities with piped water and 23 that rely on water truck delivery service.⁹⁴

Based on village demand calculations, typical demand vary from 35 gallons per day per person. During typical peak flow periods the usage rate can increase to 46 gallons or more per day per person. For planning purposes, a rate of 38 gallons per day per person is utilized. The table below summarizes the estimated usage rate utilizing the population forecast calculated for this comprehensive plan. As shown, the community of Wainwright will use approximately 9.6 million gallons in 2030, with an increase to just over 11.1 million gallons in 2023.

When discussing future community needs, increased storage capacity is one answer to the increased demand. But in addition to building new tanks, pumping plans could be developed to

maximize pumping capacity during the summer months to top off tanks before freezing conditions begin. Pumping at 230,000 gallons per day, only 13 days would be required to fill the larger 3,000,000-gallon tank.

Even more critical to managing water usage in Wainwright is to solve the water main leaking issues that plague the community. Alternatives to direct bury water distribution have been considered for those communities that have experienced the most difficulty with subsistence. NSB is now designing an above ground system for the community of Point Lay. A similar above ground replacement system may be needed in the future.⁹⁵

Wastewater. Wastewater is generally collected through a buried pipe system that was constructed in 1996. Like the water system, the NSB owns and maintains the wastewater treatment system in Wainwright. Wainwright has a 6,120 square foot sewer treatment plant, built in 2000 with minor renovations in 2012-2013, located on the eastern edge of town. There is a 10,000-gallon insulated sewage tank inside and the building and system and can be independently powered by 100 KW generator

Table 8.1: Projected Water Usage

Forecast Year	Population Count	Daily Usage (gal/pd)	Proposed Usage (gal/py)
2020	682	25,916	9,459,340
2030	694	26,372	9,625,780
2040	766	29,108	10,624,420
2045	805	30,590*365	11,165,350

⁹⁴ North Slope Borough. 2021. *Water and Sewer System: Historical Overview of all NSB Communities*. Assembly Workshop. February 1, 2021.

⁹⁵ Holmes, Travis. Principal Engineer, UMIAQ Design and Municipal Services. 2023. Personal communication.

located in the mechanical room in the building. The maximum capacity of the system is 28,000 gallons per day. The volume of wastewater into the plant is averaging 19,000 gallons per day. Raw sewage is pumped into the tank after a screening process eliminates foreign materials and particles other than sewage such as rags, and toys. The total suspended solids (TSS) are settled out, processed again with a final clarification process, and resulting gray water is chemically treated before being pumped out into the Chukchi Sea. The remaining sludge is bagged and disposed of at the landfill.

The sewage flows into the treatment plant building are contained in buried sewage lines. The buried sewer line is at average depths between 8-12 feet and is 8 inches in diameter. The sewer force main is operational with two lift stations, one located on the western edge of town and the other on the eastern side. Minor mains feed sewage into the western lift station using gravity, which then provides the “lift” needed to force sewage back to the eastern lift station, collecting some minor mains as it goes. After leaving the eastern lift station, the sewage flows into the sewage treatment plant.

Currently, there are 181 sewer lines hookups, 13 holding tanks, 15 using honey buckets.⁹⁶ For those homes or facilities without sewer service, the NSB empties the tanks and transports waste to the sewer lagoon at the landfill. There are five applications for new connections on file with the NSB.⁹⁷

The community is plagued by sewer line breaks, many in locations that break over and over, causing consistent problems for many homes. In 2019, there were a total of 610 incidences of service interruptions, by far the community with the most issues; the community with the next most frequent was Nuiqsut, with 377 service interruptions. Thirty-nine homes experience their service interrupted more than once while less than six times and 21 homes had their service interrupted more than five times. In 2019, the NSB spent \$8.5 million on emergency repairs, more even than Utqiagvik that year and more than 27 times more than its neighbor Atqasuk.⁹⁸

Based on village generation calculations, the typical user generates 35 gallons of wastewater per person per day.⁹⁹ The table below

Table 8.2: Projected Wastewater Generation/Treatment

Forecast Year	Population	Daily Usage (gal/pp/pd)	Treatment Plant Capacity
2020	682	23,870	28,000
2030	694	24,290	28,000
2040	766	26,810	28,000
2045	805	28,175	28,000

⁹⁶ North Slope Borough. 2021. *Water and Sewer System: Historical Overview of all NSB Communities*. Assembly Workshop. February 1, 2021.

⁹⁷ Ibid

⁹⁸ Ibid

⁹⁹ Holmes, Travis. Principal Engineer, UMIAQ Design and Municipal Services. 2023. Personal communication.

summarize the estimated treatment plant capacity and the wastewater amounts expected with the future projected population growth rate. The plant will likely exceed capacity near 2045 if the community grows at a sustained one percent.

Residents are concerned about the current capacity of the wastewater treatment plant. During public meetings, community leadership and residents have discussed the need to upgrade infrastructure prior to constructing additional housing, which is also desperately needed.

There is also a sewage lagoon in Wainwright. It is located within the landfill fenced area; its dimensions are approximately 131 feet by 215 feet with an available volume of 78,366 gallons, as of its last survey date in June 2016.¹⁰⁰ It is discharged once annually.¹⁰¹ Within the sewage lagoon, there is a primary lagoon where waste is first deposited; after settling, it is transferred to second lagoon. After additional settling, the lagoon is discharged into the Chukchi Sea. The sewage lagoon currently has sufficient capacity for community needs. There is a third sewage lagoon that is no longer in use. It was used for graywater until 2011; the NSB did not permit its continued use.¹⁰²

¹⁰⁰ North Slope Borough. 2022. *Area Wide Fuel Storage Facility Oil Discharge Prevention and Contingency Plan*.

¹⁰¹ Norvell, Katey, Environmental Scientist, UMIAQ Environmental. 2023. Personal communication.

¹⁰² Ibid

Map 8.2: Wainwright Water and Wastewater Facilities



Power Generation

Wainwright utilizes diesel fuel for primary power generation. The facility is owned and operated by the NSB and is located behind the NSB Public Works Complex off Summer Road near Main Street. The power plant was originally constructed in 1988 and underwent interior improvements in 2001. Remodeling work and upgrades have occurred over the years with renovations to the doors, floor finishes, and HVAC controls in 2012 and 2014.¹⁰³

The power plant has five generators with a total power capacity of 3,190 Kilowatts (kW). There are three 430 kW diesel generators installed in 1988 and two 950 kW diesel generators installed in 2001 and 2002.¹⁰⁴ The power plant uses approximately 545,000 gallons of fuel per year, with a monthly usage in winter of about 52,000 gallons per month, dropping to about 39,000 to 40,000 during summer months. The NSB distributes fuel to the village for heating homes and charges the residents the cost for delivery.¹⁰⁵

During the winter season, the monthly peak load is about 1,150 – 1,300 kilowatt hours (kWh). During summer months this peak load drops to about 800 – 950 kWh. Multiple generations are needed nearly every day of the year. With current demand loads, the power plant is able to meet the village needs by running two or three generators, most often one of the Caterpillar 3508 diesel generators paired with one of the Caterpillar 3512 diesel generators. If demand is especially high another Caterpillar 3508 will also be used.¹⁰⁶

During summer, the overall demand drops with peak loads rarely going over 950 kWh. Records of the daily peak loads show the actual demand from the community by the hour, showing that the as expected, peak demand usually occurs between during the daytime hours, with the highest power usage between p.m. and p.m. 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.¹⁰⁷

Table 8.3: Power Generators

Unit Number	Make / Model	Capacity	Serial Number	Installation Date
1	Caterpillar 3508	430 kW	70Z00641	1988
2	Caterpillar 3508	430 kW	70Z00643	1988
3	Caterpillar 3508	430 kW	70Z00642	1988
4	Caterpillar 3512	950 kW	67Z1942	2002
5	Caterpillar 3512	950 kW	67Z1904	2001

¹⁰³ North Slope Borough. 2019. *North Slope Borough Repair and Replacement Schedule*.

¹⁰⁴ HMM Consulting. 2023. *Wainwright Power Plant Operator Report*.

¹⁰⁵ Ibid

¹⁰⁶ Ibid

¹⁰⁷ North Slope Borough. 2017. *Atqasuk Comprehensive Plan*.

The five generators combined have an expected life of 55 years. As the population grows, the peak demand will also grow. To meet future demand, three or more generators may need to be operated in tandem, decreasing the total life efficiency of combined generators. Table 8.4 provides projected power usage over the next twenty years. A rate of 1.6 kW per person per day is used to project future peak use with future anticipated population growth, calculated from the estimated peak usage of 1,100 kW daily. The average winter load of 1.8 kW per person per day is used to project future winter usage, calculated from the estimated peak winter usage of 1,250 kW daily. Power demand would likely be higher than the per day averages presented here if additional homes are constructed to alleviate overcrowding. Smaller households would consume a greater amount of power per person.

Historical data from the Alaska Energy Authority (AEA) Alaska Power Cost Equalization Program (PCE) report is valuable for determining trends in energy consumption, power generation and sales, and electricity rates. The PCE program provides funding subsidies to electric utilities in rural Alaska communities where the kilowatt-

hour charge for electricity can be three to five times higher than the charge in more urban areas of the state. This program pays for a portion of the kilowatt-hours sold by the participating utility. The exact amount of the subsidy varies by village. It is a reliable source of historical power, fuel consumption, and energy cost information for rural Alaska communities. Wainwright is one of the 188 Alaska communities that participated in the PCE program in 2022.¹⁰⁸ During the 2022 fiscal year, 151 residential and three community facilities in Wainwright were eligible to receive PCE assistance; there were an additional 73 non-PCE customers. Total PCE payment during fiscal year (FY) 2021-2022 were \$5,664, with an average annual PCE payment per eligible customer of \$37.¹⁰⁹

In the harsh climate of the Arctic, taking steps to improve energy efficiency can bring substantial benefits. LED lighting retrofits and controls programming, conservation measures like building weatherization, upgrading to more energy-efficient equipment, lighting, and appliances, and installing long-term power sources like wind turbines, generators, or

Table 8.4: Projected Power Usage

Forecast Year	Population	Daily Peak Usage (kW/per day)	Average Winter Usage (kW/per day)
2020	682	1,061	1,228
2030	694	1,388	1,249
2040	766	1,532	1,379
2045	805	1,610	1,449

¹⁰⁸ Alaska Energy Authority. 2022. *FY 2022 Power Cost Equalization Program Statistical Report*.

¹⁰⁹ Ibid

alternative energy systems can all make a significant contribution to energy efficiency. One way to increase energy efficiency is monitoring energy consumption. On average, users of smart meters can save anywhere from 5 to 30 percent on energy consumption. To further encourage energy efficiency initiatives, there are several state and federal programs that offer funding for energy audits and weatherization, including the U.S. Department of Energy Efficiency and Conservation Block Grant (EECBG) program, the Alaska Housing and Finance Corporation (AHFC), the Department of Energy (USDOE), and the Village Energy Efficiency Program (VEEP). These programs have been successful in Alaska for weatherization retrofits, with homes experiencing an average decrease of 43 percent in energy use and a 29 percent decrease in home energy costs.^{110, 111}

Table 8.5 provides current utility rates for home heating diesel fuel, gasoline, electricity, and water and sewer fees. All of these rates are subsidized by the North Slope Borough and do not reflect the true cost of providing these services to the community. Subsidiaries are discussed in depth later in this chapter.

¹¹⁰ Household energy savings are computer by using AKWarm, an AHFC-developed building energy modeling software which models expected energy consumption based on a home's construction, features, appliances, and results from tests conducted on the home by certified energy raters. Since 1997, at least six studies have been undertaken to evaluate the accuracy of AKWarm's residential energy assessment model and each have concluded that AKWarm produces a statistically accurate estimate of annual home energy.

¹¹¹ North Slope Borough. 2019. *North Slope Borough Areawide Comprehensive Plan 2019 – 2039*.

Table 8.5: 2023 Utility Rates

Utility	Cost
2023 Fuel Rates	
Home heating diesel per gallon, pick-up	\$2.05
Home heating diesel per gallon, delivery	\$2.30
Residential gasoline per gallon	\$5.00
Commercial gasoline per gallon	\$6.40
Residential diesel fuel per gallon	\$5.51
Commercial diesel fuel per gallon	\$6.91
Propane	\$180.00
0 – 100 kWh	\$15.00 minimum
0 – 600 kWh	\$0.15 per kWh
601 + kWh	\$0.35 per kWh
0 – 600 kWh	No Charge
601 + kWh	\$ 0.08 per kWh
0 – 100 kWh	\$15.00 minimum
0 +	\$.08 per kWh
0 – 3,000 gallons per month (residential)	\$69.00
0 – 3,000 gallons per month (seniors)	\$14.00
More than 3,000 gallons per month (both residential and seniors)	\$0.02 per gallon
Commercial	\$0.08 per gallon
Sewer	No charge

Map 8.3: Wainwright Power Utilities



Alternative Energy

Wind Energy. Land-based wind energy is often the cheapest electricity to produce. The high cost of fuel, especially in rural Alaska, as well as improvements in wind power technology make wind energy more viable than it has been in the past. Adding wind turbines to diesel power plants that are being upgraded to make a hybrid wind-diesel system is one of easiest ways to include wind energy in an existing system. The wind turbines are connected directly to the grid and operate in parallel with the diesel generators, adding wind generated electricity to the grid when possible. There are more than 30 communities in Alaska that use wind power to generate a portion of their electricity.¹¹²

An investigation into the potential and feasibility of wind power as an alternative energy source in Wainwright was conducted in 2010.¹¹³ The NSB received Alaska Energy Authority (AEA) grant funds for a feasibility assessment in several communities, including Wainwright. The borough sought to assess the potential for implementing a wind-diesel system to offset a percentage of fuel used in the power plant. Wind power would supply a portion of the electric load with at least one diesel generator operating at all times.

A meteorological evaluation tower (MET) was installed approximately 1,600 ft northeast of, near the Chukchi Sea shoreline. This site was relatively near the power plant and well exposed to winter winds with no upwind obstructions. The met tower collected wind conditions, air densities, and feasibility of wind power usage between June 2009 and July 2010. Wind data collected from the MET tower regarding both

mean wind speed and mean power density indicated measured high wind power class 4 (good) to low wind power class 5 (excellent). Additionally, time series calculations indicate high wind speed averages throughout the year, even during summer. The MET site was not necessarily the site for future wind turbines. An updated study would need to consider site considerations.¹¹⁴

Coal Bed Methane. Coal bed methane, a form of natural gas extracted from coal beds, has been located near Wainwright. In 2007 - 2008, the U.S. Department of the Interior, with financial and logistical support from ASRC, NSB, and the Olgoonik Corporation, conducted exploratory drilling for coal in Wainwright and the vicinity. The conclusion was that the coal bed methane contained within shallow sub-permafrost coal seams could serve as an alternative energy source for the community. Analysis from core samples indicate that the coalbed likely contains enough shallow coalbed natural gas (CBNG) to serve as a long-term energy supply for the community.¹¹⁵

Seawall. As the sea ice retreats and the community is increasingly at risk of being hammered by winter storms, the Chukchi Sea coastline is losing its protective barrier. To assist in protection of Wainwright's coast, a 770-foot rock seawall, was constructed along the northern portion of the community. It replaces previous efforts placing sandbags. The community is seeking to extend the seawall to protect the southern portion of the community's coastline and nearby infrastructure.

¹¹² Renewable Energy Alaska Project. 2020. *Wind: The Cheapest Electricity on the Planet.*

¹¹³ Vaught, Douglas P.E. 2010. *Wainwright Wind Resource Report.*

¹¹⁴ Ibid

¹¹⁵ Clark, A.C. 2014. *Coalbed natural gas exploration, drilling activities, and geologic test results, 2007–2010, Wainwright, Alaska.*

Fuel Storage


The fuel network in Wainwright consists of two bulk fuel tank farms with dispensing stations, a marine offloading pipeline, and distribution pipeline to the school and water plant. Total fuel storage in Wainwright is 1,092,790 gallons of diesel fuel and 70,901 gallons of gasoline. The Wainwright bulk fuel tank farm has fuel storage capacity of 154,000 gallons of gasoline at the bulk tank farm across two tanks. The bulk tank farm also has storage capacity for 904,000 gallons of diesel fuel in five tanks. Many facilities in the community also have diesel storage tanks on their property, including Alak School, the power plant, water plant, health clinic, fire station, WWTP, and the public safety office. There are also numerous smaller fuel storage tanks scattered throughout the village. The in-service date of most tanks was between 1994 – 1997, with a few older tanks installed in 1981 at the health clinic and fire station. Diesel fuel and gasoline is delivered to the community via barge once a year. The barge connects to the marine header in the community; from the marine header, fuel is distributed to the bulk fuel tank farm, power plant, and school through an underground piped distribution system. The community can also receive fuel via plane in an emergency.

The tank farm is well protected with an impervious secondary containment area for all fuel storage tanks, reinforced banks in the containment area, and an empty forty-thousand-gallon tank for fuel spills. Tanks are also protected with security systems and receive ongoing inspection and maintenance schedules. The NSB maintains a Spill Prevention Control and Countermeasure (SPCC) Plan for all fuel storage tanks within its jurisdiction.¹¹⁶

Wainwright residents use fuel tanks at their homes for storing heating fuel. The tanks are becoming unserviceable and will need to be replaced in the coming years. The expense of maintaining and replacing the tanks are usually that of the property owner. Fuel truck drivers are authorized to decline providing fuel if a tank is not structurally sound. Without tanks readily available in the community, some property owners will use drums in the interim, sometimes lasting years. Because many tanks were installed at the same time, many are failing in the community at the same time. Property owners are responsible for any failed fuel tanks, including spills to be cleaned up at the expense to the homeowner. The NSB has stepped in to assist in clean-up in the past as a courtesy service, but local responders are not readily available. Contractors are often brought in to assist in clean-up efforts. All spills need to be reported to ADEC. NSB Fuels Division can assist with reporting and documentation.

Report Oil and Hazardous Substance Spills

TOLL-FREE	1-800-478-9300
INTERNATIONAL	1-907-269-0667
ONLINE	ReportSpills.alaska.gov



It's Required by Alaska Law!
(AS 46.03.755, AS 46.03.450, 18 AAC 75.300, 18 AAC 75.325)

Oil and Petroleum Product Reporting

Spills to Water

- Any amount spilled to water must be reported **immediately**.

Spills to Land

- Spills in **excess of 55 gallons** must be reported **immediately**.
- Spills in **excess of 10 gallons but less than 55 gallons** must be reported within 48 hours.
- Facilities shall maintain a spill log and report a record of oil discharges from **1 to 10 gallons** monthly.

Spills to Impermeable Secondary Containment

- Spills in **excess of 55 gallons** must be reported within 48 hours.


Hazardous Substance Reporting

Any hazardous substance spill, other than oil, must be reported **immediately**.

Underground Storage Tank (UST)* Reporting

You must report a suspected below ground release from a UST system, in any amount, within 24 hours. (18 AAC 78.212)

If a release is suspected the owner or operator of a UST shall investigate the UST site and shall report to the UST Unit within the period specified. (18 AAC 78.200)



Alaska Department of Environmental Conservation
 Division of Spill Prevention and Response
<https://spills.alaska.gov>

Contact us: (907) 465-5250
 * Regulated UST as defined in AS 46.03.450(6)

Revised 10/10/2022

¹¹⁶ North Slope Borough, 2015. North Slope Borough All-Hazard Mitigation Plan.

Cleaning up spills, even small ones, is important to safeguard the health of residents and the environmental/natural resources. Small spill left unaddressed can cost the borough and homeowners tens of thousands of dollars or more.

Transportation

Residents travel by boat, all-terrain vehicles (ATV), snow machine, and by car and truck on permanent village roads. ATVs, snow machines, and boats provide transportation over long distances, often for participation in subsistence activities. Air transport is the primary means of long-distance travel to other communities on the North Slope and beyond. This section includes information on off-road travel, current roads, possible future roads, water travel, and air travel. Map 8.4 illustrates the transportation system that links villages on the western part of the North Slope Borough.

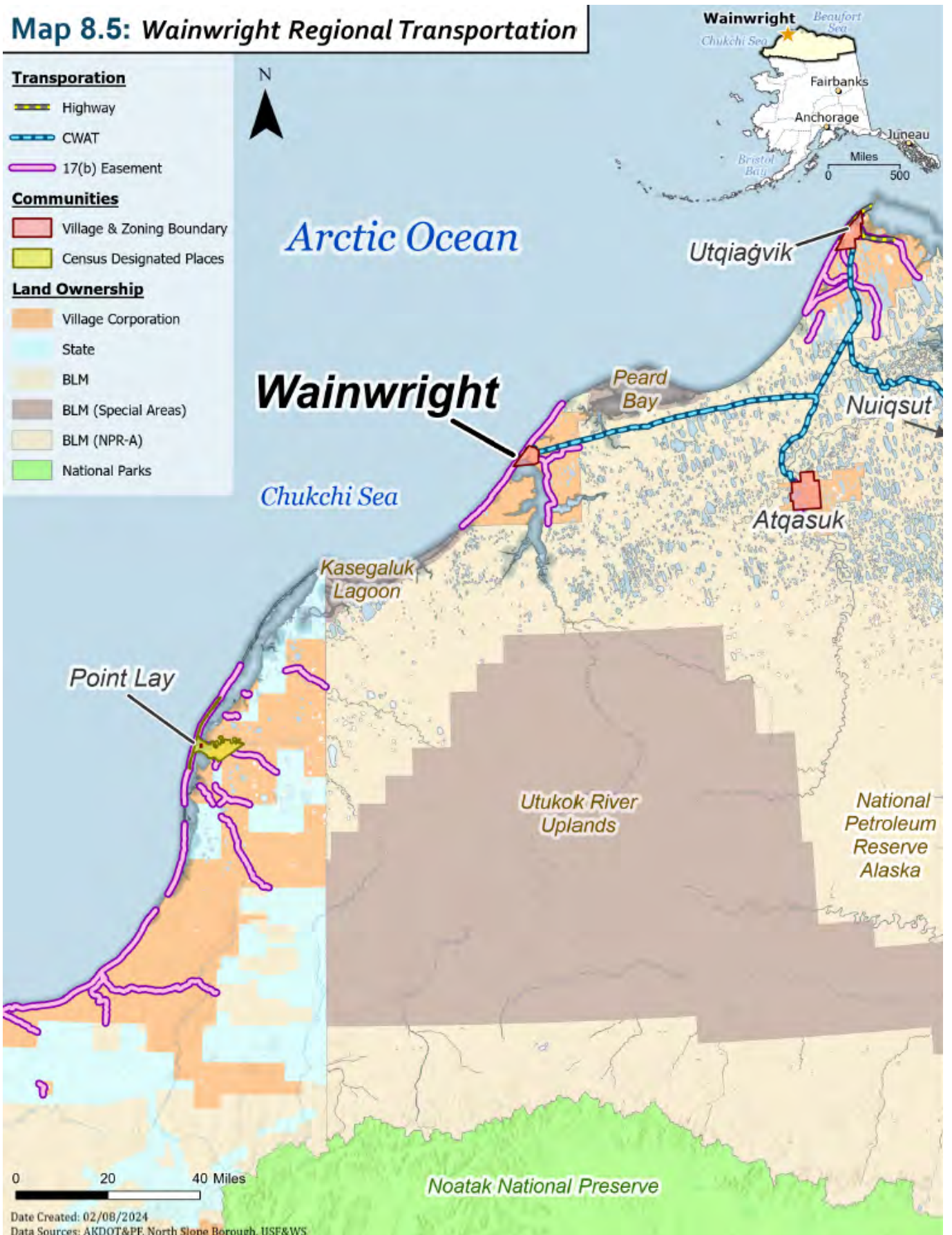
Snow machines, ATVs and boats are ideal forms of off-road transportation within the village, allowing for long distance travel over rugged or inaccessible terrain (off-road, over snow and water). This makes them a preferred form of transportation for subsistence activities because they make remote hunting, fishing, and gathering locations more easily accessible. Cars and trucks are also often used around town.

Local Roads. The roads are generally 24 feet wide inside of 60-to-100-foot rights-of-way. There are no sidewalks in the village. Roadbed and culvert washout due to spring break-up can impact transportation in the village.

Map 8.4: Wainwright Local Transportation



Map 8.5: Wainwright Regional Transportation



Community Winter Access Trail. During the winter of 2017/2018, the North Slope Borough established the Community Winter Access Trail Program to allow seasonal movement of goods between the communities of Atqasuk and Utqiagvik, and to connect these communities to the Dalton Highway. During the winter of 2018/2019, the CWAT system was extended to Wainwright. The primary intent of the program is to provide relief to the high cost of living across the region. The NSB builds approximately 300 miles of snow roads for resident access. Safer travel, reduced cost of search and rescue missions, consolidated travel routes that reduce the impact to the landscape of multiple and uncoordinated trails and routes, lower costs by bypassing barge and aviation transport of goods, and coordination of freight haul are some of the benefits of the CWAT program.¹¹⁷ The CWAT routes are shown on Map 8.5.

Arctic Strategic Transportation and Resources

The Arctic Strategic Transportation and Resources (ASTAR) project intends to identify, evaluate, and advance opportunities to enhance the quality of life and economic opportunities in North Slope communities through responsible infrastructure development. It is funded by the State of Alaska. The ASTAR team is currently focused on a transportation study that would connect three villages of the North Slope: Wainwright, Atqasuk, and Utqiagvik via a network of overland two-lane gravel roads for year-round use. There are historic winter trails between the communities for travel by snowmachine or other tundra travel vehicles. A winter trail between Atqasuk and Utqiagvik has successfully been used to transport fuel to Atqasuk using rolligons and to haul gravel from

Utqiagvik. A year-round road offers the potential for increased economic opportunities, increased social and cultural connections with family and friends, lower costs for delivering goods and services, enhanced opportunities to access and participate in subsistence activities, improved access to health resources, access to education opportunities outside of one's own community, and greater opportunities for training and workforce development. The ASTAR team has received broad local support a road system to connect these three villages.¹¹⁸

Boat Launch. There is an existing community boat ramp at the terminus of Nashoalook Street on the Wainwright Inlet. Boating activities are often limited due to shallowness of launching areas. Launching whaling boats, personal boats and the response vessels is treacherous and potentially life-threatening during stormy weather at this location. Community leaders and residents have expressed interest in having a docking facility at the entrance of Wainwright Inlet with a road from the community built to access it. There is an active NPR-A Impact Mitigation Grant Program project for \$3 million to fund constructing new boat ramps in Nuiqsut and Wainwright and to replace an existing boat ramp in Utqiagvik.¹¹⁹

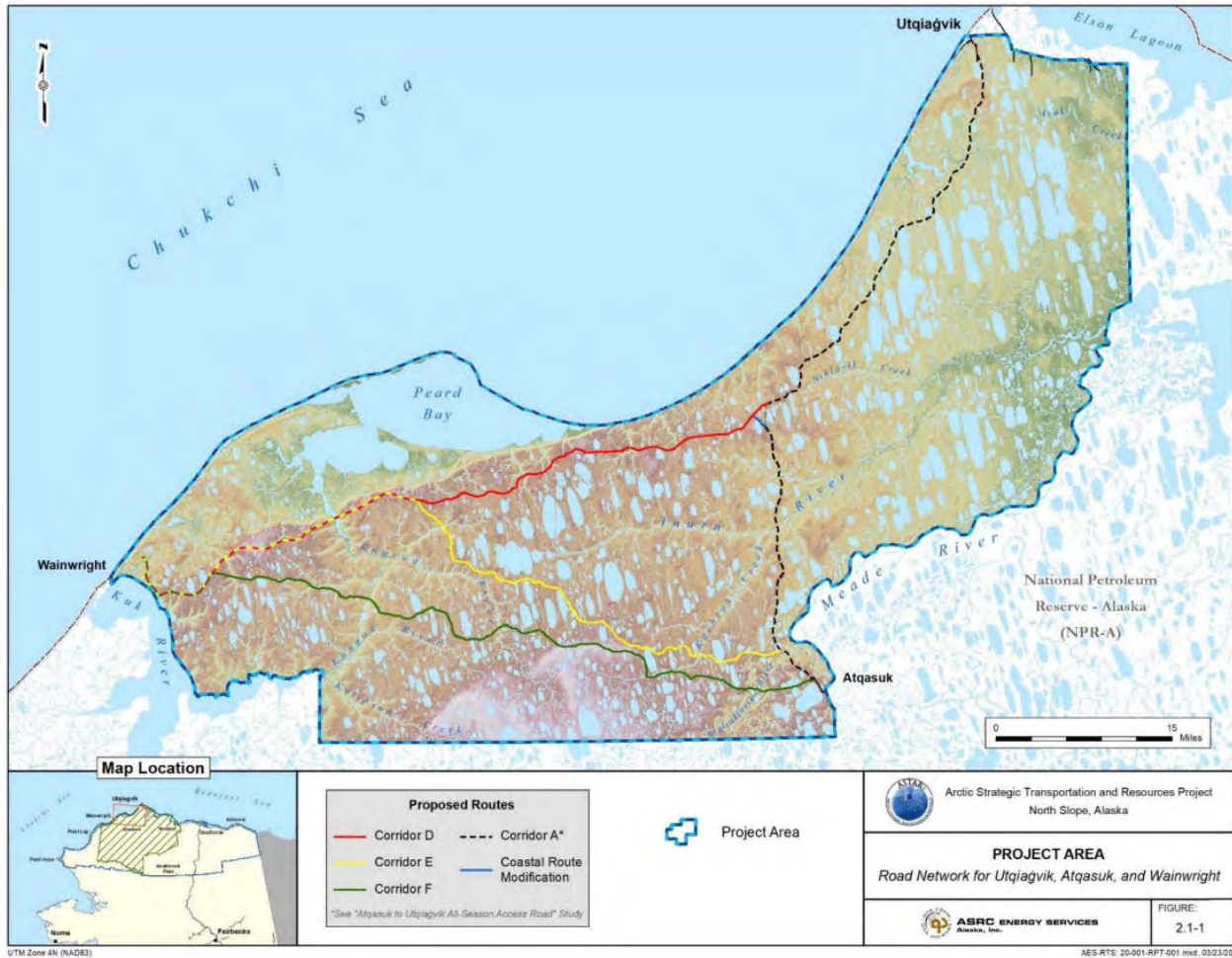
Air Travel and Transportation. There is a 4494 foot long, 110-foot-wide gravel runway open for public use. The runway is considered to be in fair. It is equipped with high intensity runway edge lights, a rotating beacon, a four light Precision

¹¹⁷ North Slope Borough. 2019. *North Slope Borough Areawide Comprehensive Plan 2019 – 2039*.

¹¹⁸ North Slope Borough. 2023. *Arctic Strategic Transportation & Resources: General Information*.

¹¹⁹ Alaska Department of Commerce, Community, and Economic Development. 2021. *National Petroleum Reserve – Alaska Impact Mitigation Grant Program*.

Map 8.6: Proposed Road Network Between Utqiagvik, Atqasuk, and Wainwright



Approach Path Indicator (PAPI), runway end identifier lights, and touchdown points.¹²⁰ The airstrip is owned and operated by the NSB. It is not monitored or attended, nor does it have a passenger shelter or restroom. Flights from Wright Air transport passengers, cargo, and mail from Utqiagvik and beyond to lower Alaska. Air transportation in and out of the community can be difficult at times, largely due to amount of cargo and other passengers coming and going on airplanes with limited space. There were 2,860 enplanements in 2022 on Wright Air (99.3 percent) and Everts Air Cargo (0.07 percent). In

2021, there were 2,356 enplanements, 1,900 in 2020, 4,384 in 2019, and 3,761 in 2018.¹²¹ The number of enplanements from the five-year high in 2019 to 2022 has decreased by 35 percent. Enplanements have not returned to their pre-pandemic numbers. There could be several reasons for this, including resident preference to remain in-village. It is also possible that Wright Air’s capacity cannot accommodate demand with fewer people traveling now due to lack of availability on scheduled flights.

¹²⁰ Airnav.com. 2023. *Wainwright Airport*.

¹²¹ Federal Aviation Administration. 2023. *Airports External Portal*.

Ravn Air had provided regular air service throughout the North Slope prior to ceasing operations in early 2020. Its closure and subsequent bankruptcy created a serious gap in service until Wright Air filled that transportation need. Ravn's departure from North Slope operations highlighted the need for more competition amongst airlines on the North Slope.

Future Roads. Additional roads are needed to provide access to platted lots. The community is also seeking a permanent road to the DEW Line site. The State of Alaska has been considering developing a road network in the Alaska Arctic through the ASTAR project. The current priority for ASTAR is planning a road that connects Utqiagvik, Wainwright, and Atkasuk. Additional information on the proposed road is found in previous section in this chapter on transportation.

Solid Waste

Wainwright's landfill was constructed in 1985. It is a Class III Material Storage Waste Landfill (MSWLF) and is owned and operated by the NSB. A Class III Landfill accepts less than five tons daily of municipal solid waste, based on an annual average.¹²² It serves as the disposal site for municipal solid wastes, septage, and dried sewage solids for the community. The landfill site is located two miles from the village and consists of both sewage lagoons and a solid waste landfill on 68 acres, platted as Track 8 (Plat 85-8). The existing fenced landfill is 9.8 acres. Trash pick-up is free for residents. The landfill cells are full, but the NSB has worked with ADEC to build cells upwards in order to place additional trash on top the existing cells. The community is expecting to receive burn cages

soon, which will help in reducing the amount of trash that needs to be disposed of in the landfill cells. Although there is space to extend the landfill cells, the NSB would need to extend the security fence. The remaining life of the Wainwright landfill is approximately five to ten years.¹²³

Gravel

Gravel is required in the community for road maintenance, providing adequate landfill cover, and for new construction of roads, buildings, and other infrastructure.

Olgoonik Corporation provides gravel for the community. The current gravel source is located east of town near Wainwright Inlet. Gravel is mined and hauled to the community during the winter months when the lagoon is frozen.

Olgoonik Corporation makes gravel available to shareholders at a reduced rate. Gravel is also available for capital projects. OC mines gravel as needed; projects that need a significant amount of gravel must be coordinated in advance so that it can be mined at the source during the winter months.

Depending on amount of construction activity in the coming years, there may be the need to conduct geotechnical surveys for another gravel source. Both the NSB and TNHA are wanting to develop additional housing to alleviate overcrowding. To do this, gravel will be needed to extend residential roads and other infrastructure.

¹²² Alaska Statute. §18 AAC 60.300. *Purpose, Scope, and Applicability: Classes of Landfills.*

¹²³ Tazruk, Edwin, NSB Village Supervisor – Wainwright. 2023. Personal communication.

Service Subsidies

North Slope residents pay a very small share of the costs of receiving service for safe water distribution, wastewater collection and treatment, electricity generation and distribution, home heating fuel, natural gas, and automotive gasoline, especially considering the enormity of capital investments and the cost of maintenance and operations. The approximate annual subsidy per resident for water and wastewater, solid waste disposal, and power generation were \$6,365 per Wainwright resident, based on 2017 expenditures, the last year complete data was available. While the 2017 estimate is not recent, it provides an understanding of the costs incurred by the NSB to provide services. Additionally, the cost of infrastructure development, expansion, and upgrades which can cost borough one hundred million dollars or more annually through the capital program.¹²⁴

Water & Wastewater Subsidies. The North Slope Borough operates the water and wastewater treatment and distribution system in Wainwright. General fund expenses to

operate water and wastewater infrastructure were \$664,452 in FY 217/2018, approximately \$3,572 per household. Household utility service rates were \$69 per month. This figure does not include capital costs for developing the heavy equipment, upgrades, repairs, maintenance to the system or the water and wastewater treatment plants.

Power Subsidies. The North Slope Borough owns and maintains power generation facilities in all of its communities except Utqiagvik, where the Barrow Utilities & Electrical Cooperative Inc. (BUECI) operates the power generation facility. Like the water and wastewater systems, the NSB highly subsidizes power generation, connections, and operating costs. Power is managed through the Power and Light Fund. This fund includes the power-generating activities for the North Slope communities of Anaktuvuk Pass, Kaktovik, Nuiqsut, Point Hope, Point Lay, Wainwright, and Atqasuk.

During 2017, expenses to generate and distribute power in the seven North Slope villages totaled \$26,839,423. Residents were charged a total of \$8,363,574 in service fees. The

Table 8.6: 2017 Utility Operating Cost Subsidies

Utility	Residential Fee	NSB Cost	Approximate annual subsidy per home
Water and Wastewater	\$69/month per residence	\$664,452	2,744
Power	Annual revenue of \$8,495,712 for seven villages	\$18,363,574 annually for seven villages	\$10,543
Solid Waste	\$0	\$310,854	\$1,671
Total			\$14,958

¹²⁴ North Slope Borough. 2019. *North Slope Borough Areawide Comprehensive Plan 2019 – 2039*.

borough also received an operating grant for \$132,138. Thus, the 2017 power subsidy across seven villages totaled \$18,363,574 – the amount that it cost the borough to provide power to village residents above the amount received in service fees and grants for the service.¹²⁵ The approximate 2017 annual power subsidy per village resident was \$6,365. The average subsidy per household was calculated as an average across all villages; the exact amount in Wainwright would be slightly different based on, the cost of operating the power plant and distributing power in Wainwright specifically. The total subsidy figure does not include capital costs for developing the constructing, permitting, maintaining, or upgrading the power plant or power grid. It also does not include other capital costs, like heavy equipment to maintain the plant and the powerlines.

Solid Waste Subsidies. The North Slope Borough owns and maintains the solid waste facility in Wainwright. For fiscal year 2017 – 2018, the NSB budgeted a total of \$310,854 for sanitation services in Wainwright.¹²⁶ Residents are not charged for trash pick-up or disposal. The subsidy for providing these services is the total annual budget, approximately \$565 per Wainwright resident annually. This figure does not include capital costs for developing the landfill, permitting, heavy equipment, or upgrades and maintenance.

Capital Project Planning

The NSB's revenue relies heavily on taxes generated from oil and gas infrastructure, and this income decreases over time as facilities age. The amount of NSB revenue directly impacts the

borough's bond rating, influencing the interest rate on borrowed money. Since bonds are the primary source of funding for NSB capital projects, it has become increasingly crucial for all North Slope communities to explore alternative funding options for capital projects when possible.

The funding for research and capital projects identified in this plan is expected to come from various sources, including state and federal funding, the NSB Capital Improvement Program (CIP), and other grant sources.

The North Slope Borough Annual Capital Improvement Program funding allocation process is a comprehensive and time-consuming procedure. It spans several months and involves review and input from numerous elected and appointed officials. The NSB Planning Department begins coordinating with local communities in the fall and winter prior to formal review by reviewing capital needs and assist in completing project request submissions. The NSB Planning Department also collaborates with NSB departments to prepare project analysis and requests, which are typically due in mid to late February.

The compiled requests are then presented to the Project Review Committee (PRC) during a workshop held in late March. The PRC assesses the funding recommendations based on the maximum bonding amount determined by the NSB Administration and Finance Department. After the PRC provides their recommendations, they are reviewed by the NSB Mayor, who has the authority to make changes before presenting them to the NSB Planning Commission. The

¹²⁵ North Slope Borough. 2017. *North Slope Borough Comprehensive Annual Financial Report July 1, 2016 – June 30, 2017*.

¹²⁶ North Slope Borough. 2017. *North Slope Borough Annual Budget FY 2017 – 18*.

Planning Commission holds a meeting in May to review the PRC and Mayor's recommendations, along with the NSB Six Year Capital Plan. The Commissioners have the authority to make edits to the recommendations before presenting them to the NSB Assembly.

By June 15th of the same fiscal year, the NSB is legally required to review and adopt the capital program through an ordinance. However, the capital program is not considered final until the voters approve the recommendations through

an ordinance section during the regular election in October.

The NSB meets with each village's city council to provide updates on capitably funded projects. They also request a priority listing of projects from each community. In 2023, the City of Wainwright prioritized specific capital projects for funding through the North Slope Borough Capital Improvement Program, as indicated in the Wainwright Steering Committee Resolution 2023-01. Priority capital projects are listed below.

1. Coastal Erosion Mitigation/Seawall Project

- Recent storms have caused significant damage to roads, beaches, and tundra near the shore in the city, placing homes and infrastructure at risk;
- Changes in climate and storm patterns put the community at risk for further damage;
- Coastal erosion mitigation provided by the current rock installation has been effective, but needs to be extended to other vulnerable areas;
- Additional funding will be needed for this project.

2. Wainwright Public Works Project

- This project is integral to the core functions of several of the North Slope Borough's powers and responsibilities;
- This project is well advanced in terms of design, funding, and contractual commitments;
- This project has been ongoing for several years;
- This project is nearly fully funded.

3. Wainwright Water and Wastewater Treatment Plant Upgrades

- This project is integral to the core functions of several of the North Slope Borough's powers and responsibilities;
- This project is well advanced in terms of design, funding and contractual commitments;
- This project has been ongoing for several years;
- Phase 1 of this project is nearly funded; additional funding will be needed for any additional phases.

4. Wainwright Power Plant Upgrades

- This project is also integral to the core functions of several of the North Slope Borough's powers and responsibilities;
- Significant power outages have been ongoing for several years;

- This project was, according to the latest 6-year CIP plan, scheduled to receive initial funding in 2021 (presumably for engineering and design work) but did not receive that funding.

5. Alak School Upgrade

- This project is integral to the core functions of several of the North Slope Borough's powers and responsibilities;
- The educational future, as well as the life, safety, and health of our students, are of the highest priorities;
- North Slope Ordinance 2022-108 allocates \$2,740,000 in General Obligation Bonds for Phase one of the renovation.

6. Housing, including the development of necessary access and utilities

- Housing has been a priority for the community of Wainwright for many years;
- The community of Wainwright has recently proposed to work collaboratively with the North Slope Borough to develop and implement housing solutions in our community under the Mayor's Housing Initiative;
- Village of Wainwright tribal roads funding may be available for a portion of the access roads for the proposed housing development;
- Bonding was approved for North Slope Borough Area Wide Housing under Ordinance 2022-04 as part of Resolution 53-2022.

7. Access Road to the Dew Line Site

- Easier, quicker access to gravel sources in Wainwright will help reduce the cost of new housing and subdivision development;
- Development of roads on that side of town could open up access to higher ground for future housing development and other construction;
- Additional funding will be needed for this project.

8. Gravel

- Gravel is an ongoing need for roads, and over development;
- Additional funding will be needed for this project.

9. Community Wide Road Lift

- Road levels have decreased over the years, resulting in water flow over the roads;
- Erosion of the roads has contributed to flooding throughout the community;
- Additional funding will be needed for this project.

10. Heavy Equipment for Public Works

- A grader and rock truck are needed to provide necessary and effective maintenance of the airport runway and roads in the community;
- This supports the Wainwright Public Works request for said equipment;
- Additional funding will be needed for this project.

Table 8.7 presents a list of potential capital projects that may be needed or desired in Wainwright over the next 5, 10, and 20 years. The projects listed in the table are not ranked in terms of priority.

Table 8.7: Potential Capital Projects over a 5, 10 and 20-Year Period

Type of Facility	1 – 5 Years	6 – 10 Years	11 – 20 Years
Community Buildings and Facilities	Investigate funding for extending the seawall		
	Continue to investigate funding for a cultural center	Continue to investigate funding for a cultural center	
	Seek funding to ensure continued availability of gravel for community infrastructure projects and resident use	Seek funding to ensure continued availability of gravel for community infrastructure projects and resident use	
Housing	Conduct a comprehensive housing needs study		
	Rehabilitate existing vacant housing for occupancy providing energy-efficient systems	Retrofit existing housing with energy-efficient systems	
	Plat new subdivision(s) for future residential development	Construct new energy-efficient homes	
	Replace residential fuel tanks		
Landfill	Seek design funding for a new landfill cell(s)	Seek construction funding for a new landfill cell(s)	
Power Generation	Seek funding to extend power utilities to platted subdivision		
	Seek funding for an upgrade to the power plant		
	Seek funding to update alternative power potential	Seek funding for alternative energy system development	

Type of Facility	1 – 5 Years	6 – 10 Years	11 – 20 Years
Recreational Facilities	Seek funding to design and construct a recreational center	Construct recreational center	Construct recreational center
	Construct skatepark		
Roads / Trails / Marine	Seek design funding for road a to the DEW Line	Seek design/construction funding for a road to the DEW Line	Seek design/construction funding for a road to the DEW Line
	Evaluate road maintenance needs, especially those that are showing excessive wear; plan for immediate or long-term repairs and upgrades	Evaluate road maintenance needs, especially those that are showing excessive wear; plan for immediate or long-term repairs and upgrades	Evaluate road maintenance needs, especially those that are showing excessive wear; plan for immediate or long-term repairs and upgrades
	Implement a public transportation bus service		
	Seek funding for boat dock(s)	Seek funding for boat dock(s)	
	Inspect and repair / replace / add culverts as needed	Inspect and repair / replace / add culverts as needed	Inspect and repair / replace / add culverts as needed
School Facilities	Seek upgrade for Alak School		
Water and Sewer	Install/repair/replace heat trace to prevent freeze-ups	Redundant water source Evaluate water storage needs	Evaluate long-term drinking water supply capacity, water quality, treatment and distribution needs
	Seek funding to design a direct bury alternative water and sewer system	Seek funding for constructing an alternative water and sewer system	
	Seek funding for water and wastewater treatment plant upgrades	Water and sewer extensions to the new subdivision and to those homes that do not yet have connections	

Map 8.7: Wainwright Future Projects



9

Housing



Adequate housing is not only a fundamental necessity but is also crucial in fostering a sense of security and well-being for every household and community. The quality and accessibility of housing, including options for low-income households and emergency situations, are of great importance to the residents of Wainwright. However, in rural Alaska, communities face numerous housing-related challenges, which can impede the ability to meet every resident's housing needs. These challenges include high transportation costs for shipping building materials to remote areas, aging infrastructure that demands costly maintenance and upgrades, and exorbitantly high energy costs. These factors, among others, contribute to limited housing options and expensive housing throughout the North Slope region.

The provision of housing in the North Slope Borough has been a persistent concern for

decades. Despite significant changes in household demographics over the past fifty years, the 2019 NSB Economic Profile and Census Report highlights that the borough and its residents continue to grapple with ongoing challenges in securing adequate housing. These challenges are not unique to a single village; they persist across all communities on the North Slope. The prevalence of older housing stock, limited housing options, predominantly single-family homes, an acute scarcity of rental housing, and the persistent issue of overcrowded households add to the region's housing affordability issues. To overcome these hurdles, a collaborative effort is required, involving diverse partners ranging from local city governments and the North Slope Borough to housing authorities, Native corporations, and state and federal agencies.



Current Housing Conditions

Table 9.1 provides an overview of past and current housing characteristics in Wainwright as reported by the North Slope Borough Economic Profile and Census Report between 2010 and 2019.¹²⁷ These are discussed in more detail in this chapter.

Homes and Households. The housing stock in Wainwright is primarily composed of single-family residences (SFR), with 163 units, making up nearly 90 percent of the total housing. There are also 17 units in multifamily residential (MFR) buildings, which includes the senior housing 5-plex. The 2010 North Slope Borough Economic Profile & Census Report estimated that there were 165 homes in Wainwright; the 2015 NSB Census estimated 193 units. And more recently, the 2019 Census, reported 184 housing units, an estimated 19 additional homes over the last ten years.¹²⁸ The NSB Assessing Division records

indicate seven new homes were constructed over the last decade: five in 2014, one in 2015, and one in 2016.¹²⁹ All of the new housing constructed since 2009 has been single-family housing. The NSB Census and the NSB Assessing Division seek to collect data on every home in a community but sometimes have conflicting results, such as the total number of housing units or single family homes.

Wainwright have seen decreases in the mean number of people in Iñupiat households over the last five years from 3.71 to 3.66. Wainwright has

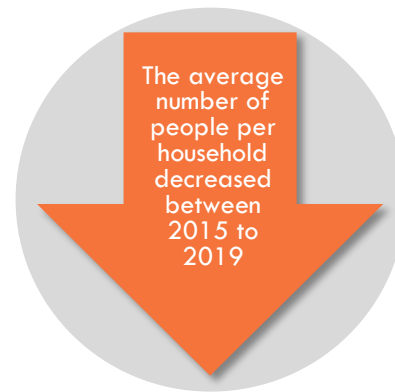


Table 9.1: Housing At-A-Glance

Housing Characteristic	2010		2015		2019	
	Number	Percent	Number	Percent	Number	Percent
Total population	546	100%	550	100%	555	100%
Total housing units	165	100%	193	100%	184	100%
Renter-Occupied	43	26.4%	NA	NA	33	27.5%
Owner-Occupied	72	73.6%	NA	NA	87	72.5%
Vacant Units	7	4.2%	7	3.7%	22	12.0%
Average number of people per household	3.71		3.62		3.66	
Percent of overcrowding	Not available		Not available		6.6%	
Percent of severe overcrowding	Not available		Not available		33.6%	

¹²⁷ North Slope Borough. 2019 Economic Profile and Census Report.

¹²⁸ Ibid

¹²⁹ North Slope Borough. 2023. Wainwright Housing Count.

the second highest rate of overcrowding on the North Slope at the same time that the number of people per household has decreased overall over the last ten years.¹³⁰

Table 9.2: Type of Housing, 2023¹³¹

Type of Housing	Number	Percent
Total housing units	180	100%
Single family homes	163	90.5%
Multifamily homes	17	9.5%

In Wainwright, the NSB Assessing Division reports that the minimum assessed value of homes is \$13,100 with a maximum value of \$234,200. The average assessed value is \$92,682. After applying property tax exemptions, the taxable value of homes ranges from \$0 to \$159,200. Property taxes range from a low of \$0 to a high of \$2,348. Wainwright homeowners pay an average of \$472 in property taxes annually.¹³²

Housing Occupancy. There are approximately 22 vacant homes; 12 percent of housing in Wainwright is considered vacant, an increase of 8.3 percent over just four years.¹³³ It is possible that the NSB Census data for this survey question is flawed or that there are houses that have become delapidated and have subsequently become vacant. There is still an extremely high rate of overcrowding. This, coupled with residents voicing concerns about the severe lack of housing and that more homes need to be constructed or rehabilitated to ease the pressure

on overcrowded households, implying that there are not vacant homes available for occupancy.

Home Ownership. Over the past two decades, home ownership in all communities of the North Slope has seen a steady increase. Since 2010, the percentage of housing ownership across all NSB communities has risen from 46 percent to 60 percent. The number of homeowners who own their homes outright, without a mortgage payment, has more than doubled since the 2003 NSB Census, growing from 21 percent to 47 percent. Furthermore, Iñupiat households show a higher rate of homeownership compared to non-Iñupiat households, with their ownership increasing at a faster pace.

During the same period, the occupancy of rental units across the North Slope declined. Currently, the percentage of occupied rental housing in the NSB stands at 40 percent, down from 54 percent in 2003. In comparison, the owner-occupied housing rate of 60 percent in the NSB aligns with the statewide rate of 63.7 percent, as well as the rates of 60.1 percent in Anchorage, 57.1 percent in the Northwest Arctic Borough, and 60.6 percent in the Nome Census area.

In Wainwright specifically, the homeownership rate is 72.5 percent, similar to the ownership rate in Point Lay and surpassed only by Anaktuvuk Pass at 82.1 percent. Utqiagvik has the lowest rate of homeownership on the North Slope, at 43.7 percent. Eight five percent of Wainwright homeowners own their home without a mortgage.¹³⁴

Rental rates in Wainwright, averaging \$620 per month, are in line with those in other North

¹³⁰ North Slope Borough. *2019 Economic Profile and Census Report*.

¹³¹ North Slope Borough. 2023. Assessing Division. Personal Communication.

¹³² Moore, Mari, Assessor, North Slope Borough. 2023. Personal communication.

¹³³ North Slope Borough. *2019 Economic Profile and Census Report*.

¹³⁴ Ibid

Slope villages such as Point Lay and Atkasuk. The average monthly mortgage payment in Wainwright is \$581, which also aligns with the rates observed in other villages. Most rental homes in Wainwright are privately owned (63 percent).¹³⁵

Overcrowding and Homelessness. 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.^{136, 137}

In rural Alaska, the both the high costs of construction labor coupled and transporting construction materials create a situation where local residents aren't able to afford to build new homes. On the North Slope, the responsibility of augmenting the cost of new housing is taken up by the North Slope Borough, the Taġiugmiullu Nunamiullu Housing Authority (TNHA), and local housing authorities. It is clear, that with an average 2019 Iñupiat household income of \$46,064, Wainwright residents will need funding beyond a home loan, to be able to construct a home.

The lack of housing leads to families, relatives, and friends sharing a housing unit. Even in rural areas where housing might be available, the high costs associated with fuel, rent, food, and other housing expenses can lead extended families to share a housing unit to spread the financial burden of supporting a home. Overcrowding in rural communities is another facet of

homelessness, with family and friends choosing to share a home rather than be exposed to severe weather.¹³⁸

In 2019, approximately 6.4 percent of 16,100 of the 257,000 occupied homes in Alaska were overcrowded or severely overcrowded¹³⁹. At the same time, the national housing overcrowding rate was 3.4 percent.¹⁴⁰ The percentage of Alaska homes that are too small for the number of occupants is two times greater than the national rate. The highest rates of overcrowding are in rural areas where the population majority is Alaska Native, with nearly half of all households in some areas being overcrowded.¹⁴¹ The 2018 Alaska Housing Assessment, the most recent report available, estimated that 27 percent of all North Slope households live in overcrowded conditions; 15 percent of the population in the seven remote North Slope villages resided in overcrowded conditions and another 12 percent in severely overcrowded homes, more than eight times the national average.¹⁴² The 2018 rate of overcrowding is essentially unchanged since 2014 when the AHFC Housing Assessment estimated that approximately 26 percent of North Slope households lived in overcrowded conditions: 14 percent were overcrowded and another 12 percent were severely overcrowded.¹⁴³

Non-hub NSB communities, such as Wainwright, experience even higher overcrowding rates (40 percent) with seven percent classified as overcrowded and 33 percent classified as

¹³⁵ North Slope Borough. 2019. *2019 Economic Profile and Census Report*.

¹³⁶ Habitable rooms are any spaces separated by a partial or complete wall, including kitchens, living rooms, dining rooms, bedrooms, etc., but not including bathrooms, porches, balconies, foyers, halls, or unfinished basements.

¹³⁷ U.S. Department of Housing and Urban Development. 2007. *Measuring Overcrowding in Housing*.

¹³⁸ Alaska Housing Finance Corporation. 2018. *Rural overcrowding: A different view of homelessness*.

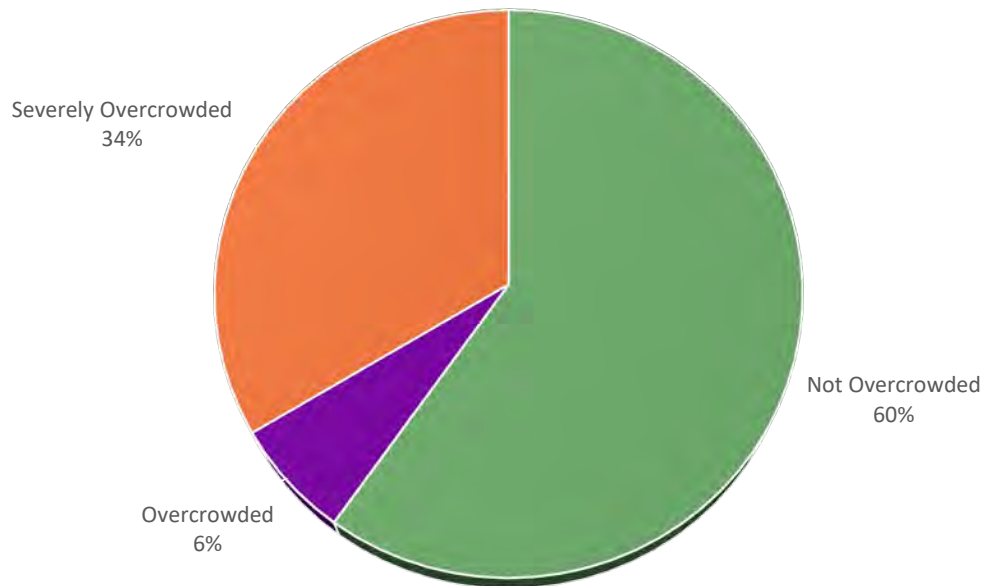
¹³⁹ Alaska Housing Finance Corporation. 2018. *2018 Housing Assessment*.

¹⁴⁰ U.S. Census Bureau. 2018. American Community Survey. *ACS 1-Year Estimates Tenure by Occupants per Room*.

¹⁴¹ Alaska Housing Finance Corporation. 2018. *2018 Housing Assessment*.

¹⁴² Ibid

¹⁴³ Wiltse, N., Madden, D., Valentine, B., Stevens, V. 2014. *2013 Alaska Housing Assessment*.

Figure 9.1: Housing Overcrowding

severely overcrowded.¹⁴⁴ Nearly all of the overcrowded and severely overcrowded homes are Iñupiat households. Nuiqsut is the only community whose residents are living in more overcrowded conditions than Wainwright; nearly half are living in overcrowded or severely overcrowded homes.¹⁴⁵

Homelessness. In rural areas, building new homes can be so cost prohibitive that the only way to stave off homelessness is by living in overcrowded houses. A 2017 national assessment of American Indian/Alaska Native (AI/AN) and Hawaiian housing needs conducted by HUD found that overcrowding issues in tribal areas are mostly due to households taking in family members who would otherwise be homeless.¹⁴⁶ This is especially true in a region like the North Slope, where the cold climate

necessitates housing community members that otherwise would be living on the streets.

In rural Alaska, deep familial ties and a spirit and culture of helping each other means that families house those need rather than turn them away, especially during the cold winter months. Without shelter, some would easily not survive the harsh winters. Homeless and overcrowded conditions are synonymous in rural Alaska.

Housing Age and Condition. In Wainwright, the average size of homes is approximately 1,109 square feet, which is similar to the sizes of homes found in other villages within the North Slope region. Comparatively, Point Lay has the smallest average home size at around 777 square feet, while Atkasuk has the largest at approximately 1,445 square feet. Homes on the North Slope tend to be smaller than the average house size in

¹⁴⁴ North Slope Borough. 2019. *2019 Economic Profile and Census Report*.

¹⁴⁵ North Slope Borough. 2019. *2019 Economic Profile and Census Report*.

¹⁴⁶ U.S. Department of Housing and Urban Development. 2017. *Housing Needs of American Indians and Alaska Natives in Tribal Areas*.

Alaska and the United States as a whole, where the average sizes are approximately 1,789 and 1,721 square feet, respectively.¹⁴⁷

The NSB Assessing Division keeps track of the age of structures based on community and type. According to the Assessing Division records, the average year of construction for single-family homes in Wainwright was in the year 1976. Due to the harsh Arctic conditions and limited availability of experienced tradespeople and housing maintenance materials, many of these homes are overdue for renovations and weatherization upgrades.

Overcrowded and dilapidated housing has been a concern common in all North Slope villages during village comprehensive plan workshops held between 2014 and 2023. The recognition of this issue led the North Slope Borough Assembly to allocating significant capital funds to facilitate housing development during the CIP annual funding process. It has also led to the borough taking a more active role in housing in recent years, starting in 2011 with the formation of the Housing Solutions Group, a governmental division that was housed within the Mayor's Office, to reestablishing the standalone Housing Department within the NSB government in 2018.

According to the 2019 NSB Census, over 80 percent of the housing in Wainwright is more than 30 years old. In Wainwright, new housing construction has been limited, with only four percent of the housing stock built between 2009 and 2019. This slow pace of new construction is primarily attributed to the challenges associated with being a remote community without year-round road access.¹⁴⁸

Wainwright faces difficulties in accessing local licensed contractors or tradespersons who can support residents in constructing new homes or maintaining and repairing existing home systems. Skilled carpenters, electricians, plumbers, and other tradespersons are flown into the village when new construction, weatherization upgrades, or repairs are required. The lack of readily available local tradespersons is a contributing factor to the limited progress in constructing new housing and addressing maintenance needs in Wainwright. The Olgoonik Corporation in conjunction with the NSB created a training and apprenticeship program for critical building trades. It launched in 2021.

Affordability. The U.S. Department of Housing and Urban Development has a definition for affordable housing based on the percentage of household income, where the cost should not exceed 30 percent.¹⁴⁹ However, this definition has limitations, particularly in unique locations like Wainwright. High transportation and construction costs make the measure of affordability unreliable.

In 2019, the average household income for an Iñupiat family in Wainwright was \$46,064. According to the HUD definition, housing would need to cost less than \$13,819 annually or approximately \$1,152 per month for the average household in Wainwright. The average costs for owner-occupied housing were \$580, while renters paid \$620.¹⁵⁰ These figures suggest that most homeowners and renters in Wainwright are not burdened by housing costs. However, residents also face additional monthly expenses of \$539 for heating, electricity, and water

¹⁴⁷ U.S. Census Bureau. 2019. *American Housing Survey*.

¹⁴⁸ Ibid

¹⁴⁹ U.S. Department of Housing and Urban Development. 2016. *Affordable Housing*.

¹⁵⁰ North Slope Borough. 2019. *2019 Economic Profile and Census Report*.

services, which contribute to the overall cost of maintaining a home. Furthermore, the need for repairs and maintenance, especially in rural Alaska, can significantly increase home expenditures.

The cost of building a home in Alaska’s Arctic is completely out of reach for nearly all residents. TNHA has estimated that a two-bedroom home on the North Slope costs approximately \$776,000 to construct. The cost is so high above the average cost of home elsewhere in the U.S. that, for homes that are fully or partially funded by HUD, TNHA is required to submit justification and receive a written waiver.¹⁵¹

Property taxes can also impose a financial burden on homeowners, although exemptions are available. The North Slope Borough, like many other communities in Alaska, offers property tax exemptions based on certain criteria that do not alter the tax rate but instead reduces the taxable value of a home. The borough provides exemptions of \$75,000 for owner-occupied homes,¹⁵² \$150,000 for senior citizens and disabled veterans, and \$10,000 to \$20,000 for volunteer firefighters or emergency medical services providers. Homeowners who qualify for multiple exemptions may be able to

substantially reduce or eliminate their property tax obligations. Additionally, the North Slope Borough has an income-based grant program that offers property tax relief by providing financial assistance for property tax debt.¹⁵³

The lack of available housing and the high construction costs are significant factors contributing to the housing shortage in Wainwright. The problem of overcrowding and severe overcrowding goes beyond mere affordability issues. It is primarily the scarcity of housing options that has the greatest impact on the community.

Heating and Plumbing. The majority of homes in Wainwright are heated using diesel oil, which is delivered annually from off Slope. Only about two percent rely on electricity for heating. Approximately 86 percent of homes have indoor plumbing. Among those homes, about 83 percent have piped water into the house, while 14 percent have holding tanks. The remaining three percent fall under the category of *Other*. The average cost for heat, electricity, and water is \$539 monthly.¹⁵⁴ All of the five Lifewater residential sewage treatment plants have been removed and replaced with holding tanks.

Table 9.3: Wainwright Housing Ownership

Renter Occupied			Owner Occupied			
TNHA Rental	NSB Rental	Other	TNHA (Mutual Help)	Owned with Mortgage/Loan	Owned with Low Income Protection Program	Owned Free and Clear
4	8	21	6	5	3	73

¹⁵¹ Hagle, Griffin, Chief Executive Officer. TNHA. 2023. Personal communication.

¹⁵² Increased from \$50,000 in 2023

¹⁵³ Moore, Mari, Assessor, North Slope Borough. 2023. Personal communication.

¹⁵⁴ North Slope Borough. 2019. *2019 Economic Profile and Census Report*.

Wainwright residents use fuel tanks at their homes for storing heating fuel. The tanks are becoming unserviceable and will need to be replaced in the coming years.

New Construction

There have not been many homes constructed in Wainwright recently. The Village of Wainwright and TNHA are working together to change that. The single-family home at 802 Main Street has been vacant. The team received Imminent Threat Grant through HUD to demolish the existing structure; a new three-bedroom house will be constructed in its place. Work is expected to begin work in 2024.

TNHA has also acquired four lots from Olgoonik Corporation. Three of them do not have road connections. TNHA expects to develop them for housing in the late 2020s for lower income residents.

The NSB Housing Department is hoping to construct 20 homes in Wainwright but have not determined where those homes can be placed. It may be that roads and other infrastructure need to be constructed prior to developing new homes.¹⁵⁵

Housing Roles

Housing authorities are independent agencies organized under state law to leverage funding from HUD. The HUD places certain guidelines on housing authorities' operations. However, they have their own boards, managers, and often rules and guidelines. A housing authority's day-to-day operations are overseen by an executive director. There is not a housing development industry in Wainwright as there are in most

communities in the U.S. Without this industry, the NSB, the regional housing authority, the City and Village of Wainwright, and residents must navigate the path without private industry assistance.

NSB Housing Department. The NSB Housing Department was created in 2018 to address critical housing needs across the Arctic Slope. The department focuses on ensuring that the existing housing supply is well maintained while also advocating for additional housing to be built.

The NSB Housing Department offers assistance with housing repairs, such as heat loss, water service failures, electrical hazards, focusing on those households with small children, Elders, those with disabilities, or low income. There is also a No-Interest Home Loan Program. The program is intended to increase the to increase the number of livable owner-occupied homes, as new construction or for renovation. The multiplexes in Utqiagvik and in some villages are managed by the NSB Housing Department.

Tagiugmiullu Nunamiullu Housing Authority. TNHA is the regional housing authority for the North Slope. Five tribes have authorized TNHA to act on their behalf as their Tribally Designated Housing Entity (TDHE): the Native Village of Atkasuk, the Native Village of Kaktovik, the Native Village of Nuiqsut, the Native Village of Point Lay, the Naqsrarmiut Tribal Council (Anaktuvuk Pass), and the Village of Wainwright. TNHA manages housing projects and block grant funding through the Native American Housing and Self-Determination Act (NAHASDA) and other federal and state programs. TNHA offers homeownership assistance that includes

¹⁵⁵ Benson, Barbara, North Slope Borough Housing Department. 2023. Personal communication.

admissions and occupancy, counseling, inspections, and work order fulfillment.

TNHA is actively working on constructing new homes on the North Slope, including Wainwright. They are also seeking innovative ways to reduce costs for developing additional housing, including the potential to have some construction equipment and supplies delivered at a lower cost through the U.S. Department of Defense Innovative Readiness Training program and using cost-effective and high-performing materials like structural insulated panels.¹⁵⁶

Land Availability and Infill Development

As great as the need for additional housing in Wainwright, there are not many available lots for development. The NSB is seeking to purchase 20 lots in the community for residential development. There are few platted parcels that are undeveloped. On the south end of the village is platted and undeveloped road extensions for Maqpik, Tuuruarak, and Sikutagiak roads and Panik Road. The combined total of these parcels for development would be seven lots. There is potential to extend Maqpik and Tuuruarak roads further north into the property north of the subdivision and south of Nashoaklook Road. This property is owned by the NSB. However, the deed stipulates that the property is reserved for aviation uses only.¹⁵⁷ There is also some property across from Alak School on Tununiq Road that could accommodate several houses but would need to be replatted.

Because the cost to extend water and sewer service is expensive and the wait for service is long, any development within the established

system would be beneficial and less cost prohibitive. This could include accessory dwellings on parcels with homes also ready constructed. A 2012 study by the NSB Planning Department identified 18 lots within the established community footprint that could be developed as in-fill property.¹⁵⁸ A lot-by-lot study of use and ownership in the community would be beneficial to determine where additional housing units could be constructed.

Housing Needs

There is a current need for additional housing units in Wainwright. TNHA estimated a shortage of 78 houses in Wainwright in 2014. Without more up-to-date analysis on the need today, the assumption is that the current need is 78 homes plus the number needed to accommodate the population growth since 2014. Today's current housing need is approximately 107 homes. If not new homes are built, in 2030, a total of additional 131 homes will be needed and by 2040, 158 additional homes will be need.

¹⁵⁶ Hagle, Griffin, Chief Executive Officer. TNHA. 2023. Personal communication.

¹⁵⁷ Benson, Barbara, North Slope Borough Housing Department. 2023. Personal communication.

¹⁵⁸ North Slope Borough. 2021. Water and Sewer System: *Historical Overview of all NSB Communities*. Assembly Workshop. February 1, 2021.

10

Economy, Health, and Education



Economy

The economy of Wainwright is based on a combination of income sources, reflecting a blend of traditional subsistence practices and modern cash-based activities. This section delves into the significance of subsistence activities in shaping the local economy, followed by income generated from employment, corporate dividends, and government payments.

Like many villages situated on the North Slope, Wainwright embraces both subsistence practices and cash-based transactions as integral components of its economic foundation. The subsistence economy, in particular, holds a vital role within the community, deeply rooted in cultural heritage and tradition. The multifaceted subsistence economy extends beyond mere sustenance. It fosters a spirit of interdependence and cooperation among community members through the practice of resource sharing. Within the village, residents participate in the exchange of food, resources, and skills, creating a subsistence-based economy that complements cash-based transactions. Moreover, community sharing strengthens social bonds and ensures the continuance of the traditional Iñupiaq culture. Amidst the robust subsistence activities, the cash-based economy is also important. Employment opportunities within the village contributes to the financial well-being of individuals and families. Employment wages provide financial stability and contribute to the growth of the local economy. Additionally, Olgoonik Corporation and ASRC distribute dividends to shareholders in the community. These dividends serve as an additional source of income. Government payments from federal and state programs provide essential support to

community members, bolstering financial security.

While the monetary economy encompasses a range of income sources, including wages, corporate dividends, and government payments, the subsistence economy stands as a cornerstone of Wainwright's identity. Its activities of gathering, hunting, fishing, trading, and sharing exemplify the community's deep connection to its heritage and the land it inhabits. The coexistence of subsistence and cash-based activities creates a unique economy.

Employment. Employment opportunities mainly consist of jobs in local government, the school district, and village corporations. The labor force in Wainwright includes all individuals aged 16 – 64. Between 2003 and 2019, the size of the labor force has fluctuated slightly, from a high of 61.2 percent of the population in 2010 to 55.7 percent in 2019.¹⁵⁹ The labor force stands at approximately 60 percent of the community today, as shown in Table 10.1. The distribution of ages has remained relatively constant since 2010. Noteworthy is the decrease in residents that are 65 years of age or old between 2003 and 2019, dropping by two percent.¹⁶⁰

While the percent of residents employed in a full-time permanent position has remained relatively constant over the last twenty years, the unemployment rate in Wainwright has risen dramatically since 2015, corresponding with fewer part-time and seasonal work, show in both Table 10.2 and Figure 10.1. Figure 10.1 clearly

¹⁵⁹ North Slope Borough. 2019. *2019 Economic Profile and Census Report*.

¹⁶⁰ Ibid

Table 10.1: Individuals in Labor Force by Age Group

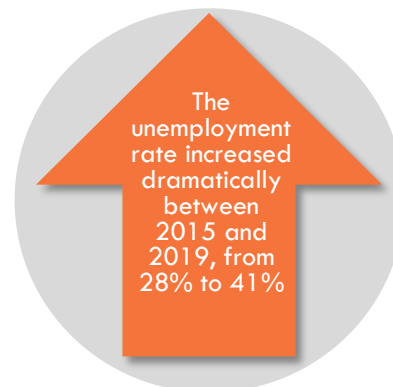
Age Group	2003	2010	2015	2019
0-15	36.1%	32.0%	32.9%	33.3%
16-64	55.7%	61.2%	60.4%	60.5%
65+	8.2%	6.8%	6.7%	6.2%

illustrates the increase in unemployment with the decrease in seasonal, temporary, and part time work. In 2018, the unemployment rate in Wainwright was over 10 times higher than the national unemployment rate of 3.9 percent.¹⁶¹⁻

Income. The average annual household income for Iñupiat households in Wainwright in 2019 was \$46,063 with a per capita income of \$12,257.¹⁶² Both the Iñupiat household income and per capita income have stayed steady since 2015, which estimated the average Iñupiat household income at \$46,862 and the per capita income of \$10,840.¹⁶³ Between 1993 and 2019, Iñupiat household income has not increased dramatically, although it has varied considerably between census years. Between these two census years, the average Iñupiat household income has increased \$9,619, not accounting for

inflation. Figure 10.2 depicts the relationship between Iñupiat household income and unemployment over this 26-year period.

There are three primary sources of income for Iñupiat households in the North Slope Borough: wage income, Native corporation dividends, and

**Table 10.2: Type of Employment by Survey Year**

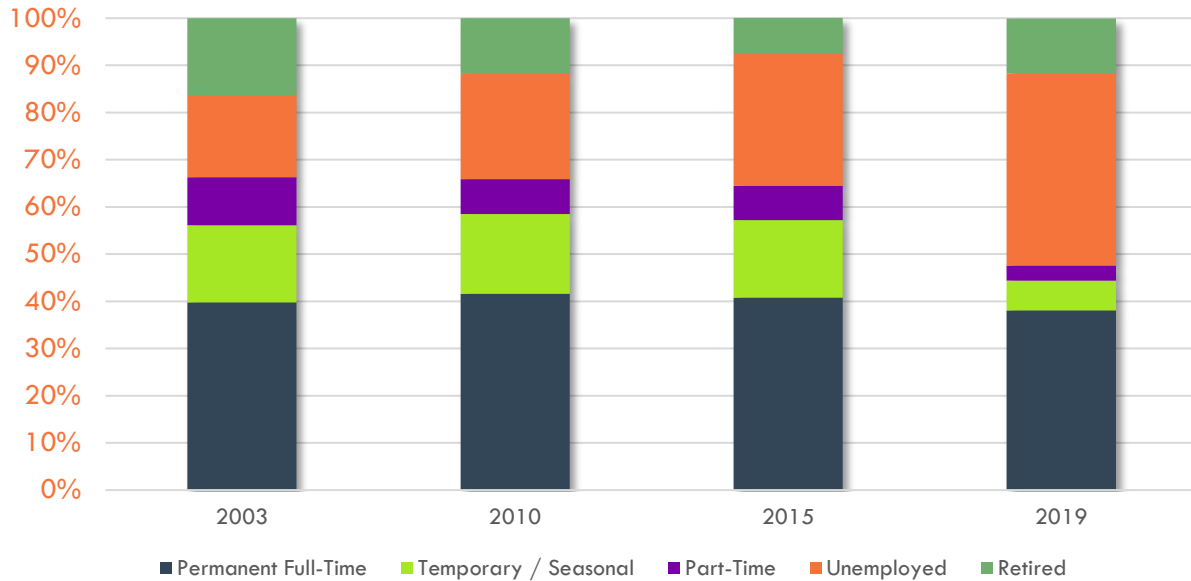
Type of Employment	2003	2010	2015	2019
Permanent Full-Time	39.8%	41.6%	40.8%	38.1%
Temporary / Seasonal	16.3%	16.9%	16.4%	6.3%
Part-Time	10.2%	7.4%	7.3%	3.2%
Unemployed	17.4%	22.3%	27.9%	40.7%
Retired	16.3%	11.8%	7.7%	11.6%

¹⁶¹ North Slope Borough. 2019. *2019 Economic Profile and Census Report*.

¹⁶² Weighted

¹⁶³ Per capita income in 2019 is estimated using survey income information from 88 percent of Iñupiat individuals.

Figure 10.1: Type of Employment by Survey Year



PFD dividends. Forty-seven percent of Wainwright’s total Iñupiat household income is derived from dividend payments, primarily from ASRC, Olgoonik Corporation, and the Alaska PFD.¹⁶⁴ Only about 22 percent of the Iñupiat households in Wainwright have wage income. Other major sources of income in Wainwright include social security/pension/ retirement income and food stamps/child support income.¹⁶⁵ Figure 10.3 details the average Iñupiat household contribution of income sources.

Olgoonik Corporation was established in 1973 and owns surface rights to land in the vicinity of Wainwright, with the exception of the DEW Line site, where Olgoonik owns both the surface and subsurface rights. Shareholders that enrolled when the corporation was founded are Class A shareholders. In 2008, 2013, and 2021, Olgoonik Corporation approved issuing additional shares to Class B shareholders for those that were born after the corporation was formed. As of 2023, there are more than 1,600 Class A and Class B shareholders, with approximately 32 percent residing in Wainwright. The corporation will

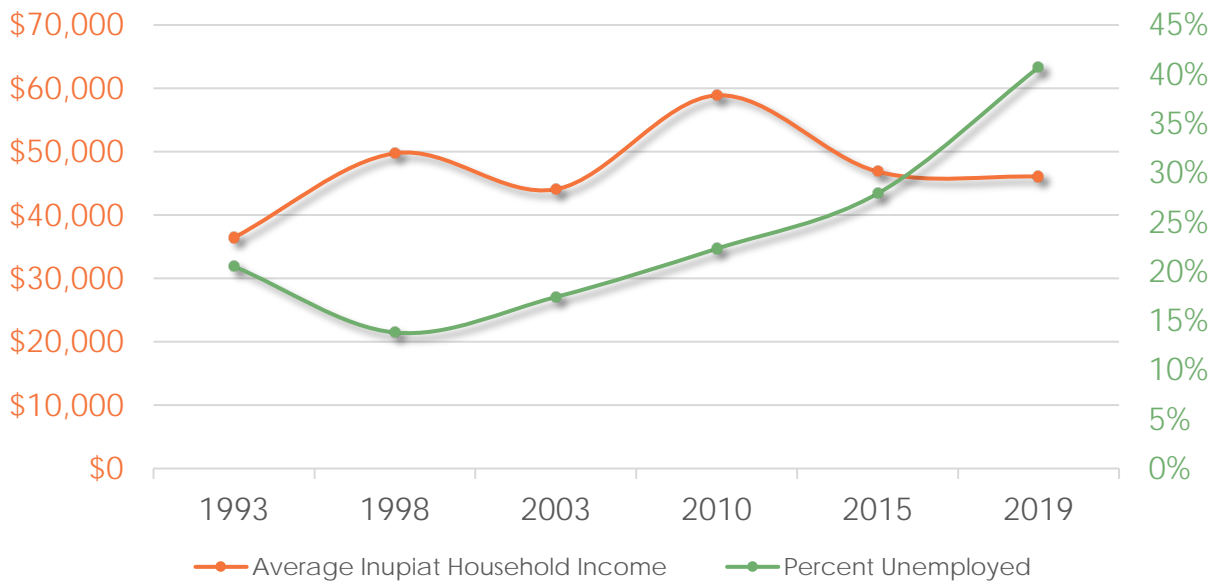
Table 10.3: Average Iñupiat Income

Income	1993	1998	2003	2010	2015	2019
Average Iñupiat Household Income	\$36,445	\$49,751	\$44,073	\$58,889	\$46,862	\$46,064
Average Iñupiat Per Capita Income	\$8,769	\$12,451	\$26,201	\$15,829	\$11,522	\$12,780

¹⁶⁴ North Slope Borough. 2019. *2019 Economic Profile and Census Report*.

¹⁶⁵ Ibid

Figure 10.2: Iñupiat Household Income and Unemployment



continue to enroll Class B shareholders as stock is available.¹⁶⁶

The Alaska Permanent Fund provides an annual dividend to each qualifying resident. The PFD was created to allow Alaskans to share in a portion of the State’s nonrenewable minerals revenue, which benefits present and future generations. The dividend amount varies each fiscal year depending on annual oil investment revenues, and equal payments are generated annually to qualifying Alaska residents. Between 2018 and 2022, the PFD was between \$1,022 and \$2,622.

Among the North Slope communities, Wainwright stands out with the highest reliance on dividend income. A heavy dependency on dividend income leads to a notable income disparity between Iñupiat households in Wainwright and the average North Slope Iñupiaq household. After Point Lay, Wainwright's Iñupiat

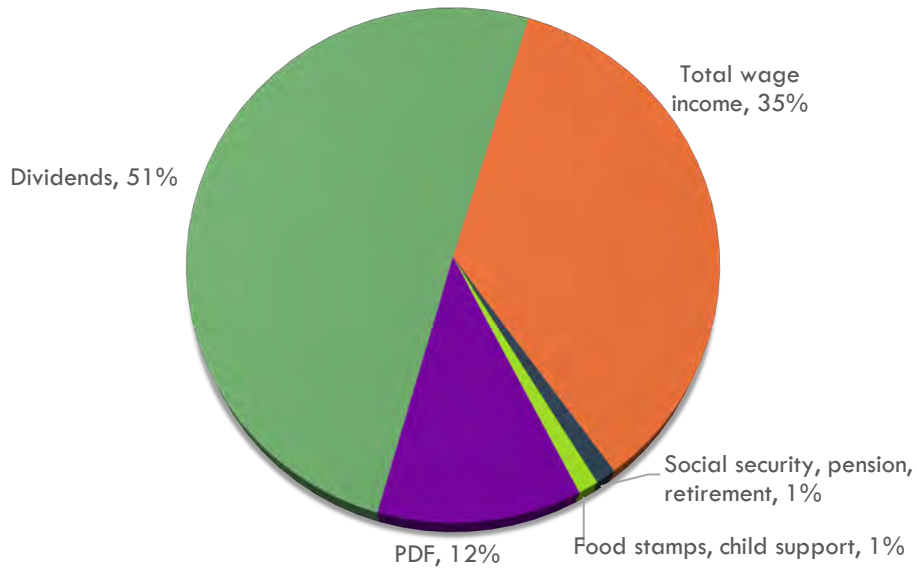
households have the second lowest average household income compared to all the communities on the North Slope. Wainwright has a significant portion, 39 percent, of its population living below the poverty threshold. Wainwright’s Iñupiat residents also face a high proportion of food insecurity. A lack of income is not a hindrance to the consumption of subsistence foods. Wainwright is one of the North Slope’s community that has the majority of households with a very high (greater than 50 percent) dependence on subsistence foods.¹⁶⁷

Subsistence Contribution to the Economy.

Subsistence activities undoubtedly contributes a significant amount of economic value through provision of goods and services. Considering the high costs of goods, fuel, and transportation, subsistence harvests reduce food costs by providing a local source of nutrition. In addition

¹⁶⁶ Knutsen, David. 2023. Personal communication.
¹⁶⁷ North Slope Borough. 2019. *2019 Economic Profile and Census Report*.

Figure 10.3: Iñupiat Households Income by Source and Percent



to its economic contribution, subsistence provides cultural identity and spiritual sustenance.

According to the 2019 NSB Census, all Wainwright Iñupiat households’ diets include at least some subsistence foods, with 73 percent of households whose diets consisted of half or more of subsistence foods.¹⁶⁸ Approximately 39 percent of Iñupiat households reported that half or more of their subsistence foods came from other households and 37 percent reported

sharing half or more of their subsistence harvests with other households.¹⁶⁹

The foundation of the local economy relies on a mix of wage employment, dividend income, and subsistence activities. The sustainability of this subsistence-market economy hinges on striking a balance between the time devoted to subsistence harvesting and the time allocated for participating in the wage economy. Residents of Wainwright who engage in wage-based prefer employment that offers flexibility to also

Table 10.4: Average Iñupiat Household Cost of Subsistence Activities

2010		2015		2019	
Average household cost	Number of households surveyed	Average household cost	Number of households surveyed	Average household cost	Number of households surveyed
\$6,752	109	\$3,769	106	\$8,504	40

¹⁶⁸ Percent of households whose diets consisted of half or more of subsistence foods is based on a survey of 93 Iñupiat households.

¹⁶⁹ North Slope Borough. 2019. *2019 Economic Profile and Census Report*.

participate in subsistence activities or that aligns with seasonal schedules. This balance allows residents to contribute to the cash-based economy and preserve the community's traditions and subsistence activities.¹⁷⁰

Subsistence activities require substantial amounts of both time and finances to purchase necessary equipment for fishing, whaling, and hunting, including fuel and equipment, such as snow machines, ATVs, boats, motors, guns, ammunition, nets. Maintaining equipment adds to the investment. Annual expenditures for subsistence activities for Iñupiat residents in Wainwright has varied over the years but has experienced an overall increase since 2015. The average household in 2015 spent \$3,769 annually on subsistence activities; in 2019, the average per household expenditure increased to \$8,504.^{171, 172}

Employers. The major employers in Wainwright for Iñupiat residents have been the North Slope Borough (34.6 percent), Other (14.8 percent), and Olgoonik Corporation (13.6 percent).¹⁷³ Residents are also employed by the City, Tribe, and NSBSD. Employment at the North Slope Borough has been relatively constant between 2003 and 2019; Olgoonik Corporation employment has declined since previous survey years, and by 7.6 percent between 2015 and 2019 but has remained steady since 2019.¹⁷⁴

For non-Iñupiat residents, the North Slope Borough School District (NSBSD) has historically been the primary employer. This was still true in

2019. However, the rate of NSBSD employment of non-Iñupiat employees has decreased to its lowest level since 2003, at 46.2 percent from the high of 82.6 percent in 2010.¹⁷⁵

Private Infrastructure and Business. According to the Alaska Department of Commerce, Community, and Economic Development, there are seven active business licenses in Wainwright licensed by the State of Alaska:

Active business licenses:¹⁷⁶

- Olgoonik Corporation Hotel
- Olgoonik Corporation Store
- Wainwright Cooperative Association
- B&C Video and Qwikstop
- Tom N Jerry's Restaurant
- Chukchi Firearms
- Sigvan Taxi

Employment Perceptions. Local residents have expressed concerns regarding the high unemployment rate and the need for more job opportunities within the community. Seasonal and temporary jobs hold significant appeal for community members, as they offer the flexibility to engage in traditional subsistence activities while simultaneously participating in the wage economy. Many of these jobs are in the construction sector, which aligns well with seasonal work patterns. The availability of these positions has decreased over the years; 10 percent fewer residents have reported working in seasonal or temporary jobs in 2019 than in 2003.¹⁷⁷

¹⁷⁰ Northern Economics, Inc. 2019. *Economic Study of Subsistence Impacts*.

¹⁷¹ The 2019 Census report indicates that in 2019, Wainwright had about a 60% drop in the sample size but an increase of about 55% in the average Iñupiat household expenditure. This combination of factors may indicate a sample of respondents in Wainwright biased to those households with more income resources and a greater involvement in subsistence harvests.

¹⁷² North Slope Borough. 2019. *2019 Economic Profile and Census Report*.

¹⁷³ Ibid

¹⁷⁴ Knutsen, David. 2023. Personal communication.

¹⁷⁵ North Slope Borough. 2019. *2019 Economic Profile and Census Report*.

¹⁷⁶ Alaska Department of Commerce, Community and Economic Development. *Community Database Online*.

¹⁷⁷ North Slope Borough. 2019. *2019 Economic Profile and Census Report*.

A prevailing issue of concern arises when new construction jobs for building community facilities and infrastructure become available. Residents have observed that people from outside the community often secure these positions, even when qualified locals are available and willing to fill them. To address this concern, the community advocates for contractors to prioritize hiring qualified locals when such jobs become available. Residents are also interested in having community members serve in training roles for construction work so that they can develop skills needed for future employment opportunities. Training local residents becomes especially crucial for maintaining community buildings and infrastructure, as it reduces dependence on external tradespeople, ensuring that the community can take charge of its own development and maintenance needs.

Wainwright residents advocate for increased local job opportunities and the utilization of seasonal and temporary work to complement subsistence activities. The community desires that locals be prioritized for available jobs and that contractors invest in training programs to build and enhance the skill set of community members.

Health

The overall health of the Wainwright community depends on many factors including access to resources such as quality and affordable housing, employment opportunities, quality education, recreational opportunities, income and employment, living conditions, food, cultural well-being, environment, public infrastructure, and a safe community and homes. This chapter examines personal health,

community health, and environmental health. Other chapters in this plan examine health related to issues such as housing and infrastructure.

A primary source for health-related information from individual North Slope communities is the North Slope Borough Economic Profile and Census reports. The NSB Censuses contain a health survey, conducted to better understand the health issues facing North Slope communities and residents, to work more effectively within villages on addressing community health issues, and to inform planning and policy decisions that impact community health. Health conditions were gathered using a self-reported survey by heads of households. Self-reported health information has been gathered by the North Slope Borough for previous census reports, offering longitudinal data on certain issues.

Personal Health. In 2010, 31 percent of Wainwright residents reported themselves to be in *Very Good* or *Excellent* health; that percent decreased slightly to 29 percent in 2019. Fewer Wainwright residents rate themselves to be in *Very Good* or *Excellent* health than North Slope residents overall. Likewise, in 2010, 17 percent of residents reported having *Fair* or *Poor* health; significantly decreasing to 10 percent in 2019.¹⁷⁸ However, Wainwright residents rate themselves as being in *Good* health at a much higher rate than North Slope residents overall: 61 percent to 39 percent in 2019. Notably, fewer Wainwright residents rated themselves in *Poor* health than any other community.

One significant health issue that is prevalent across the North Slope is smoking. On average, nearly 50 percent of NSB Iñupiat individuals over

¹⁷⁸ North Slope Borough, 2019. *2019 Economic Profile and Census Report*.

Table 10.5: Iñupiat Health Indicators

Health Indicator	Wainwright			NSB		
	2010	2015	2019	2010	2015	2019
Very good or excellent general health	31%	59.1%	28.8%	46%	54.1%	48.7%
Good health	43%	36.8%	61.3%	38%	29.5%	39.3%
Fair to poor general health	17.0%	4.1%	10.0%	16%	16.4%	12%
Tobacco use	55.0%	NA	59.0%	50%	50.2%	31%
Obesity – heads of households	41.0%	47.3%	53.8%	40%	45%	46%

the age of 16 smoke. Only Point Hope and Utqiagvik have greater a larger portion of their community’s residents that do not smoke. The percentage of smoking in Wainwright is higher, on average 59 percent in 2019,¹⁷⁹ up slightly from 2010 (55 percent) but down from 66 percent in 2003.¹⁸⁰ Although the rate of smoking has decreased in Wainwright over the last sixteen or more years, it is still significantly higher than the 2020 statewide average of 26 percent.¹⁸¹ Also on the rise is obesity, with an increase of almost 13 percent among heads of households.

Childhood Home Visiting Program Needs Assessment in 2020. The North Slope Borough as a whole was identified as high-risk for adverse perinatal outcomes, child health outcomes, and child maltreatment. The North Slope Borough was also above the state average preterm birth rate; percent of births that were low birth weight; and percent of women who did not receive prenatal care in the first trimester.¹⁸² Wainwright-specific data was not provided in the Needs Assessment but given that all North Slope communities face similar healthcare access and transportation issues, health care resources are likely similar across communities as well.

Maternal and Child Health

The State of Alaska Division of Public Health conducted an Alaska Maternal, Infant, and Early



¹⁷⁹ North Slope Borough. 2019. *2019 Economic Profile and Census Report*.
¹⁸⁰ North Slope Borough. 1994. *1993/1994 Economic Profile and Census Report Volume II*.
¹⁸¹ Alaska Department of Health, Division of Public Health. 2022. *Alaska Tobacco Facts - 2022 Update*.
¹⁸² Alaska Department of Health, Division of Public Health. 2020. *Alaska Maternal, Infant, and Early Childhood Home Visiting Program Needs Assessment*.

Only 0.6% of Wainwright's Iñupiat residents self-reported being in poor health

By far the lowest of any North Slope community

The Needs Assessment also noted that strengths of the North Slope Borough include crime reports (19.6 per 1,000 residents compared to 35.0 statewide) and reports of rape (1.1 per 1,000 residents compared to 1.4 statewide) were lower than state averages.

Access to Healthcare. There is a health clinic in Wainwright staffed by two health aides. It is open weekdays and for emergencies. The Fire Department operates an ambulance that serves the clinic. Eye doctors come to the village twice a year in May and July, and dentists and medical doctors visit the village every three months for a one-week stay. Wainwright health services are provided by three different organizations: North Slope Borough Health and Social Services Department, Arctic Slope Native Association (ASNA), and the Iñupiat Community of the Arctic Slope.

North Slope Borough Health and Social Services Department provides the following services:

- Village health clinic facility and community health aides
- Immunizations
- Eye clinic
- Arctic Women in Crisis (AWIC) assistance

- Woman, Infant & Children (WIC) program
- Children & youth services
- Public health nursing
- Senior services
- Public health office/Veterinary clinic services
- Behavioral health services
- Counseling and suicide prevention

ASNA provides the following services:

- Primary health care services
- Dental services
- Medical travel
- Screening for Life Services:
 - Mammograms and clinical breast exams
 - Pap tests
 - Prostate cancer screening tests
 - Colorectal cancer screening tests
 - Lung cancer screening tests
 - Health education
- Help with coordinating assisted care
- Behavioral health services
- Medical housing
- Funeral assistance
- Funeral travel assistance
- Childcare development fund

ICAS provides the following services:

- Stephanie Tubbs Jones child welfare services
- Promoting safe and stable families
- Indian Child Welfare Act assistance

Olgoonik Corporation provides the following service:

- Terminally ill and bereavement assistance to shareholders

Many health resources are located in Utqiagvik or beyond in Anchorage or Fairbanks and not available in-person to Wainwright residents. Some online resources are available, such as online counseling and telemedicine. However, residents have expressed the need for additional resources, such as mental health training and intervention, additional veterinary visits, assistance with vital records (such as getting social security cards and birth certificates), dental assistance, and intervention for drug and alcohol use and abuse.¹⁸³

Nutrition and Physical Activity. 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 Service’s Office of Disease Prevention and Health Promotion, healthy eating and regular physical activity can help maintain good health while also reducing the risk of chronic disease. The 2020 – 2025 Dietary Guidelines provide four overarching guidelines that encourage healthy eating at each state of life.¹⁸⁴

Engaging in physical activity is crucial for maintaining good health. Consistently exercising supports healthy weight management and

lowers the chances of developing conditions like high blood pressure, type 2 diabetes, heart attack, and stroke. Strategies aimed at encouraging physical activity may involve initiatives focused on pedestrian safety, providing access to parks, playgrounds, swimming pools, gyms, and various recreational facilities that promote active lifestyles. Alak School provides a gymnasium, pool, and playground for community use outside of school hours. Still, residents have expressed concern about the lack of recreational space for all community members: children, teenagers, those in middle age, and elders, all of which have different needs and interests. There is also frustration that open gym at Alak School is only 1 ½ hours, which is not sufficient for all the residents that want to utilize it and is not always a convenient time.¹⁸⁵

Harvesting local subsistence food has been central to the culture of many Alaska communities, including Wainwright. The evolution to partial cash economy, however, often means greater reliance on store-bought food. In Wainwright, like much of rural Alaska, the quality and availability of store-bought food is subject to fluctuations outside the control of local residents. Access is dependent on the schedule of the barge or flight, the weather, as well as a person’s ability to pay high prices that can be twice as much or more than the cost of food in Fairbanks or Anchorage. Options are limited to what is available on the shelves, often shelf-stable foods. Fresh fruits and vegetables are not always available in rural Alaska. Perhaps most importantly, store-bought foods do not fulfill the important roles that traditional foods play.

¹⁸³ Community of Wainwright. 2023. *Strengths, Weakness, Opportunities, Threats Workshop*.

¹⁸⁴ U.S. Department of Agriculture and U.S. Department of Health and Human Services. 2020. *Dietary Guidelines for Americans, 2020-2025, 9th Edition*.

¹⁸⁵ Community of Wainwright. 2023. *Strengths, Weakness, Opportunities, Threats Workshop*.

Generally, local harvested foods are not only more affordable than store-bought foods but also more nutritious. 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.

Wainwright is a *dry* community, meaning that the sale, importation, and possession of alcohol is banned, although drugs and alcohol are smuggled illegally into the community. In 2019, twenty-eight percent of households across the North Slope stated that a member had been hurt by drugs or alcohol within the past 12 months either *Sometimes* or *Often*. A staggering 87 percent of North Slope residents reported in 2019 that the community has been hurt by drugs or alcohol either *Sometimes* or *Often*.¹⁸⁶

Food Security. Food security in rural Alaska can be a different issue than across the nation. Food security often means that households are concerned about getting healthy meals because they did not / could not get enough subsistence foods. Those households that depend more on store-bought foods also worry about obtaining

healthy foods, which is not surprising given what is available in the villages. Regarding food security, there are also issues about not getting enough to eat, healthy of otherwise.

In Wainwright, about a third of heads of households reported that they worried about not having access to healthy meals (34.1 percent). Nearly half of those that reported difficulty getting good for healthy meals also reported that this was due to a lack of subsistence foods. Although not as high as other communities on the North Slope, over half (56.9 percent) of household heads in Wainwright reported that they had difficulty getting healthy meals felt it was due to a lack of store brought foods.

Aside from healthy meals, what is most alarming is that 33 percent of Wainwright household heads reported that there were times when members of their household did not have enough to eat (in 2018, the most recent data available). This has increased substantially from 2015, when 24 percent of household heads reported that there were times when their household did not have enough to eat, a nine percent increase in just four years.

USDA Dietary Guidelines

1. Follow a healthy eating pattern at every stage of life;
2. Customize and enjoy nutrient-dense food and beverage choices to reflect personal preferences, cultural traditions, and budgetary considerations;
3. Focus on meeting food group needs with nutrient-dense foods and beverages, and stay within calorie limits;
4. Limit foods and beverages higher in added sugars, saturated fat, and sodium, and limit alcoholic

¹⁸⁶ North Slope Borough. 2019. *2019 Economic Profile and Census Report*.

Nearly half of residents reported that sometimes they could not afford to purchase food, citing the cost of food, the need to pay for other bills, not having enough income, not employed, or having shared food with others in the community. The inability to purchase food is not related to dependence on subsistence foods. Across the North Slope, about a third of households, regardless of their level of dependency on subsistence foods, did not have enough income to purchase food during the year (2018).

One reason for not having sufficient food is a lack of subsistence foods. Thirty-three percent of households report that they didn't have enough subsistence foods, for a variety of reasons that include not having the equipment and supplies needed to participate in subsistence activities. But the most cited reason for not having enough subsistence food is due to climate change affecting harvesting activities (52 percent).¹⁸⁷

Having only one airline provide service to Wainwright increases the risk of food insecurity.

Healthy Environment. The environment plays a large role in shaping a safe and healthy community. Environmental factors that can affect both personal and community health include exposure to hazardous substances in the air, water, soil, and food; physical hazards, such as loud or constant noise, tripping or falling hazards; and weather dangers, to name a few. The layout of a community can also affect health and healthy outcomes. Safe roadways for drivers and shoulders or sidewalks for pedestrians, the location and access to playgrounds, parks, or other areas for recreation can make a difference in the lives of residents.

Airborne dust is problematic, causing respiratory problems such as bronchitis, asthma, and a high incidence of sinus infection. Research has shown that children exposed to outdoor particulate matter are more likely to develop asthma and need emergency room or hospital treatment.¹⁸⁸ Roadway and airport dust can be blown onto drying subsistence foods, which can change the taste or even cause them to be inedible.

Pedestrian safety is a community-wide issue. Many unnecessary injuries and fatalities occur as a result of intoxication or inattentiveness of either the driver or the pedestrian. Without having sidewalks, the Wainwright community would benefit from ensuring clear roadway shoulders and rights-of-way are clear of obstructions such as dumpsters or large utility service barrels that would force residents to walk into the roadway as well as having good visibility for oncoming traffic, and ample street lighting. Other safety measures include ensuring that roadway shoulders are wide enough for pedestrians.

Poor indoor air quality and ventilation is a significant issue for many Alaska homes built in the 1970s and 1980s. Older homes often have a higher risk of moisture and air quality issues than newer homes. Of the 184 housing units in Wainwright, only about seven were constructed since 2010 and likely have air quality issues.

Other housing issues relate to overcrowding; over 40 percent of homes in Wainwright are either overcrowded or very overcrowded.¹⁸⁹ The physical benefits of relieving overcrowding include reduced spread of illness; the less people, the fewer the opportunities to transmit diseases. Better hygiene is also related to

¹⁸⁷ North Slope Borough. 2019. *2019 Economic Profile and Census Report*.

¹⁸⁸ Kete, Corrine A., et al. 2017. *Long-Term Coarse Particulate Matter Exposure Is Associated with Asthma among Children in Medicaid*.

¹⁸⁹ North Slope Borough. 2019. *2019 Economic Profile and Census Report*.

alleviation of overcrowding because it is easier to keep a home clean and in good condition when not in constant use. Also associated with easing overcrowding is healthy sleep patterns; reduced noise and activity allows for better sleeping. Relieving overcrowded conditions can also help with mental health by reducing domestic conflicts and depression. Children that don't live in overcrowded conditions even do better in school when they have space and a quiet area to study.^{190, 191}

Emergency Preparedness. The North Slope Borough Risk Management Division is responsible for emergency management and disaster coordination within the NSB. An All-Hazard Mitigation Plan for Wainwright was developed in 2005 in effort to more closely coordinate mitigation planning and implementation efforts between State, local, and tribal entities. In 2015, a North Slope Borough Local All-Hazard Mitigation Plan was updated to include the risk assessments for all North Slope communities into one document. The plan identifies hazards specific to Wainwright, including coastal erosion, flooding, and severe winter storms as having a high probability, with ground failure as likely and Ivu (ice override) and credible.¹⁹²

Erosion. The 2015 All-Hazard Mitigation Plan identifies two homes that are threatened by erosion of the bluffs upon which they are built. It also indicates that Milikruak Road, which borders the coastline, is at risk of erosion, as is the utility infrastructure along the roadway. The North Slope Borough has made several attempts to stem the risk of erosion with sand berms or

placing sandbags along the coastline. There is also a rock revetment on the northern part of the community that has stemmed erosion in that area.

Storm Surge. Storm surge is the leading natural hazard and threatens homes and infrastructure in Wainwright and other coastal communities. The October 3, 1963 storm that is well known to have flooded much of Utqiagvik, also created a surge of 11-12 feet in Wainwright, which damaged several homes and buildings, leaving 50 percent of the community flooded.¹⁹³

Flooding. NSB Public works crews work annually to protect the community and coastline from flooding and erosion. Their efforts appear to reduce the risk of flooding, although there is little impact on reducing erosion. The All-Hazards Plan estimates that ten percent of the Wainwright population and ten structures could be significantly impacted by erosion.¹⁹⁴

Ground Failure. Subsidence is a real concern across the North Slope. It can cause the floors of homes and businesses to sag, jeopardize the integrity of the footings and the underground water and sewer system.

Ivu. While Wainwright has all the present conditions needed for Ivu, local residents report no known incidents of Ivu having occurred in the community.¹⁹⁵

COVID-19, or Coronavirus Disease 2019, is a respiratory illness capable of person-to-person transmission. While several human coronaviruses exist, some causing mild upper-respiratory tract illnesses, COVID-19 is a novel

¹⁹⁰ Wolfson, Mariel and La Jeunesse, Elizabeth. *Challenges and Opportunities in Creating Healthy Homes: Helping Consumers Make Informed Decisions*.

¹⁹¹ Solari, Claudia D. and Mare, Robert D. 2012. *Housing Crowding Effects on Children's Wellbeing*. Social Science Research.

¹⁹² North Slope Borough. 2015. *North Slope Borough All-Hazard Mitigation Plan*.

¹⁹³ Ibid

¹⁹⁴ Ibid

¹⁹⁵ Ibid

disease previously unrecorded in humans. In addition to the health impacts, the rapid spread of COVID-19 resulted in travel restrictions and delayed deliveries for the community of Wainwright. Adding to these challenges, Ravn Alaska, the sole airline serving Wainwright, declared bankruptcy in April 2020, following a 90 percent decline in revenue due to the pandemic. In response, Wright Air filled the void left by Ravn, but this transition has exposed vulnerabilities in North Slope village relying heavily on a single air carrier for transportation and the supply of essential goods. To address these vulnerabilities and ensure preparedness for potential future disruptions to travel in and out of the community, a comprehensive vulnerability assessment and contingency plan should be developed for Wainwright. This proactive approach will help safeguard the community's well-being and mitigate the impact of such situations in the future.

“Possibly the greatest significance of home rule is that it enables us to regain control of the education of our children. For thousands of years, our traditional method of socializing our youth was the responsibility of the family and community. From the first, visitors to the Arctic have universally commented on the warm disposition of our children. Corporal punishment was absolutely unknown. Boys and girls began their education with their parents and, by the time they reached their teenage years, they had mastered the skills necessary to survive on the land here. From that time forward, the youth — with his family and within his community — devoted his attention to his intellectual and social growth.”

Eben Hopson, Sr., North Slope Borough Mayor, 1977

Education

Alak School provides education for most students in Wainwright, from pre-school through 12th grade. It is operated by the North Slope Borough School District. The NSBSD focuses on learning rooted in the value, history and language of the Iñupiat as envisioned by Eben Hopson, Sr. The school district seeks for its students to become critical and creative thinkers able to adapt in a changing environment and world while envisioning, planning, and taking control of their destiny. Students should become active and contributing members of their communities.¹⁹⁶ The school district is governed by the North Slope Borough School District Board of Education. The Board has seven seats: four in Utqiagvik and one seat each in Wainwright, Kaktovik, and Point Hope. During the 2022/23 school year, there were 12 teachers, 42 percent of which had been teaching at the school for five

or more years. Ninety percent of the teachers were teaching in their field of study.¹⁹⁷

NSBSD also provides a number of services, including:

- Full-time counselor;
- Bus service for students;
- An early childhood education program for three- and four-year old children that operates five hours each weekday;
- Iñupiaq classes from the early childhood education level through eighth grade that is also open to students in other grade levels; and
- An Iñupiaq culture camp each fall.

Enrollment. The 2022/2023 school year (SY) had an enrollment of 168 students. The current student enrollment is higher than the average over the last twenty years (161) and slightly less than the high enrollment of 175 in SY 2015-2016. The lowest student enrollment period was the

¹⁹⁶ North Slope Borough School District. 2020. *2020-2025 Strategic Plan Summary*.

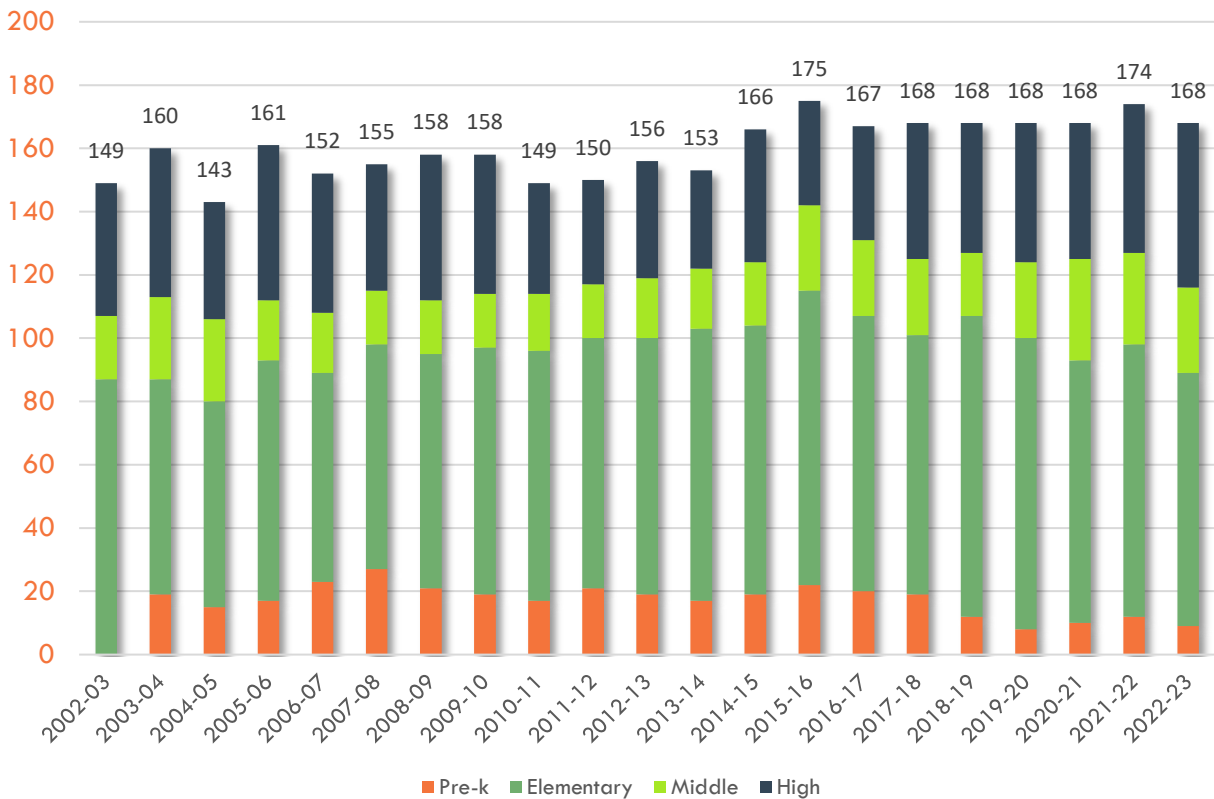
¹⁹⁷ Alaska Department of Education and Early Development. 2022. *Alak School*.

2004 – 2005 SY, when there were 143 students attending Alak School.¹⁹⁸ Often school enrollment increases or decreases with the population, providing insight into future educational resource needs and the size and make-up of the future workforce. Although the population has fewer reliable data points, it appears that the Alak student population increased at nearly the same rate as the overall community population over the last decade, at 12 percent and 12.9 percent respectively.

Spending per Student. During the 2021 – 2022 school year, total spending per student was \$47,545 from both state, local funds, and federal

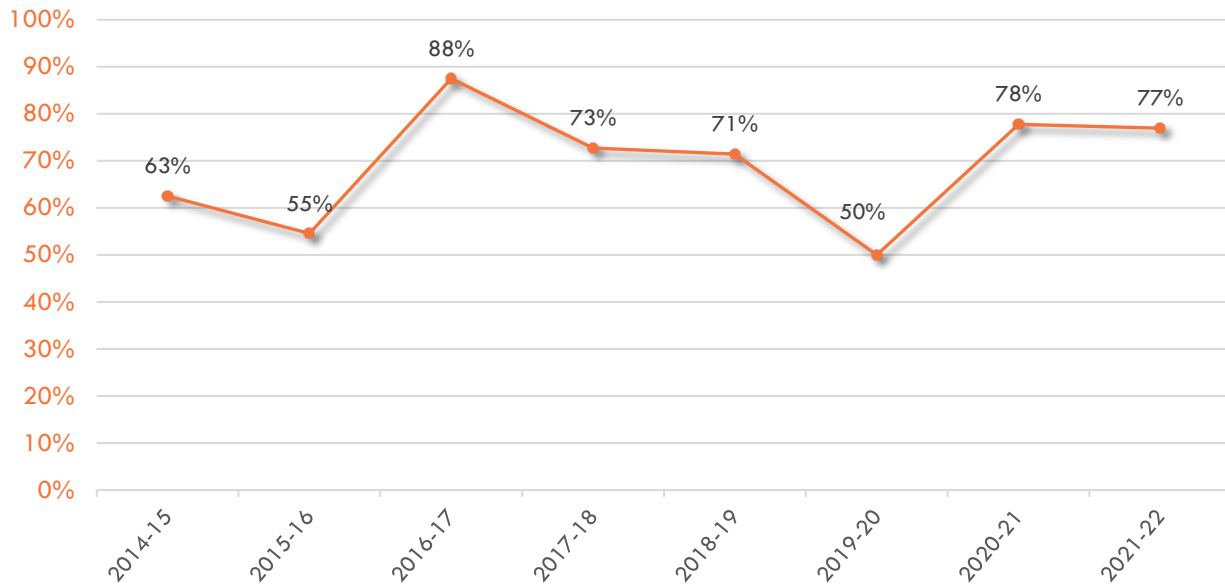
funds.¹⁹⁹ Alaska ranks fifth in the nation for per-pupil spending, at an average of \$18,391 and tenth in public school teacher salaries but comes in 46th in graduation rates, with just Arizona, New Mexico, and the District of Columbia trailing Alaska’s average.²⁰⁰ When average per-pupil spending is normalized for the average cost of living in the state, it is on par with other states’ spending.²⁰¹ The North Slope Borough heavily subsidizes education not only to provide students with excellent educational opportunities, but also to offset the additional expense of providing those opportunities in rural Alaska. The NSBSD maintains schools with resources and amenities that rival schools in

Figure 10.4: Alak School Enrollment, SY 2002/03 – 2022/23

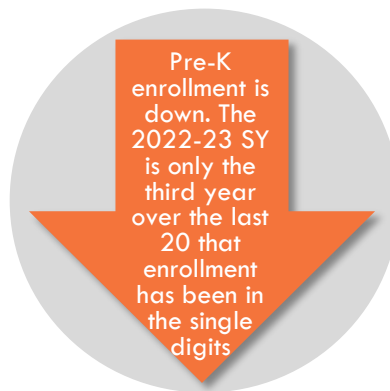


¹⁹⁸ Alaska Department of Education and Early Development. *Alaska’s Public School: A report Card to the Public: 2022-2023: Alak School.*
¹⁹⁹ Alaska Department of Education and Early Development. 2022. *Alak School.*
²⁰⁰ Wisevoter. 2023. *Per Pupil Spending by State.*
²⁰¹ University of Alaska. 2023. *How much does Alaska spend on K-12 education?*

Figure 10.5: Alak School Graduation Rates, SY 2014/15 – 2021/22

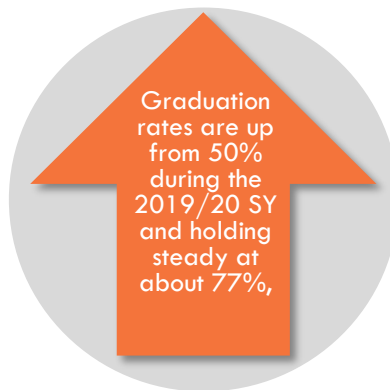


more populated areas. Materials and supplies must be flown or barged in. Teacher housing is provided. Transportation costs for students wishing to participate in sports and other extracurricular activities that require them to travel to other villages or beyond for games and tournaments are covered.



fairly constant since 2003, ranging from 10.7 percent in 2010 to 14.7 percent in 2015. The number and percent of residents that have completed vocational education/training has dropped from from two percent in 2015 to .02 percent in 2019.²⁰²

Educational Attainment. The percent of residents that have earned a high school diploma as the highest level of educational attainment has increased to 38 percent in 2019, the highest percentage reported by NSB census since 2003. The percent of Wainwright residents that have sought additional education beyond high school has remained



Alak School Facility. Alak School is located at 576 Main Street. It consists of the main school building for elementary students (21,045 square feet) and for the high school students (41,690 square feet), maintenance building (1,200 square feet), service garage (1,200 square feet), and a utility building (2,160 square feet). All the school buildings were

²⁰² North Slope Borough. 2019. 2019 Economic Profile and Census Report.

“I enjoy teaching students, especially these students, because they’re my family and I know that someday they will be leading our communities.”

Edna Ahmaogak, Alak School Assistant Principal²⁰⁴

constructed in about 1979 with some renovations and upgrades in 1990, 2000, and 2006.²⁰³

The school facility is in need of significant renovations. There are concerns and issues in nearly every corner of the school, including the need for additional storage space on the ground floor, freezing and broken pipes throughout the school whose leaks damage flooring and sometimes require school closure, additional office space needs for staff, functional classroom space both traditional use, like sewing and carving and home economics, and updating classrooms to accommodate the equipment and electrical needs of new technology.

The pool is rarely used. Chronic piping issues coupled with substandard repairs mean that it is not available for water safety instruction or as a resource to the community. Home economics rooms lack working ovens. The bleachers are a safety hazard. There is a chronic infestation of black flies in three of the school’s classroom due to a crack in the wall providing a nesting space. Storage space is inadequate, requiring staff to carry equipment and supplies to the attic. The intercom system is not functioning so staff are unable to make announcements to students.

The bell system alerting teachers and students to change classes is not functional. Restrooms need to be updated, both for function and privacy. There is not a sufficient amount of teacher housing. Teachers are doubled up and using itinerant housing, which means that visitors must sleep in the school.

Qargi Academy. In 2020, the community founded Qargi Academy, the only tribal school on the North Slope. The Academy provides access to education based in the Iñupiaq language and culture. The school is located in Wainwright but can provide education to students remotely living in any community on the North Slope or ICAS tribal members in the State of Alaska. There are three local teachers or Iłisaqtitchiriit who share traditional knowledge, Iñupiaq values, culture, history and language with the academy’s students. Students at Qargi also join classes online from certified teachers at virtual school Edmentum EdOptions Academy, providing both academics and personal academic support. The two sets of teachers work together to provide a whole education founded on the Iñupiaq culture and values. The school has already been instructing students in high school and are admitting middle school students in the 2023/24 school year.²⁰⁵

²⁰³ North Slope Borough. 2019. *North Slope Borough Repair and Replacement Schedule*.

²⁰⁴ Tumbler. 2016. *I Am Iñupiat*.

²⁰⁵ Naiden, Alena. 2023. *North Slope’s Only Tribal School Readies a New Crop of Graduates and Plans to Expand*.

Table 10.6: At-A-Glance Education Characteristics 1998 – 2019

the

Highest Educational Attainment	2003		2010		2015		2019	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Has not started school	47	10.5%	59	12.9%	39	8.0%	29	6.6%
Elementary school	54	12.2%	67	14.7%	83	17.0%	70	16.0%
Middle school	24	5.4%	29	6.3%	35	7.2%	33	7.6%
High school	34	7.6%	42	9.2%	46	9.4%	29	6.6%
Did not finish high school	88	19.7%	54	11.8%	58	11.9%	58	13.3%
High school diploma	140	31.4%	141	30.9%	143	29.2%	165	37.8%
GED	7	1.6%	16	3.5%	13	2.7%	11	2.5%
Vocational/tech graduate	6	1.3%	3	0.7%	10	2.0%	1	0.2%
Some college	24	5.4%	22	4.8%	38	7.8%	31	7.1%
Bachelor's degree	19	4.3%	13	2.8%	13	2.7%	3	0.7%
Master's degree	2	0.4%	9	2.0%	7	1.4%	5	1.1%
Professional degree	1	0.2%	1	0.2%	2	0.4%	1	0.2%
Other	0	0%	1	0.2%	2	0.4%	1	0.2%

Iļisaġvik College. Iļisaġvik College maintains a satellite computer station at the NSB Village Coordinator's Office that offers a variety of online courses for community residents. Residents are able to take Iļisaġvik classes free of charge. They would also like training, residents seek a training facility to train residents for local jobs, including carpenters and plumbers. Temporary jobs that allow residents to gain experience that then led to permanent jobs are desired.

Childcare. Residents have long sought a childcare facility. The Village of Wainwright own

former national guard armory at 911 Church Street. The Village of Wainwright is working to convert the approximately 1,500 square foot building into a childcare facility. They have partnered with ASNA is train childcare workers and are receiving U.S. Housing and Urban Development (HUD) funds and assistant from Alaska Senator Lisa Murkowski's office to renovate the facility. The renovation is expected to begin in 2025.²⁰⁶

²⁰⁶ Hagle, Griffin, Chief Executive Officer. TNHA. 2023. Personal communication.

11

Land Use and Zoning



The western concept of land ownership is a relatively recent introduction to the region. The land of the North Slope has a long history of use by the Iñupiaq people, who have relied on it for untold generations for sustenance. A significant portion of the land surrounding Wainwright is owned and managed by the federal government. The privately held land in the area is relatively limited, primarily owned by individual landowners or by the Olgoonik Corporation, and it is concentrated mainly within and immediately surrounding the community. While the residents of the area have adapted to the idea of land ownership within villages, subsistence lands are not owned as much as they are shared.

The management of land use and ownership in the community and the surrounding area involves multiple layers of jurisdiction and stakeholders, including considerations of local and regional issues concerning land management and the future growth and needs of the community. Given the importance of the natural environment and the reliance on natural resources for subsistence, careful management and planning are necessary to ensure the sustainable use of land while preserving the cultural and ecological values of the region.

Native Restricted Land

There are two types of restricted land for Native Alaskans: Native allotments and restricted townsite lots. These types of land are considered inalienable, meaning that the property owners cannot lease, sell, or transfer the land, including any inherited interest, without obtaining prior approval from the Bureau of Indian Affairs (BIA). Furthermore, restricted land is generally not

governed by state or local laws, including regulations related to land use, such as zoning. Typically, Native restricted land enjoys tax-exempt status, unless alterations are made by the U.S. Congress or the restrictions are explicitly lifted with the BIA's approval.²⁰⁷

Restricted lots were primarily allocated through two federal statutes: the Alaska Native Allotment Act of 1906 and the 1926 Alaska Native Townsite Act. Under the Alaska Native Allotment Act of 1906, individual Alaska Natives were granted ownership of vacant, non-mineral, and unappropriated land if they could demonstrate previous use. The majority of Native allotments are situated in close proximity to villages and are found near rivers, streams, lakes, and coastal areas. The Bureau of Land Management (BLM) continues to convey Native allotment land, with over 17,000 parcels conveyed and approximately 251 parcels remaining to be processed. In the vicinity of Wainwright, there are a total of 61 Native allotments and 19 camps and cabins within a 25-mile radius. A visual representation of the Native allotments, camps, and cabins in the area can be found in Map 11.1.²⁰⁸

In 1998, the Alaska Native Vietnam Veterans Allotment Act provided an opportunity for Alaska Native Vietnam-era veterans who were unable to file for a Native allotment due to active-duty service to apply for up to 160 acres of land. This Act removed the requirement related to use and occupancy, allowing eligible veterans and the heirs of deceased eligible Alaska Natives to apply. The application period for this program ends on December 29, 2025, but currently there are not available lots near

²⁰⁷ Case, David, Hudson, Roger, Landreth, Natalie, Kindall-Miller, Heather, Resseguie, Linda and Schutt, Aaron M. 2007. *Native American Land Base*.

²⁰⁸ North Slope Borough. 2023. *Assessing Division GIS data*.

Wainwright, with Point Hope being the only North Slope community with nearby lot availability.

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.” However, land title remained uncertain until 1971 when Congress passed the Alaska Native Claims Settlement Act (ANCSA).

The 1926 Alaska Native Townsite Act was enacted with the aim of granting public lands to Native Alaskans for constructing homes within villages. Although townsite acts were repealed by the Federal Land Policy and Management Act (FLPMA) in 1976, lots that had already been designated as Native restricted under the Townsite Act retained their restricted status. The federal government manages restricted deeds for these lots, which limits the owners' ability to sell or transfer the property. Restricted lots held in trust by the U.S. government are not subject to local land use regulations, property tax, or foreclosure. There are approximately 61 restricted properties in the village of Wainwright, as shown on Map 11.2.

Similar to how lands can be placed into trust, Native restricted land has the potential to become unrestricted. When the restricted status is removed, the land can be subject to taxation or sold without requiring approval or oversight from the BIA. For instance, if a restricted property is sold or bequeathed to a non-Native individual, it will be transferred to them in an unrestricted status. In cases where Native

individuals choose to will a restricted property to a non-Native, they can opt to establish it as a life estate. The non-Native heir would have the right to use the property during their lifetime, and upon their passing, the property would be transferred to the second named beneficiary in the owner's will. This process potentially allows the property to return to its restricted status.²⁰⁹

In 2014, a rule by the USDOJ allowed federally recognized Alaska tribes, including the Village of Wainwright, to place their owned lands into trust, following a practice already permitted for tribal nations in the continental U.S. This option enables tribal lands to become eligible for various federal programs supporting tribal sovereignty, economic development, energy initiatives, infrastructure projects, healthcare, and housing programs. Placing lands into trust affirms tribal sovereign powers over the land, exempting them from NSB zoning, local land use regulations, and taxation. While land held in trust has its benefits, there are considerations if Wainwright were to seek placing lands into trust. For example, if a structure on a restricted property becomes a safety hazard for the community, local land use regulations cannot enforce mitigation measures. Fractionalization of ownership is another concern, as multiple owners, often with smaller portions of property interest across generations, can hinder the usefulness and decision-making for a property.

In 1971, the Alaska Native Claims Settlement Act repealed the authority to grant Native allotments, with the exception of applications that had already been submitted. Native allotment land is still being conveyed by the BLM; over 17,000 parcels have been conveyed to

²⁰⁹ Maniilaq Association. 2014. *Probates and Estate Services*. www.maniilaq.org/Probates%20&%20Estate%20Services.doc.

Alaska Natives and there are approximately 251 remaining parcels to be processed.²¹⁰ The Alaska Native Vietnam Veterans Allotment Act of 1998 authorized BLM to provide a new 18-month filing period to Alaska Native Vietnam-era veterans who were unable to file because of active-duty service before the repeal of the Native Allotment Act of 1906. The Alaska Native Vietnam Era Veterans Land Allotment Section of the 2019 Dingell Act allows any Alaska Native Vietnam veteran who served between August 5, 1964 and December 31, 1971 and did not already receive a Native allotment to apply for up to 160 acres of land. This Act removed the requirement related to use and occupancy. The heirs of deceased eligible Alaska Natives can also apply.²¹¹ The five-year application period ends on December 29, 2025.²¹² Unfortunately, there is not currently available lots near Wainwright. The only North Slope community with nearby lot availability is Point Hope.²¹³

Alaska Native Claims Settlement Act

In 1971, the Alaska Native Claims Settlement Act (ANCSA) was enacted to address unresolved Native Alaskan land claims and establish clear ownership of Alaska's land and resources. ANCSA acknowledged the rights of Alaska Natives to a portion of the lands that they have traditionally inhabited for thousands of years. The Act set up regional and village Native corporations, distributed land to each corporation, and provided \$962.5 million in compensation for lost lands as part of the settlement agreement.

Under ANCSA, Native village corporations were granted title to the surface estate in and around their respective villages. Regional Native corporations had the authority to select lands from within the broader regional boundaries defined by ANCSA. Alaska Native regional corporations obtained title to the subsurface estate of a significant portion of the lands they selected as well. As a result, many Alaska Native regional corporations carefully balanced their land selections, considering areas of cultural or subsistence significance with areas with potential economic value for natural resource development.²¹⁴

Olgoonik Corporation. Section 12(a) of ANCSA entitles village corporations to select all of the township in which any part of the village is located, plus an area that will make the total selection equal to the acreage to which the village is entitled. The 12(b) entitlement is land distribution from the regional corporation to village corporations after considering historic use, subsistence needs, and population.²¹⁵

Under ANCSA Section 14(c)(3), a 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), lands identified for present and future community needs, such as community expansion, rights-of-way, and other community

²¹⁰ U.S. Bureau of Land Management. 2023. *Alaska Native Allotment Act Entitlements*.

²¹¹ Ibid

²¹² U.S. Bureau of Land Management. 2023. *Alaska Native Veteran Program of 2019*.

²¹³ U.S. Bureau of Land Management. 2023. *Alaska Native Veteran Program of 2019, Mapping Application*.

²¹⁴ ANCSA Regional Association. n.d. *About the Alaska Native Claims Settlement Act*.

²¹⁵ Native Land Selections. 43 U.S.C. § 1611 12(b).

needs.^{216, 217} Because the land is transferred from the village corporation, the city receives only the surface estate. The most important factor in determining the amount of land to be transferred is the agreement of both the city and the village corporation on which land is to be conveyed and for what purpose(s). The 14(c) process has been completed for Wainwright; Olgoonik Corporation has conveyed title to the lands pursuant to 14(c).

easements trails in the vicinity of Wainwright, stretching north and south along the coastline and inland along the Kuk and Kungok rivers.

Arctic Slope Regional Corporation. ASRC, one of the largest private landowners in Alaska, holds ownership of nearly five million acres of land on the North Slope. These lands are located in areas that either already have known resources or show significant potential for the discovery of oil, gas, coal, and base metal sulfides. ASRC has acquired the majority of the lands it is entitled to under the provisions of the Alaska Native Claims Settlement Act.

17(b) Easements. ANCSA also established 17(b) easements, which are reserved easements for the U.S. government. These easements are situated between communities, airports, docks, and the marine coastline. Their primary purpose is to provide access for the public to traverse private property in order to reach public lands and major waterways. Recreational activities such as hunting, fishing, or other forms of recreation are not permitted on 17(b) easements because the land is privately owned. They are designated as 60-foot-wide roads, 25- and 50-foot trails, and one-acre sites for short-term use. There are not 17(b) easements across public lands. There are 17(b) easement trails near Wainwright. Map 8.5 illustrates 17(b)

²¹⁶ Alaska Department of Commerce, Community and Economic Development. 2016. Division of Community and Regional Affairs. *Planning and Land Management*.

²¹⁷ 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.

Map 11.1: Wainwright Cabins, Camps, and Native Allotments



Land Ownership

Private Land. The small amount of privately-owned land in the Wainwright area is primarily concentrated within and immediately surrounding the community. There are approximately 90 privately owned lots within Wainwright. The 1,914 acres (24 lots) of Olgoonik Corporation land are also privately owned.

North Slope Borough

The NSB owns land in Wainwright associated with its public works facilities. These facilities include the airport, bulk fuel tank farm, landfill, sewage lagoon, wastewater treatment plant (WWTP), water treatment facility, power plant, shop facilities, the school and teacher housing, health clinic, fire station, power generation, water and sewer systems, public works buildings, and some residential lots.

State of Alaska

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 its 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 also owns land within the Wainwright Area of Influence, primarily south of the community, including some tracts of land near Point Lay and Point Hope. The largest state landholding is between the NPR-A and ANWR, including the Prudhoe Bay region.

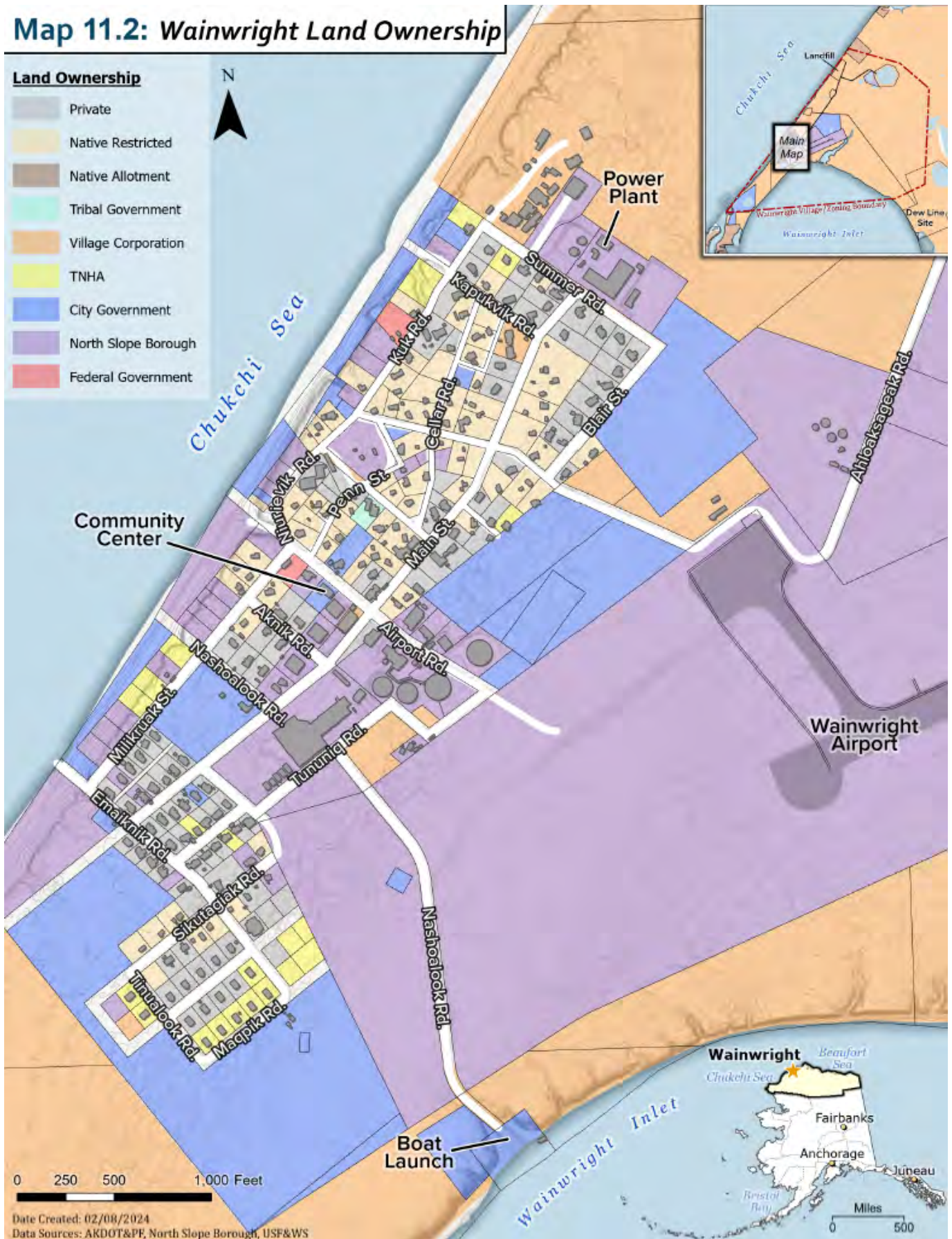
Federal. The federal government owns over half of the land within the North Slope Borough. Federal land in the North Slope Borough include Arctic National Wildlife Refuge (ANWR), NPR-A,

portions of the Gates of the Arctic National Park (GARR), the Noatak National Preserve, the Alaska Maritime National Wildlife Refuge, federal waters of the Outer Continental Shelf (OCS), and DEW Line sites scattered across the coastline, among others. Most federal land in the vicinity of Wainwright lies within the NPR-A.

Olgoonik Corporation. The Distant Early Warning Line (also known as the DEW Line or Early Warning Line) is a series of radar stations positioned along the northern coast of Alaska, the Aleutian Islands, and the northern Arctic regions of Canada, Faroe Islands, Greenland, and Iceland. Its establishment in the early 1950s aimed to detect incoming Soviet bombers and provide advanced warning against potential land-based invasions during the Cold War. Currently, these stations are either abandoned or minimally staffed.

In Wainwright, a DEW Line station is situated three miles southeast of the existing Wainwright airport. The site, constructed in 1953, covers approximately 1,518 acres of land and features a small 3600-foot runway. The property, including surface and subsurface title, was sold to OC in 2016. OC has collaborated with the USAF to address contamination issues and has dismantled many of the previous structures on the site. Two primary buildings, including the Radome building, still remain along with the original runway. Other nearby DEW Line stations close to Wainwright include those at Peard Bay, located 28 miles to the north, and Icy Cape, 48 miles to the south.

Map 11.2: Wainwright Land Ownership



National Petroleum Reserve – Alaska. At approximately 23 million acres, the NPR-A is the largest area of federally managed land in the U.S., overseen by the BLM. Its boundary extends eastward from Icy Cape near Point Lay, along the Chukchi Sea coast, and to the highest water mark on the western bank of the Colville River. The NPR-A makes up more than a third of the North Slope Borough. Most of Wainwright’s Area of Influence is within the boundaries of the NPR-A; the exception is Chukchi Sea waters and along the coastline from Kasegaluk Lagoon south for about 110 miles. Wainwright itself is located along the western edge of the NPR-A, shown on Map 6.1.

The reserve’s natural resources and scientific value are immense, including two caribou herds, many raptors, millions of migratory birds, tens of thousands of molting geese, large concentrations of beluga whales and other marine mammals, vast wilderness landscapes, wild rivers, and rich geological, scientific, archaeological, and paleontological sites. It is also important for subsistence activities for the people of the North Slope.

President Harding, aware of the land’s potential petroleum value, issued Executive Order No. 3797-A in 1923 creating the Naval Petroleum Reserve No. 4, also known as Pet-4. In 1976, the Naval Petroleum Reserves Production Act (NPRPA) transferred management of the reserve from the U.S. Navy to the BLM within the U.S. Department of the Interior and renamed it the NPR-A. Oil and gas leasing in the NPR-A is authorized under the NPRPA and the Department of Interior Appropriations Act of

1976 (42 U.S.C.6501 et seq.), as amended including The Department of the Interior Appropriations Act of 1981 (94 Stat. 2964). Act.^{218, 219} The BLM holds annual oil and gas lease sales for the NPR-A. In 2019, the NPR-A generated more than \$56 million in oil and gas lease revenue. An additional lease sale was held in 2021, generating \$14.4 million in revenue.²²⁰

The BLM manages NPR-A lands and resources through the Integrated Activity Plan (IAP). The April 2022 IAP Record of Decision (ROD) provides the current management direction for the NPR-A. The 2022 ROD selects a different alternative than had previously been selected from the 2020 NPR-A Integrated Activity Plan Final Environmental Impact Statement. The No Action Alternative provides approximately 11.8 million acres of the NPR-A’s subsurface estate for oil and gas leasing. The remaining approximately 11 million acres are closed to oil and gas leasing in order to protect and conserve important surface resources and uses in these areas.

Zoning and Land Use Regulations

Zoning divides areas into specific land use districts and regulates activities and land uses within those districts. These zones are designed to accommodate current and future land uses, both on public and private land. The North Slope Borough is responsible for administering platting and zoning on behalf of its residents under the authority of Title 19, as mandated by the State of Alaska. Every area within the borough has been assigned to a zoning district, as depicted on the

²¹⁸ U.S. Bureau of Land Management. 2023. *National Petroleum Reserve in Alaska*.

²¹⁹ Regulations for NPR-A oil and gas leasing, exploration and operations are found in 43 Code of Federal Regulations (CFR), Parts 3130, 3150, 3160, respectively. The Mineral Leasing Act of 1920, as amended and supplemented (30 U.S.C. 181 et seq.) and related regulations do not apply to leasing in the NPR-A.

²²⁰ U.S. Bureau of Land Management. 2023. *Alaska Oil and Gas Leases*.

official zoning map. Apart from Utqiagvik-specific districts, there are five main zoning districts: Village, Conservation, Scientific Research, Resource Development, and Transportation Corridor. Any changes to zoning require approval from the NSB Assembly, following a review by the NSB Planning Commission.

Chapter 19.40 of NSBMC Title 19 provides details about the purpose of each zoning district and outlines the activities that require administrative approval, a development permit, or conditional development.²²¹ In addition to policies related to individual districts, Title 19 requires projects to be evaluated by additional policies, including Economic Development Policies (§ 19.70.030), Offshore Development Policies (§ 19.70.040), Coastal Management Policies (§19.70.050), and Transportation Corridor Policies (§19.70.050). The NSB's Coastal Management Policies continue to remain in effect even though the statewide program has ended. Title 19 also includes provisions for implementation and enforcement of traditional land uses.

A consideration at the North Slope Borough Planning & Community Services Department is the establishment of village zoning commissions similar to the Utqiagvik Zoning Commission. The purpose of such commissions would be to implement the Comprehensive Development Plan for each respective village and assist in fire prevention and the delivery of emergency medical services. If the community is interested in implementing a village zoning commission, close coordination between community

leadership and the North Slope Borough would be necessary.

Village Zoning District (§19.40.060). The entirety of the city of Wainwright is contained within the Village District. The surrounding area outside of the municipal boundaries is within the Conservation District. Table 11.2 describes uses that are allowed in these two districts.²²²

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 North Slope Borough Comprehensive Plan, Capital Improvements Program and Comprehensive Development Plan for the village; and
- Are in accord with the desires of the residents of the village.

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

For Administrative Approval. The following can be administratively approved by the borough's Land Administrator²²³ 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

²²¹ Activities listed as a conditional development require approval by the NSB Planning Commission.

²²² The Village District is described in the NSB Zoning Regulations Section 19.40.060, and the Conservation District is described in Section 19.40.70.

²²³ The Land Administrator for the Borough is the Director of the NSB Planning and Community Services Department.

3. Any use or structure within the watershed that provides the community's drinking water.

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

NSB Planning Commission:

1. Resource extraction; and
2. Any use “elevated” by the Land Administrator for Commission review by the NSB Land Administrator, pursuant to § 19.50.020.²²⁴

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:

1. 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;
2. Development and uses in a village are required to be consistent with the relevant adopted village Comprehensive Development Plan;
3. Development and uses are encouraged which provide or materially contribute to lower-cost fuel or power; and
4. Development and uses are encouraged which provide local employment in the villages.

Conservation Zoning District (§19.40.070). This district generally encompasses the undeveloped areas of the borough and is intended to conserve the natural ecosystem for all the various plants and animals upon which borough residents

depend for subsistence. Subject to this overall intent, land within this district be used for limited resource exploration and development.²²⁵ Major resource development project areas must be rezoned to the Resource Development District (RDD).

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:

1. All conditional and other development permit applications elevated by the Land Administrator under § 19.50.020.

²²⁴ 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 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.

²²⁵ North Slope Borough. 1990. *North Slope Borough Municipal Code of Ordinances. Title 19: Zoning. Chapter 19.40: Zoning Districts.*

While the NSB oversees land use and zoning regulations across the North Slope region, many native corporations require permits to traverse their privately owned property. It is common for researchers or hunters to seek access to corporation land. Access across Olgoonik Corporation land can be requested by contacting the Olgoonik Lands Department directly. Shareholders of the Olgoonik Corporation, spouses of shareholders, descendants of shareholders, and tribal members from surrounding villages do not need a permit for access to Olgoonik Lands.

Contaminated Sites and Hazardous Materials

Contaminated sites are defined the Alaska Department of Environmental Conservation (ADEC) as “location[s] where hazardous substances, including petroleum products, have been improperly disposed.” An online database of these sites²²⁶ is maintained by the ADEC along with site designations by the Department for each site. A search of the database reveals 18 contaminated sites in surrounding area, located primarily within the community and at or near the DEW Line site.²²⁷ Each site falls into one of three categories assigned by the ADEC: Cleanup Complete, Cleanup Complete – Institutional Controls, and Open. Of these, 11 have been given a Cleanup Complete status by the ADEC and none are designed as in Cleanup Complete – Institutional Controls status. The remaining eight are designated as Open.

All sites in the Wainwright vicinity are listed in Table 11.1: Contaminated Sites in the

Wainwright Area and depicted in Map 11.3: Constraints. Greater in-depth information addressing these sites, including site status details, cleanup chronology logs, and other associated documentation are found on the ADEC Sites Program website.

Active Sites. Active sites have confirmed contamination above action levels and require additional characterization, monitoring, or cleanup before a closure decision can be made. There are six active sites within the village of Wainwright. All of the sites are related to village operations: the former tank farm, former Alak School tank farm, washeteria/water plant, the old BIA tank farm, power plant, and the tank truck loading area (TTLA).

NSB Wainwright Former Tank Farm. Chronic spills have been documented since 1991. Contamination was determined to be present throughout the site, both within and outside of the containment dike areas. The NSB was issued a Notice of Violation (NOV) in February 2020.²²⁸

NSB Wainwright Alak School Former Tank Farm. Originally an old BIA Tank Farm, the pad was cleared in 1992 of the old BIA tanks which were reported to have minimal liner, no berms and fuel saturated area around tanks. Some corrective action has taken place; the NSB removed approximately 700 cubic yards (CY) of diesel contaminated soil in 2003. The NSB committed to redirect drainage so that surface water would not flow through the site to prevent run-off into drainage ditches. The NSB was issued a NOV in February 2020.²²⁹

²²⁶ Alaska Department of Environmental Conservation. 2023. *Division of Spill Prevention and Response, Contaminated Sites Program*.

²²⁷ Ibid

²²⁸ Alaska Department of Environmental Conservation. 2023. *Site Report: NSB Wainwright Former Tank Farm*.

²²⁹ Alaska Department of Environmental Conservation. 2023. *Site Report: NSB Wainwright Alak School Former Tank Farm*.

NSB Wainwright Washeteria/Water Plant. The area between the washeteria and the water treatment plant was contaminated from multiple diesel fuel spills of diesel fuel as well as two nearly adjacent former areas to the southeast. Contaminated soil is expected to be shipped to Oxbow landfill.²³⁰

NSB Wainwright Old BIA Tank Farm and Day Tank. In 1993, ten 8,000-gallon fuel storage tanks that supplied arctic grade diesel and gasoline to the BIA School buildings and to the Olgoonik Presbyterian Church were cleaned, removed, and demolished. A site assessment after demolition identified that stormwater draining from these pads was transporting contamination off site, through the village, and into the Chukchi Sea. Soil contamination was also identified corresponding to the location of the former storage tanks, fuel lines, and point-of-use day tanks. There have been efforts to further characterize the contamination at the site since. The NSB was issued a NOV in February 2020.²³¹

NSB Wainwright Power Plant. In August 2013, an aboveground day tank at the power plant was overfilled, releasing approximately 105 gallons of diesel. In February 2016, 240 gallons of ultra-low sulfur diesel were released during a fuel transfer to the boiler day tank. Some of the soil has been tilled, the aeration process allowing the contaminants to dissipate. The remaining contaminated soil is planned to be transported to a landfill for disposal.

NSB Wainwright Tank Truck Loading Area. In September 2015, approximately 860 gallons of

ultra-low sulfur diesel were released to secondary containment from a bulk fuel tank to a tanker truck. As a result, 269 super-sacks of contaminated soil were removed but some areas ADEC human health criteria in surface soil and potentially subsurface soil. The NSB was issued a NOV in February 2020.²³²

Icy Cape Former DEW Line Station Landfills A, B, and C. The Icy Cape DEW Line Station, located between Wainwright and Point Lay, was operational from 1957 to 1965. Landfills at the site are anticipated to contain predominantly industrial wastes, including contaminated soil and numerous items that serve as sources of contamination, including empty drums and drums of waste oil, lead-acid batteries, old electrical equipment with PCBs, and transformer casings. There are reports from residents of Point Lay and the NSB Planning Department of drums protruding from the embankment and possible contamination in Icy Cape Creek, a drainage area adjacent to Landfill C. The Navy is responsible for site characterization and clean-up. They have submitted a Draft Human Health and the Revised Draft Ecological Risk Assessment Work Plan for Remedial Investigation.²³³

Cleanup Complete Sites. There are 18 sites classified under this designation, most of which are associated with the Wainwright DEW Line, including the airstrip, vehicle storage facility landfill, fuel tanks, and garage. Cleanup is also complete at the Icy Cape DEW Line site. Site cleanup consisted of demolition and offsite disposal of infrastructure (buildings, fuel tanks, piping, etc.) and offsite disposal of contaminated

²³⁰ Alaska Department of Environmental Conservation. 2023. *Site Report: NSB Wainwright Washeteria/Water Plant.*

²³¹ Alaska Department of Environmental Conservation. 2023. *Site Report: NSB Wainwright Old BIA Tank Farm and Day Tank.*

²³² Alaska Department of Environmental Conservation. 2023. *Site Report: NSB Wainwright Tank Truck Loading Area.*

²³³ Alaska Department of Environmental Conservation. 2023. *Site Report: Icy Cape Former Dew Line Station Landfills A, B and C.*

soil.²³⁴ Contamination at the Akasha Army National Guard Federal Scout Armory site has also been fully remediated.²³⁵

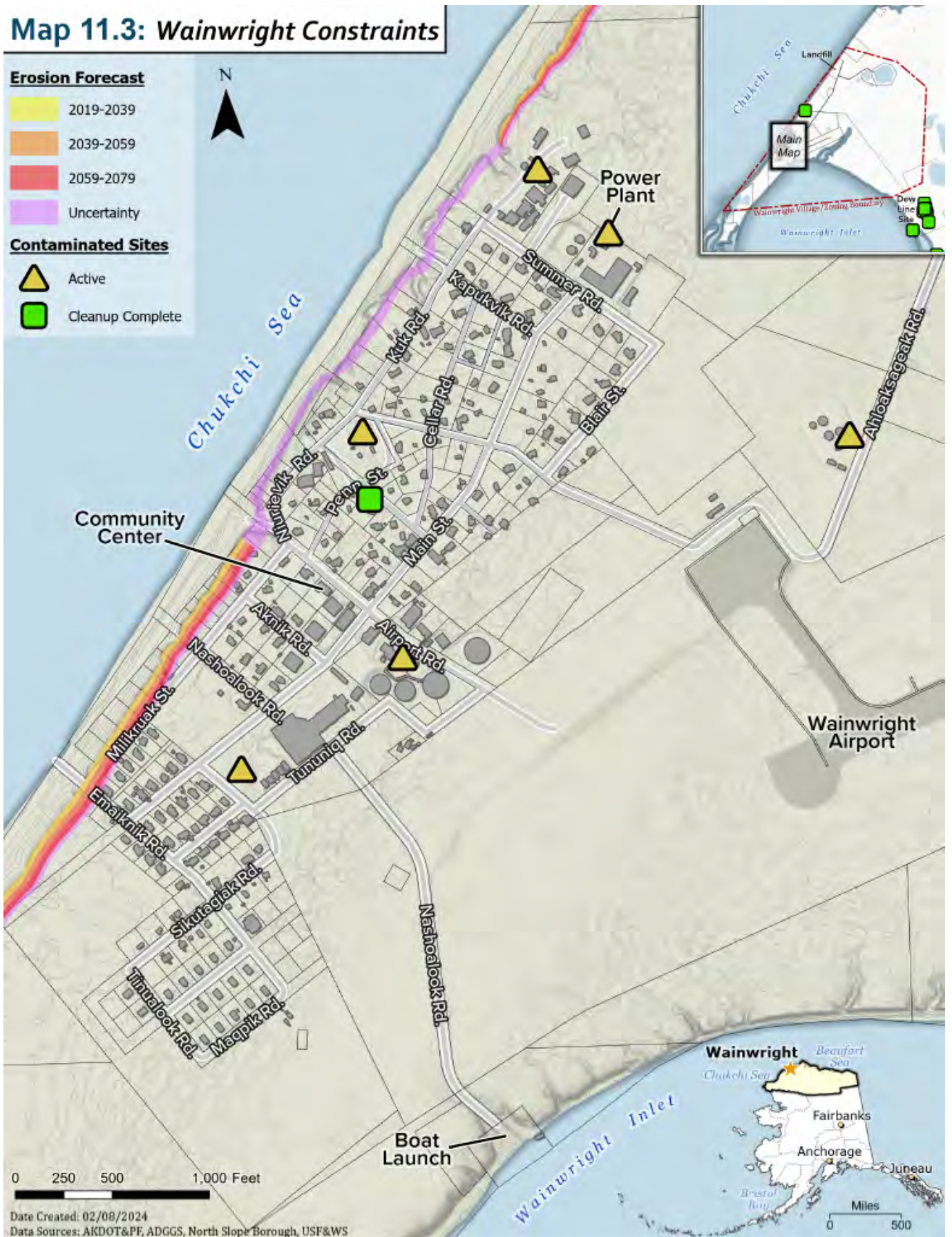
Table 11.1: Contaminated Sites in the Wainwright Area

ADEC Haz. ID	Site Name	Address	Status
744	Wainwright DEW Line/LIZ-3/Fuel Spills (SS004)	Kuk River	Cleanup Complete
745	Wainwright DEW Line/LIZ-3/Vehicle Storage	Kuk River	Cleanup Complete
746	Wainwright DEW Line/LIZ-3/Airstrip	Kuk River	Cleanup Complete
764	Wainwright DEW Line/LIZ-3	Kuk River	Cleanup Complete
775	Icy Cape Dewline DERP FUDS	~50 Miles SW of Wainwright	Cleanup Complete
796	Wainwright DEW Line/LIZ-3/Garage (SS007)	Kuk River	Cleanup Complete
797	Wainwright DEW Line/LIZ-3/Drum Storage	Kuk River	Cleanup Complete
798	Wainwright DEW Line/LIZ-3/Landfill LF005	Kuk River	Cleanup Complete
1387	NSB Wainwright Former Tank Farm	North of city; Adjacent to Chukchi Sea access ramp	Open
1597	NSB Wainwright Alak School Former Tank Farm	School Street	Open
2471	AKARNG Wainwright FSA	Church Road	Cleanup Complete
2643	NSB Wainwright Washeteria/Water Plant	Corner of Main Street & Airport Road	Open
4306	NSB Wainwright Old BIA Tank Farm and Day Tank	SE corner of Kuk Rd & Ahloksageak Rd	Open
25245	Wainwright DEW Line/LIZ-3/Landfill LF006	Kuk River on the Chukchi Sea	Cleanup Complete
25758	Icy Cape Former DEW Line Station Landfills A, B, and C	50 Miles NE of Wainwright	Open
26245	NSB Wainwright Power Plant	117 Summer Road	Open
26383	Wainwright DEW Line/LIZ-3/Beach Diesel Tanks (SS001)	~0.6 Mile NE of Wainwright on the Chukchi Sea shore	Cleanup Complete
26756	NSB Wainwright Tank Truck Loading Area	NSB Wainwright Tank Farm; Ahloksageak Road Extension	Open

²³⁴ Alaska Department of Environmental Conservation. 2023. *Site Report: Icy Cape Dew Line DERP and FUDS*.

²³⁵ Alaska Department of Environmental Conservation. 2023. *Site Report: AKARNG Wainwright FSA*.

Map 11.3: Wainwright Constraints



Current Land Use

The Wainwright community was designed using a grid system with the main thoroughfares of Main Street, Milikruak Street/Niurievik Street/Kuk Road running in a generally north-south orientation and Summer Road, Nashoalook Road, and Emaiknik Road running east-west. Typical residential lots range from just over a quarter acre to a half-acre. One residential lot is just over an acre and a half. Newer subdivision lots in the southern end of the village are relatively uniform in size and are approximately 100 by 80 feet while many of the other residential lots closer to the center of the village are larger and irregularly shaped. Each block generally has an unimproved 10-foot utility easement and streets have a 60 – 100-foot right-of-way. Residential and commercial areas are mixed. Residences are interspersed with the Alak School, the NSB Fire Station, churches, and stores and other commercial and public uses.

Identifying land by the type of use is common in current and long-range planning. Map 11.4 illustrates current land use. These land uses are not delineated in NSBMC Title 19 but are included here to distinguish certain areas within the community. General categories of current land uses are provided in Table 11.2.

Future Land Use

There are not a sufficient number of parcels already platted for current and future housing development. Planning for additional subdivisions for both the near-term and long-term is needed. Map 11.5: Future Land Use illustrates locations for residential subdivisions. Map 8.7: Future Projects identifies additional land for residential development as well as projects needed by the community, as discussed in Chapter 8: Public Facilities.

Table 11.2: Current Land Uses

Land Use	Description
Residential	Single-family and multi-unit housing
Commercial	Grocery stores, repair shops, hotels, bed & breakfast establishments, fuel distribution centers, churches, bingo halls, recreation facilities, senior and youth centers, daycare centers, and other public services
Industrial	Public facilities such as public works shops, water and sewage treatment plants, telecommunications facilities, warehouse and storage yards, the airport, cemetery, gravel pits, fuel tank farms, landfills, resource development areas, and similar uses
Mixed Use	Residential uses and small-scale commercial uses that are compatible with residential areas, such as small grocery stores, day care facilities, post office yet exclude industrial and resource development uses

Map 11.4: Wainwright Land Use

Land Use

- Commercial
- Industrial
- Education
- Institutional
- Single-family Residential
- Multi-family Residential
- Traditional Use
- Mixed Use - Comm./Res.
- Mixed Use - Comm./Ind.
- Vacant



Map 11.5: Wainwright Future Land Use



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APPENDICES

Appendix A: State of Alaska Community Profile Maps

Appendix B: Adaptation Strategies for Climate Change Impacts

Appendix C: Resolutions of Plan Support/Adoption

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Legend & Notes

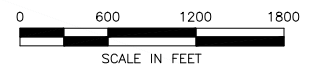
- City Boundary
- 17b Trail Easements

MAP NOTES
 This map was prepared by North Slope Borough in cooperation with Alaska Department of Commerce, Community, and Economic Development using funds provided by the Coastal Impact Assistance Program, State of Alaska and North Slope Borough. 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.

**AREA USE MAP
 WAINWRIGHT**

70° 38' 34" N 160° 01' 34" W (NAD 83)
 Approximate Elevation: 21.08' at UMIAQ Alum Cap "Lot 1, Blk. 20"
 Townships 14, & 15 North, Ranges 31 & 32 West, U.M., AK
 U.S.G.S. Quadrangle "WAINWRIGHT C-2", Alaska
 BARROW RECORDING DISTRICT

SEE SHEETS 1 - 3 FOR DETAILED COMMUNITY MAP



SCALE: 1"=600'
 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

SHEET
 4 of 5

WAINWRIGHT AREA USE MAP SHEET 1 (4 of 5) 1"=600' (2014 PHOTOGRAPHY)



MAP NOTES
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 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 acquired 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 station for GPS Inc. TBM "BASE 1". The horizontal datum NAD 1983 coordinates for this TBM are North 70° 38' 21.01539" and West 160° 01' 15.47567" and the elevation is 55.19 ft.
 The mapping of the community of Wainwright has been adjusted to this control using high-precision GPS methods and the adjusted coordinates and elevation for UTM Monument "Lot 1, Bk. 20, were calculated to establish a local control reference. The NAD 1983 coordinates for this monument are North 70° 38' 34.2810" and West 160° 01' 34.2094" and the elevation is 21.08 feet.
 This map projection is based upon NAD 83, ASP Zone 7 as expressed in US Survey Feet.

EASEMENTS TO NORTH SLOPE BOROUGH
 Wainwright Village Utility Easements shown on Community Map Sheets 1, 2 & 3 are referenced from multiple books within the Barrow Recording District. This specifically includes the following book numbers, accompanying page ranges, and recorded dates:

Bk. 6	Pgs. 441-514	6/16/1977
Bk. 11	Pgs. 478-482	11/14/1977
Bk. 18	Pgs. 150-151	1/4/1978
Bk. 83	Pgs. 923-999A	7/11/1996
Bk. 84	Pgs. 2-86	7/11/1996
Bk. 85	Pgs. 829-933	9/19/1996
Bk. 86	Pgs. 755-777	11/7/1996
Bk. 87	Pgs. 820-930	12/9/1996
Bk. 88	Pgs. 84-150,	12/19/1996
Bk. 88	Pgs. 624-647	1/17/1997
Bk. 89	Pgs. 38-40	2/13/1997
Bk. 89	Pgs. 639-695	3/19/1997
Bk. 90	Pgs. 133-135	4/8/1997
Bk. 91	Pgs. 701-704, Pgs. 709-724	6/13/1997
Bk. 93	Pgs. 502-506, Pgs. 646-660	11/25/1997
Bk. 93	Pgs. 810-812, Pgs. 972-975	12/16/1997
Bk. 94	Pgs. 250-264, Pgs. 674-676	1/21/1998
Bk. 96	Pgs. 441-460,	3/6/1998
Bk. 98	Pgs. 492-502	5/18/1998
Bk. 102	Pgs. 330-335, Pgs. 338-339	9/23/1998
Bk. 102	Pgs. 854-859	11/2/1998
Bk. 102	Pgs. 899-900	11/9/1998
Bk. 104	Pgs. 613-623, Pgs. 626-628	1/14/1999
Bk. 105	Pgs. 181-184	2/22/1999
Bk. 105	Pgs. 552-554	3/19/1999
2012-000174-0		4/2/2012

- BUILDING KEY**
1. NSB Wastewater Treatment Plant
 2. Fuel Tanks
 3. NSB Generator Plant
 4. Borough Vehicle Shop/Warm Storage
 5. Olgoonik Corporation Buildings
 6. Lift Station #1
 7. Assembly of God Church - Parsonage
 8. Olgoonik Corporation Office Buildings
 9. NSB Tank Farm
 10. Gas Station
 11. FAA Buildings

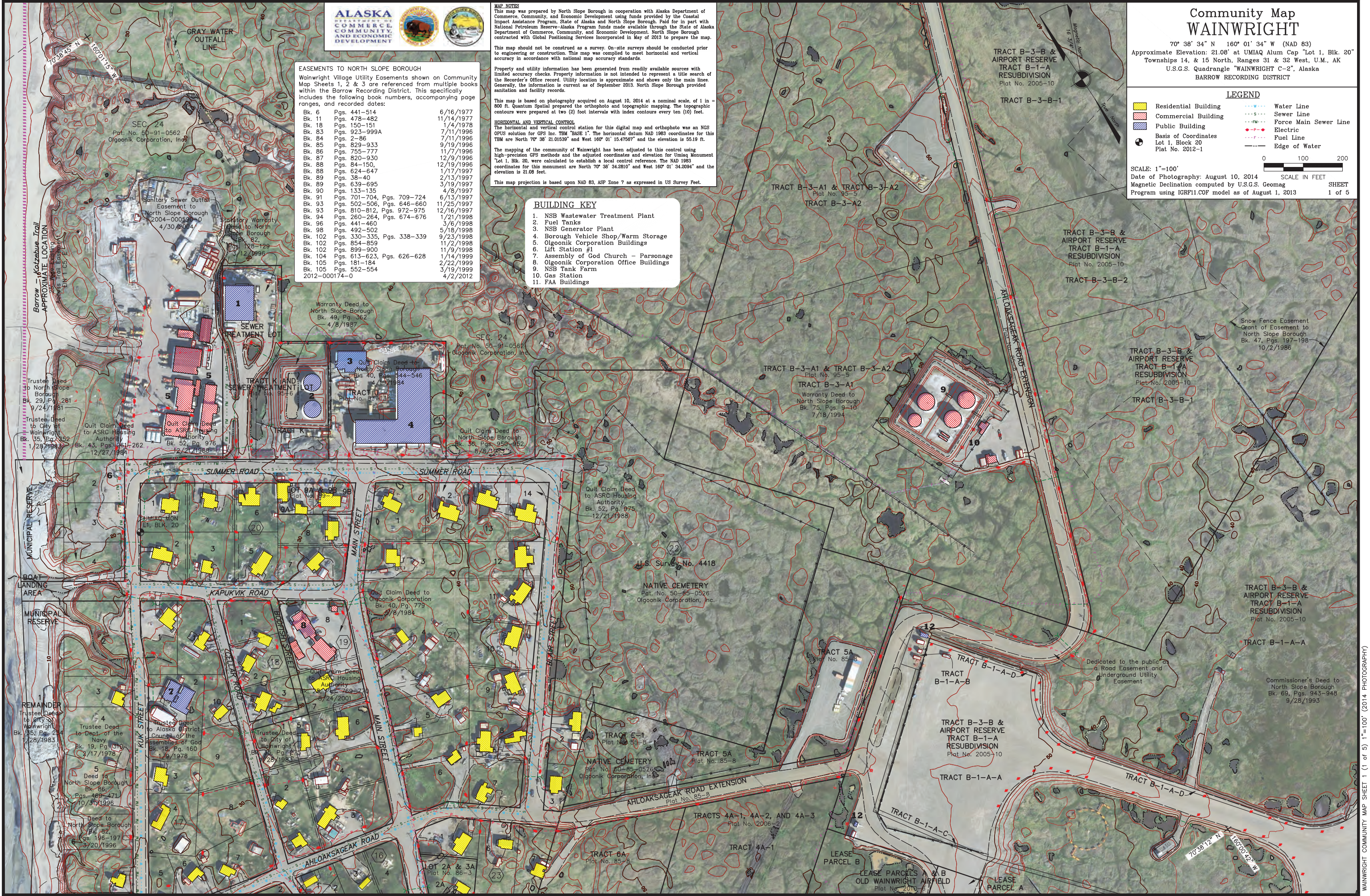
Community Map WAINWRIGHT
 70° 38' 34" N 160° 01' 34" W (NAD 83)
 Approximate Elevation: 21.08' at UMIQA Alum Cap "Lot 1, Bk. 20"
 Townships 14, & 15 North, Ranges 31 & 32 West, U.M., AK
 U.S.G.S. Quadrangle "WAINWRIGHT C-2", Alaska
 BARROW RECORDING DISTRICT

LEGEND

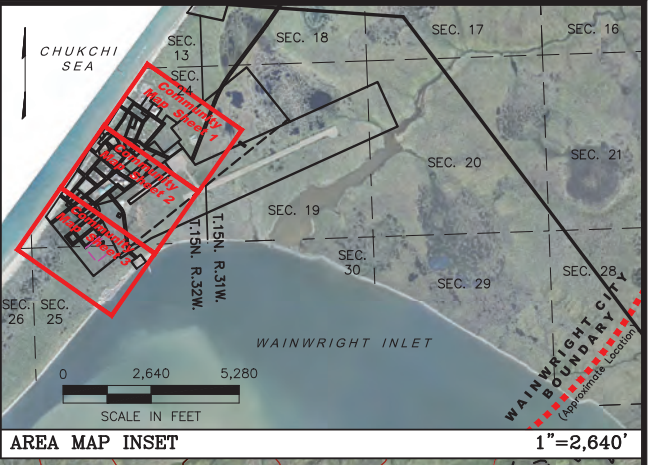
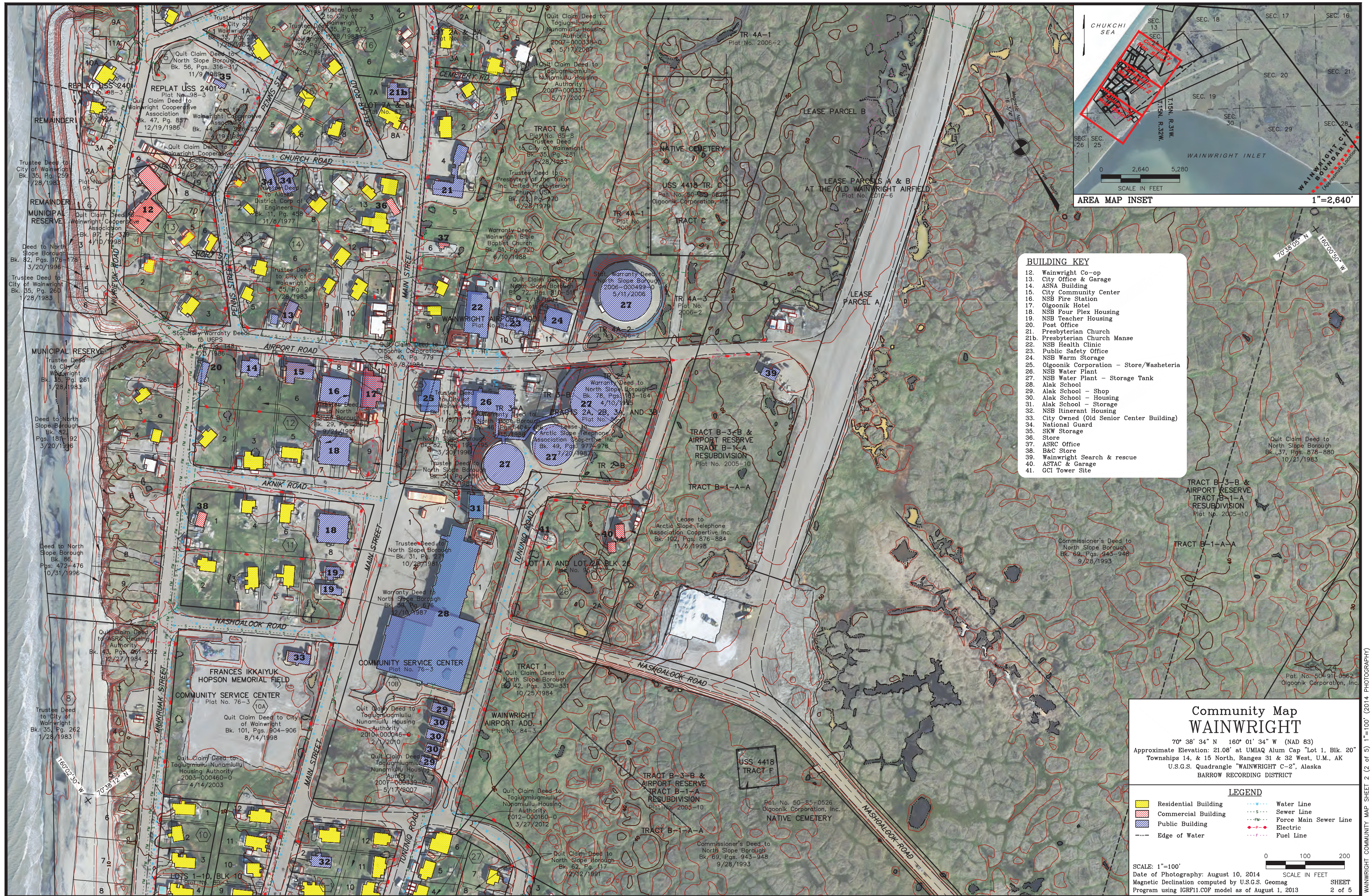
	Residential Building		Water Line
	Commercial Building		Sewer Line
	Public Building		Force Main Sewer Line
	Basis of Coordinates		Electric
	Lot 1, Block 20		Fuel Line
	Pat. No. 2012-1		Edge of Water

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: 0 100 200
 SHEET 1 of 5



WAINWRIGHT COMMUNITY MAP SHEET 1 (1 of 5) 1"=100' (2014 PHOTOGRAPHY)



- BUILDING KEY**
- 12. Wainwright Co-op
 - 13. City Office & Garage
 - 14. ASNA Building
 - 15. City Community Center
 - 16. NSB Fire Station
 - 17. Olgoonik Hotel
 - 18. NSB Four Plex Housing
 - 19. NSB Teacher Housing
 - 20. Post Office
 - 21. Presbyterian Church
 - 21b. Presbyterian Church Manse
 - 22. NSB Health Clinic
 - 23. Public Safety Office
 - 24. NSB Warm Storage
 - 25. Olgoonik Corporation - Store/Washeteria
 - 26. NSB Water Plant
 - 27. NSB Water Plant - Storage Tank
 - 28. Alak School - Shop
 - 29. Alak School - Housing
 - 30. Alak School - Storage
 - 32. NSB Itinerant Housing
 - 33. City Owned (Old Senior Center Building)
 - 34. National Guard
 - 35. SKW Storage
 - 36. Store
 - 37. ASRC Office
 - 38. B&C Store
 - 39. Wainwright Search & rescue
 - 40. ASTAC & Garage
 - 41. GCI Tower Site

**Community Map
WAINWRIGHT**

70° 38' 34" N 160° 01' 34" W (NAD 83)
 Approximate Elevation: 21.08' at UMIQA Alum Cap "Lot 1, Bk. 20"
 Townships 14, & 15 North, Ranges 31 & 32 West, U.M., AK
 U.S.G.S. Quadrangle "WAINWRIGHT C-2", Alaska
 BARROW RECORDING DISTRICT

LEGEND

Residential Building	Water Line
Commercial Building	Sewer Line
Public Building	Force Main Sewer Line
Edge of Water	Electric
	Fuel Line

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
 0 100 200
 SHEET
 2 of 5

WAINWRIGHT COMMUNITY MAP SHEET 2 (2 of 5) 1"=100' (2014 PHOTOGRAPHY)



BUILDING KEY

- 42. Lift Station #2
- 43. TNHA Itinerant Housing
- 44. TNHA Senior Center

**Community Map
WAINWRIGHT**

70° 38' 34" N 160° 01' 34" W (NAD 83)
 Approximate Elevation: 21.08' at UMIAQ Alum Cap "Lot 1, Blk. 20"
 Townships 14, & 15 North, Ranges 31 & 32 West, U.M., AK
 U.S.G.S. Quadrangle "WAINWRIGHT C-2", Alaska
 BARROW RECORDING DISTRICT

LEGEND



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

SHEET
3 of 5

Appendix B: Adaption Strategies for Climate Change Impacts

Weather-related physical change	Potential impacts to the village	Adaptive Response Options
<p>Warmer weather causes thinner lake, river and sea ice.</p> <p>Thawing permafrost. Permafrost soils throughout the Arctic contain almost twice as much carbon as the atmosphere. Warming and thawing of these soils increases the release of carbon dioxide and methane through increased decomposition.</p> <p>Thawing permafrost delivers organic-rich soils to lake bottoms where decomposition in the absence of oxygen releases additional methane in these water bodies.²³⁶</p>	<p>Flooding or damage to ice cellars result in food contamination and food insecurity. This forces families to eat non-traditional and less healthy/nutritious packaged “store bought” food flown in at great expense.</p>	<p>Each village establishes a communication system with residents traveling to hunt, fish and gather foods and travelers on the ice are required to carry emergency GPS tracking devices. Village Search & Rescue teams are properly equipped to rescue travelers in trouble.</p>
	<p>Hunters would have to spend greater financial resources and more time, encompassing greater hazards, to find riverine and terrestrial species—beyond the 10 to 15 miles ideal distance—and into unsafe sea ice conditions.</p>	<p>Permit stipulations for Oil & Gas or commercial tourism travel could require a subsistence mitigation fund which would provide funds to hunters to cover the costs to purchase adequate boats, fuel and equipment to find and harvest subsistence resources at the greater distance from their traditional migratory routes.</p>
	<p>Unknown ice thickness creates hazards for hunters and other winter travelers on snow machines. Traditional knowledge cannot be relied upon as the thinner ice conditions change seasonally and can be exacerbated yearly.</p> <p>Warmer water in lakes and streams cause fish to die in nets, fish texture “softer” and drying of fish is more difficult.</p>	<p>Aerial “flyovers” of traditional routes with specialized equipment to measure the depth of ice and then posting and advertising to the village the safest route to take on the ice for hunting expeditions and for traveling to common destinations such as the nearby village.</p>

²³⁶ Hassol, Susan Joy. *Alaska Climate Impact Assessment. Impacts of a Warming Arctic*. University of Alaska, Fairbanks, 2004. www.amap.no/documents/download/1058.

Weather-related physical change	Potential impacts to the village	Adaptive Response Options
<p>(continued) Warmer weather causes thinner lake, river and sea ice.</p> <p>Thawing permafrost. Permafrost soils throughout the Arctic contain almost twice as much carbon as the atmosphere. Warming and thawing of these soils increases the release of carbon dioxide and methane through increased decomposition.</p> <p>Thawing permafrost delivers organic-rich soils to lake bottoms where decomposition in the absence of oxygen releases additional methane in these water bodies.²³⁷</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>

²³⁷ Hassol, Susan Joy. *Alaska Climate Impact Assessment: Impacts of a Warming Arctic*. University of Alaska, Fairbanks, 2004. www.amap.no/documents/download/1058.

Weather-related physical change	Potential impacts to the village	Adaptive Response Options
<p>(continued) Warmer weather causes thinner lake, river and sea ice.</p> <p>Thawing permafrost. Permafrost soils throughout the Arctic contain almost twice as much carbon as the atmosphere. Warming and thawing of these soils increases the release of carbon dioxide and methane through increased decomposition.</p> <p>Thawing permafrost delivers organic-rich soils to lake bottoms where decomposition in the absence of oxygen releases additional methane in these water bodies.²³⁸</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>

²³⁸ Hassol, Susan Joy. [Alaska Climate Impact Assessment. Impacts of a Warming Arctic](http://www.amap.no/documents/download/1058). University of Alaska, Fairbanks, 2004.

Weather-related physical change	Potential impacts to the village	Adaptive Response Options
Early snow melt.f	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.</p> <p>Toxins such as DDT, PCBs, dioxin, pesticides and heavy metals are carried by both air and ocean currents thousands of miles to the colder arctic ecosystem. The cold Arctic environment is a “sink” or settling area for these contaminants which circulate around the globe northward in air and ocean currents. They settle out in Arctic waters, sea ice, and land, where they remain for long periods and break down very slowly because of the colder climate. The effects of these toxins are magnified as they are ingested by animals rising up the food chain. This is causing a health crisis among the Inuit people in the Arctic Circle.</p> <p>As a result, both land and sea dwelling animals ingest the toxins. On land the toxins are deposited into the plant life and eaten by Caribou, once source of food for the Inuit. In the water, the toxins are found in plankton, which fish in turn eat. These fish then become a source of food for seals and polar bears.</p> <p>(continued)</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.²⁴² 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>

²⁴² North Slope Borough. 2006. *Northern Alaska Subsistence Food Research: Contaminant and Nutrient Ecology in Coastal Marine Mammals and Fish*. www.north-slope.org/assets/images/uploads/CIAP%20booklet.pdf.

Weather-related physical change	Potential impacts to the village	Adaptive Response Options
<p>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. ^{239 240 241}</p>		

²³⁹ Hild, C. 2002. *Contaminants In Alaska: Is America’s Arctic at Risk? In The Status of Alaska’s Oceans & Watersheds.* https://evostc.state.ak.us/media/2798/0602_status.pdf.

²⁴⁰ Adaptation Advisory Group to the Alaska Climate Change Sub-Cabinet. 2010. *Alaska’s Climate Change Strategy: Addressing Impacts in Alaska.*

²⁴¹ 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. www.tandfonline.com/doi/pdf/10.3402/ijch.v64i5.18031?needAccess=true.

Weather-related physical change	Potential impacts to the village	Adaptive Response Options
<p>Higher levels of ultraviolet (UV) radiation.</p> <p>Due to greenhouse gas effects of the stratospheric ozone temperatures, UV radiation in the Arctic is projected to remain elevated.²⁴³</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>

²⁴³ Hassol, Susan Joy. *Alaska Climate Impact Assessment. Impacts of a Warming Arctic*. University of Alaska, Fairbanks, 2004. www.amap.no/documents/download/1058.

Appendix C: Resolutions of Plan Support/Adoption

Wainwright Steering Committee [placeholder]

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NSB Planning Commission [Placeholder]

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NSB Assembly [placeholder]

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