

ADOPTED BY THE NSB ASSEMBLY ON OCTOBER 10, 2017



POINT LAY

COMPREHENSIVE PLAN

2017 - 2037

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Point Lay Comprehensive Plan

Adopted by the North Slope Borough on October 10, 2017

North Slope Borough Assembly Ordinance #75-06-70
North Slope Borough Planning Commission Resolution #2017-10
Native Village of Point Lay #2017-07



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Acknowledgements

The North Slope Borough Department of Planning and Community Services provided leadership for development of this Comprehensive Plan, including Planning Director Gordon Brower and Deputy Director Matt Dunn. UMIAQ Environmental and UMIAQ Design & Municipal Services developed this Plan under contract with ASRC Energy Services, Alaska. Glenn Gray and Associates provided the Adaption Strategies for Climate Change Impacts in Appendix B.

The Comprehensive Planning Stakeholder Committee and Bill Tracey, Sr., the Point Lay representative, provided invaluable input on improving both the plan and the planning process. Most importantly, the Point Lay community residents deserve a special acknowledgement for contributing their time and direction for the contents of this plan. The Native Village of Point Lay provided a great deal of time and effort in input, review, and revisions of this plan. Additional contributors include Cully Corporation, staff at Kali School, and North Slope Borough village employees at the Police Station, Fire Department, and Public Works. The greatest contributions came from residents during public meetings that were held to seek and incorporate local knowledge, expertise, and their vision for the future of the community that serves as the backbone of this planning effort.

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Acronyms

ACP	Arctic Coastal Plain
ACS	American Community Survey
ADEC	Alaska Department of Environmental Conservation
ADF&G	Alaska Department of Fish and Game
AEA	Alaska Energy Authority
AEWC	Alaska Eskimo Whaling Commission
AHFC	Alaska Housing Finance Corporation
AHRS	Alaska Heritage Resource Survey
AK	Alaska
ANCSA	Alaska Native Claims Settlement Act
ANICA	Alaska Native Industries Cooperative Association
AOI	Area of Influence
ASNA	Arctic Slope Native Association
ASRC	Arctic Slope Regional Corporation
ASTAC	Arctic Slope Telephone Association Cooperative
AWIC	Arctic Women in Crisis
ATV	All-Terrain Vehicle
AWOS	Alaska Weather Operations Services
BIA	Bureau of Indian Affairs
BLM	Bureau of Land Management
BOD	Biological Oxygen Demand
CB	Citizen’s Band
CIP	Capital Improvement Program
CRREL	Cold Regions Research and Engineering Laboratory
DCCED	Alaska Department of Commerce, Community and Economic Development
DEW Line	Distant Early Warning Line
DNR	Alaska Department of Natural Resources
ESA	Endangered Species Act
EEZ	Exclusive Economic Zone
F	Fahrenheit
FAA	Federal Aviation Administration
FLPMA	Federal Land Use Policy and Management Act
FY	Fiscal Year
GP	General Permit
gpd	gallons per day
GPPPD	gallons per person per day
HDPE	High Density Polyethylene
HPS	High Pressure Sodium
HUD	U.S. Department of Housing and Urban Development
ICAS	Iñupiat Community of the Arctic Slope
IHLC	Iñupiat History, Language and Cultural [NSB department]

IRA	Indian Reorganization Act of 1934
IRR	Indian Reservation Roads
IWC	International Whaling Commission
kW	Kilowatt
kWh	Kilowatt hour
LED	light-emitting diode
LEPC	Local Emergency Planning Committee
MALSR	Medium-intensity Approach Lighting System with Runway Alignment Indicator Lights
MIRL	Medium Intensity Runway Light
MITL	Medium Intensity Taxiway Light
mph	Miles per hour
MSWLF	Material Storage Waste Landfill
MBTA	Migratory Bird Treaty Act
n.d	no date
NAAQS	National Ambient Air Quality Standards
nm	nautical miles
NOAA	National Oceanic and Atmospheric Administration
NPR-A	National Petroleum Reserve - Alaska
NSB	North Slope Borough
NSBMC	North Slope Borough Municipal Code
NSBSD	North Slope Borough School District
NSSI	North Slope Science Initiative
NVPL	Native Village of Point Lay
PAR	Project Analysis Report
PCE	Power Cost Equalization
PFD	Permanent Fund Dividend
PLB	Personal Locator Beacon
PP/PD	Per person / per day
PPOR	Power Plant Operator Report
PRC	Project Recommendation Committee
PV	Photovoltaic
RELI	Residential and Employment Living Improvement Program [former NSB program]
SCADA	Supervisory control and data acquisition
SF	Square Feet
SWOT	Strengths, Weaknesses, Opportunities, Threats
SY	School Year
TLUI	Traditional Land Use Inventory
TNHA	Tagiugmiullu Nunamiullu Housing Authority
TSS	Total Suspended Solids
U.S.	United States
USGS	U.S. Geological Survey
USCOE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
WWTP	Waste Water Treatment Plant

Executive Summary

The Point Lay Comprehensive Plan was collaboratively developed by community leadership and residents to create a sustainable and resilient Point Lay over the next twenty years and beyond. This extensive public outreach included several public meetings that included Iñupiaq dancing, meeting with Point Lay leadership during the Alaska Federation of Natives meeting, a public review meeting and public comment period, as well as opportunities for review and input during the North Slope Borough Planning Commission and Assembly meetings.

This planning process resulted in Goals, Objectives, and Implementing Strategies that are integral to the well-being of Point Lay. They focus on housing issues, preserving the Iñupiaq culture and subsistence activities; community services; community facilities; economic development; education; and cooperation.

Point Lay Community

The Iñupiat village of Point Lay, or Kali, is located on Alaska's Chukchi Sea coast, protected from the open ocean by the Kasegaluk Lagoon. Kali, the Iñupiaq name for the village, means something being dragged or towed.¹ Residents tell a story of a woman seeking high ground for safe refuge by pulling a mound to its current location, which became known as Kali mound. Kali also means "mound" and refers to the elevated mound on which the community stands.² The coastal plain, which extends southwest of Point Lay to Cape Beaufort, is characterized by low, wet tundra, scattered lakes, and meandering streams. The nearest villages are Wainwright, 93 miles northeast, and Point Hope, 133 miles southwest, both along the Chukchi Sea coast. The village of Atqasuk is located along the Meade River, 140 miles northeast of Point Lay. Barrow, the government seat of the North Slope Borough is located approximately 190 miles to the northeast.

The Iñupiat highly regard family, work ethic, the Iñupiaq language, drumming and dancing, and sharing food and knowledge of the environment and its inhabitants with a deep respect for the environment as it provides fresh water, clean air, and subsistence foods. Subsistence activities play a large role in the community. For Alaska Natives of the North Slope, subsistence is a connection to the land and the way the Iñupiat passed down traditional knowledge through generations.

Village subsistence users travel great distances to meet their subsistence needs. Point Lay residents subsist upon many marine mammals such as bowhead whales, beluga whales, and bearded seals. Point Lay residents also enjoy an abundance of caribou, waterfowl, and fish. The range that Point Lay residents travel for subsistence hunting and fishing can change over time as traditional subsistence land use

¹ "Kali". 2014. In *Iñupiaq to English Dictionary*. Compiled by Edna Ahgeak MacLean. Published by University of Alaska Press Fairbanks and the North Slope Borough Iñupiaq, History, Language, and Culture Commission.

² North Slope Borough. 2017. *Our Communities: Point Lay*. Accessed Mar. 22, 2017. www.north-slope.org/our-communities/point-lay.

patterns change based on the availability of animals and fish. The area of influence can be used to determine community stakeholders that may need to be consulted prior to activity that may affect their traditional use of the land.

The U.S. decennial census provides data on the Point Lay population as far back as 1880, when there was approximately 30 people living in the community. Today, approximately 269 people call Point Lay home, nearly 90 percent of which are Iñupiat. It is one of eight communities within the North Slope Borough, a vast area that encompasses of nearly 95,000 square miles across northern Alaska that has a total population of only 8,075 residents. A linear trend population projection over the next twenty years indicates an increase of 29 people by 2025 and 21 people by 2035 with a 2035 total population projection of 290 residents.

The Point Lay Comprehensive Plan

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

The 2005 North Slope Borough Borough-wide Comprehensive Plan contains a profile for each North Slope Borough community. This Comprehensive Plan replaces the Point Lay community profile in the Borough-wide Comprehensive Plan. Point Lay residents participated in the development of this plan through public meetings and workshops. Input was also provided by the Native Village of Point Lay and Cully Corporation, the village Native corporation. Based on community input, a vision was created for the comprehensive plan that establishes a shared set of community values and direction for the future of Point Lay:

We, the residents of Point Lay, envision a healthy community – economically, socially, culturally, and environmentally. We practice Tribal self-determination and honor our cultural heritage by prioritizing a traditional subsistence lifestyle and Iñupiaq values, while emphasizing sustainable growth through quality affordable housing, economic development, and community cooperation and respect.

Our community cultivates future leaders that actively participate in public policy and decision-making for the betterment of all village residents. We support quality education and training opportunities so that residents are prepared for careers and job advancement. We foster recreational opportunities to promote healthy and active lifestyles. We strive for quality infrastructure and community facilities and services that meet the needs of our community residents.

Each chapter of the Point Lay Comprehensive Plan contains an inventory of existing conditions and a discussion of issues as well as factors about Point Lay that make it unique. Goals were also developed to

implement the vision. Implementing strategies address community issues and concerns raised by residents. The analysis of current conditions that support this plan show that Point Lay faces significant challenges, such as the recent loss of the community water source, a failing water and sewer system, subsidence, housing overcrowding, and costly maintenance of existing infrastructure. But Point Lay has strong assets: an advantageous location for subsistence activities, a close knit community, strong sense of family and traditional Iñupiat values, substantial investment in physical infrastructure, and much more.

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

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Iñupiaq Executive Summary

Kalimiut sivunniunarut ataufugich iñuuniagutitij pisigivlugich atautchimun katiifugich aňalatchiritij, iñuuniaqtuallu Kalimi savaagivlugu nutqagumiñaiqsafugu suli payaňaitquvlugu iñuuniagviktij Kali taikuňasugruk, iñuiññaq tikiilugu ukiuni naagga taikuňasugruk. Iñuich tusaaruksraurat tusaapkağniaqfugich qavsiñi taimma kasimarağivat, ağgisimmağmiñ, Kalim aňalatchirij kasimaqatigivlugich Alaska Federation of Natives kasimammata, suli ifuağaluagmagaisa uqaluich katitatin aasii uqagviquatitfugich iñuich suagguuq ikayuutauruat uqausigilisigik, suli piviqagumiñaqsvlugich uqausigivsaaglugich North Slope Borough Planning Commission naagga Assembly kasimammata.

Sivunniugutit taapkua tikitkaich ukua: tikisaksrat, sumun sivuniqaqfugich, aasii qanuq savaagiyumiñaqsilugich suagguuq iñuuniagñinat Kalimiut siglignaipayaaqtuq. Sivunniugutit taapkua; igluñich iñuich savaqfaaqtuksraumagaisa; Iñupiat iñuuniagusiat naagga aňuniagñinat tammaqunijfugu; igliqtillugu ikayuutiniq avanmun; ikayuutauruat nunaaqqimun igliqtillugich; qanuq maniññağniağniq igligumiñaqsilugu; nutaağaluich ilitchiñinat sivunmuktaaglugu; aasii Kalimiut atautchinmutqiksifutij savaagilugich.

Nunaaqqiq Kali

Iñupiat iñuuniagviat Kali siñaaniittuq Alaska-m Chukchi-m tagiunani, aglaan Qasigialuum tasiñanik saakutaqaqhuni. Iñupiatun sivuniqaqtuq Kali, suna kalinñaruaq. Kalim iñunij quliaqtuaqaqtut: ağnaq ivaqfiqsuğguuq qutchiksaamik nunamik, annaksimaagviksramiñik kaliktuaqfugu piñutun ittuaq maniğluk aasii tavra qutchiksaaq nuna tikiññaamij, inillakkaa Kali. Nunam siñaa Kalimiñ Cape Beaufort-mun naqittuq, nuna ailağmiuq, narvaqallaavluni sukulliqaa, suli saquuqtuaqtuanik kuugnik. Nunaaqqich qanittuat uvva: Ulğuniq, 93 miles-tun qavunamun, Tikigaq, 133 miles-tun ununamun, taapkuak Chukchi Sea-m siñaaniifutik. Nunaaqqija Atqasuum Meade River-miittuaq, 140 miles-tun kivunamun Kalimiñ. Utqiağvik, aňalatchivik North Slope Borough-mik, uñasiksilaqaqhuni 190 miles-tun qavunamun.

Iñupiaguruat ilagiğniq pautagipiagaat, ittuanisaagñiq, Iñupiuraagñiq, ağgiñiq, suli anniqsralaitchut niqinik, qiksigidivlugu nunaktij, niğrutillu qanukkii nunaňatta imiqaqtitaagaich, silannaraaguummiut, aasii pamataaqfugich niqiksrañiñik. Niqinnagnaqtuaqhutij ittualaitchut Kalimiut. Alaska-m Iñupianij North Slope-mi niqinnagnağniğum piqpagipkağaat nunaktij aasii Iñupiat qaaniqsitaafugich taimaňa ilisimmatiktij nutağaalugnun.

Nunaaqqiġmiut niqinnagniaqamiñ uñasiksuamun igliġaqtut sugguuq anulit. Kalimiut niqiaqtitkai taġium niġrutiniisa; aġviġich, sisuat/qiġalugat, suli ugruich. Kalimiut susuksiupkanjtkaiç tuttut, qaigaich, iqaluiġlu. Kalimiut niqinnagniaġviñat, iqalugniagviñich allañjuġaqtut qanuq niġrutit naagga iqaluich nuktaqtuaġmiraqtut. Kukiġluktuaġviñat Kalimiut iñuuniaqamiñ tavra ikayuutauyumiñaqtuq suli kiliktusraġigaich sumik nappaiñiagajsikpata iñuuniaġviñanni Kalikmiut.

Kavamapta qulit ukiut pianigmata, kisitchaġigaich nunaaqqiq qanutun iñugiaktiġlaañich iñuich, aasii Kalim iñugiaktiġlaaqqaaña 1880-mi, iññuiññaq qulit iñuuniaġniqsut Kalimi. Pagmapak aasii miksrannavalliqsuq 269-guvlu iñuuniaqtuat Kalimi, 90 percent iñupiaguvlutini. Kaliuvvauna tallimat piñasut nunaaqqiç iġagigaat North Slope Borough-mi, 95,000 square miles-tun nunaaqqtigiruaq irrituruami Alaska-mi, aglaan iñugiaktiġlaañat iñuuniaqtuat, 8,075 iñuich. Tavra miksrautchanarut 2025-ñuqpan, Kaligguuq iñuiññaq qulinjuġutaiġlatun iñugiaksivsaagñiaqtuq, tainna iñuuniaġutini 2035-ñuqpan iñuiññaq atausitun iñugiaksivsaaguni kiisaimmaa 290-tun iñugiaktiġlaaliġutini.

Kali Paluñaiġñiaqfugu Sivunniugutit

Paluñaiyautit tamatkua sivunniugutit sivuniġigaat taikuñasugruk itqanaitquvlugu nunaaqqiq suna allañjuqpan naagga suagguuq iñugiaksiviaqtuq iñuiññaq ukiuni taamna nunaaqqiq. Paluñaiyautit sivuniġigaat itqanaitquvlugich Kalimiut, aglaan naalaġnipiaqfugich Kalim iñuni aksiksauniaqtuat. Tikisaksrallu qanuq savaaguniaqtiġlaaksrallu ikayuutaupiaqtut tamatkununa sivunniugutinun, aasiiptauq qanuq savaaginiaqtiġlaañich suġauttat suli iñuuniaġniġmi savaaguruksrauruaq, nunakun tunñaruq, igliġutit, suli iglutigun. Nalunaipiaqfugich savaaksrat piñaitchut aglaan savaaguniaqtuat isumagivlugich.

2005-mi North Slope Borough-m sivunniugutini qanuq itiġlaañich nunaaqqipayaat savaaġunaruq. Ukua paluñaiyautit sivunniugutaatta simmiġaich atautfugich nunaaqqiç Borough-m sivunniugutiginiñaraji. Kalimiut sivunniunaruq qanuq igliġniaqtiġlaaksramignik, kasimaragaqhutini, suli iñuich katillaavlutini atautchimi sivunniulaavlutini. Native Village of Point Lay, Cully Corporation, suli nunaaqqim Native Corporation-ña, iġaunaruq sivunniugmata Kalimiut. Pautagivlugich nunaaqqim paisañich, sivuniksraq savaaġunaruq taapkuuna paluñaiyautitigun, atautchinmutqikhutini atunġaich paisatitini pisigivlugu sivuniksraña Kalim:

Uvagut iñuuniaqtuaguut Kalimi, sivuniġigikput iñuaqtuakun nunaaqqiusukluta: maniññagnikun, iñuuqatigiġnikun, qaunagilugu nunakput. Iñupiaguniqput pisigivlugu sivunmuktuguktugut nunaaqqiqput napatquvlugu, sivuniġiqhaaqfugu taimaŋa iñuuniaġniqput aŋuniaqtuaqhuta, iglugiksuaguta, savaguktuat savakumiññaqsiñiaġlugich, atautchinmutqiksijluta, ikayuġummatiqagluta, suli qiksiksrautiqaġluta.

Nunaaqqipta iñukkuksaġaich nutaġaaluich aŋalatchiriksrar qatqitkumin, iñaupkaqfugich sivunniugamin suli qanuq igliġniaqtilaaksratiŋ sivunniugamin suagguuq iñuaqsipayaaqtuq nunaaqqiqput. Tunulliqisugikput iñisallautagŋinaŋ naagga savaannakkumiññaqsiñiaqtilfugich iñuuniaqativut itqanaitquvlugich savaannagniaqpata. Ittuaqsiññaqunijfugich qitiktuaqusaagugivut suagguuq iñuuniaġlich timiŋich nanjrrutaillutin suanaŋlutiŋ. Piyummatigigikput iglusijlasijugich anayanaitchuanik, ikayuutauruat igluqpaich savallautanaŋlugich, nunaaqqimun ikayuutauruat atullalugich nunaaqqim iñunijñun.

Avugutillaani Kalim Paluŋaiyautiŋisa Sivunniugutiŋisa uqausiqallaarut pagmapak savaaguruksrauruar aasii uqausiġivlugichtauq qanuq Kali allautilaana allaniñ nunaaqqiniñ. Tikisaksrat savaaġiŋaġaich savaaġisuktatiŋ pisigilugich sivunniugutiŋ. Tavraasii savaaġiruksrauruar qaisaupiallaŋarut taapkunaŋa iñuuniaqtuaniñ Kalimi. Qanuq sivuniqagmagaisa taapkua sivinniugutiŋ nalunaġaat Kali sut savaaguruksraupiaqtilaaniŋich, summan imiqtaqtuġviat atuġumiññaġmagaan, imiġum suli annat igliġviŋich savaŋaiqhutiŋ, aŋuniaġniŋat siġġaġnaqsivluni, iñuich iñugiakpaitchut iglutuqtuat atautchimi, suli maniksugnaqpaiifuni napapkaġniaġniksraŋat pagmapak ikayuutauruar nunaaqqimi. Aglaan tavra Kali piŋignaitchuq: nunaaqqiq inillaŋaruq aŋuniaġvigiksuamun, atautchinmutqikhutiŋ, pautagivlugich iġaġiġniġlu Iñupiallu paisaŋich, nappaiganiŋavlutiŋ ikayuutauruanik nunaaqqimun, sullu taimma iñugiaktuat.

Kalim paluŋaiyautauruar sivunniugutiŋich ikayuutauniaqtut savaaġisaġumisigik atautchinmuktuqhutiŋ qiñiqfugu sivuniksraqtin. Taaptuma sivunniugutiŋ uqausiġiġaich savaaksrat uqaluktigun, nunauratigun, qanuqilaagutiŋ, tikisaksratigun, suli qanuq savaaguniaqtuat maliġuaksraŋich. Aasii ukua avgutillaat nalunaiyautaurut Kalimiut paluŋaiyautitiŋ sivunniugutauruar: Suutilaaniŋich aglausimaruat; Kavamatigun, Iñitchuġiniaġutiŋ qanuq taipkun iñuuniaġuummagaisa; Qanuqitilaana nunaŋatta; Iñuuniaġniŋatiŋ aŋuniaqhutiŋ; Iñuich iñugiaktilaaniŋatiŋ; Nunaaqqimun Iglut Ikayuutauruarigun; Iñuuniaġutiŋ, Iñisaġviŋisigun, suli qanuq manik Igliġniaġutiŋ; Iglutiŋ; Qanuq Nunaŋat aviktuaġniaġmagaan; Tikisaksratigun, Qanuq Savaaġiniaqtilaaniŋatiŋ, suli Qanuq Savaaġilugich Piñiaġmagaisa; Qanuġlu Savaaguniaqtuat Sivunniugutiŋ allanaġuġmiññaġmagaisa. Qiñiġlugich pagmapak itaniktuat, taamna sivunniugun qanuqitilaana savaaġivsaaguniaġmagaan.

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ASRC Energy Services. 2016.

Chapter 1: Introduction

The Iñupiat village of Point Lay, or Kali, is located on Alaska’s Chukchi Sea coast, protected from the open ocean by the Kasegaluk Lagoon. Kali, the Iñupiaq name for the village, means something being dragged or towed.³ Residents tell a story of a woman seeking high ground for safe refuge by pulling a mound to its current location, which became known as the Kali mound. Kali also means “mound” and refers to the elevated mound on which the community stands.⁴

The coastal plain, which extends southwest of Point Lay to Cape Beaufort, is characterized by low, wet tundra, scattered lakes, and meandering streams. The nearest villages to Point Lay are Wainwright, 93 miles northeast, and Point Hope, 133 miles southwest, both along the Chukchi Sea coast. The village of Atqasuk is located along the Meade River, 140 miles northeast of Point Lay. Utqiagvik (formerly Barrow), the government seat of the North Slope Borough (NSB) is located approximately 190 miles to the northeast.

1.1 Purpose of Planning and the Comprehensive Plan

Planning is intended to accommodate the present, anticipate change, maximize strengths, minimize weaknesses, and develop sound policies to address change. By doing so, planning can build a sense of community and improve the health, safety, and welfare of all residents. The planning process involves inventorying current conditions and needs, adopting land use policies, and then implementing these policies using land use permitting and regulatory tools as well as coordination amongst stakeholders.

³ “Kali”. 2014. In *Iñupiaq to English Dictionary*. Compiled by Edna Ahgeak MacLean. Published by University of Alaska Press Fairbanks and the North Slope Borough Iñupiaq, History, Language, and Culture Commission.

⁴ North Slope Borough. 2017. *Our Communities: Point Lay*. Accessed Mar. 22, 2017. www.north-slope.org/our-communities/point-lay.

A land use plan is a tool for the community of Point Lay and the North Slope Borough to guide physical development and the conservation of resources within the village and its surroundings. The comprehensive planning process is intended to focus the residents' attention on land use activities; community facility and service needs; and sustainable living practices now and over the next twenty years.

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

This Plan establishes goals and policies for the conservation and development of compatible land uses, economic development, cultural resource protection, transportation systems and facilities, mineral resource development, renewable energy development, water and sewer, and other community facilities and services within the village and surrounding area, which makes up the village's Area of Influence.

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

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

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

The North Slope Borough uses village plans when it considers any land use proposals or actions specific to each village: platting, subdivisions, zoning, conditional use, and resource development permits. The Borough also uses village plans to help guide the location, timing, and scale of community development and infrastructure investment, to estimate and plan for community service needs given trends and population projections, and to consider how and where to protect important environmental and cultural resources.

The community leadership and the NSB Planning Commission and Assembly will measure permit applications for development proposals within the village of Point Lay and its area of influence against the

goals and policies of this plan. The desires of the community laid out in this plan assist the North Slope Borough staff and decision-makers establish mitigation measures as permit conditions of approval. Additionally, agencies and potential project funders use village plans to better understand community values, needs, and priorities for investment. Funders may only fund a project or program if it is listed within or is consistent with policies of an adopted community plan.

Private landowners, developers, and Native corporations can use village plans to help guide development decisions and investment choices. Community data, maps, and policies assist these entities to better capitalize on opportunities that are compatible with community values and needs. Guidelines and standards can give developers upfront parameters to ensure that projects meet local expectations. Citizens can use village plans to advocate for community development consistent with local needs and resources. Infrastructure and level of service planning around population trends also will help citizens stretch available funding for more efficient and effective government service.

Although the plan has a 20-year planning horizon, conditions, issues, and priorities will undoubtedly shift. Regular review and revision of the plan ensures that the goals and strategies respond to changing circumstances and needs within the village and its area of influence. To remain current and useful, this plan needs to be reviewed every two years for potential updates and revisions. Future plan revisions should monitor growth, evaluate development and related programs, and measure how well the plan is meeting the community's goals, objectives, and implementing strategies.

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

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

Point Lay residents can use this plan to advocate for a better future that is consistent with local needs and resources. Infrastructure and level of service planning with population trends also help citizens stretch available funding for more efficient and effective government service. A primary interest for the future development of Point Lay is to ensure the traditional way of life, protect marine and wildlife habitats, and protect the community from coastal storms and flooding.

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

1.2 Basis for Comprehensive Planning

Title 29 of the Alaska Statutes requires that home rule, first and second class boroughs, unified municipalities, and first class and home rule cities outside of boroughs provide planning, platting, and land use regulation, including comprehensive planning. In the North Slope, the NSB is responsible for planning, platting, land use regulations, and development of a Borough-wide comprehensive plan.

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

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

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

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

1.3 Recent Planning Efforts

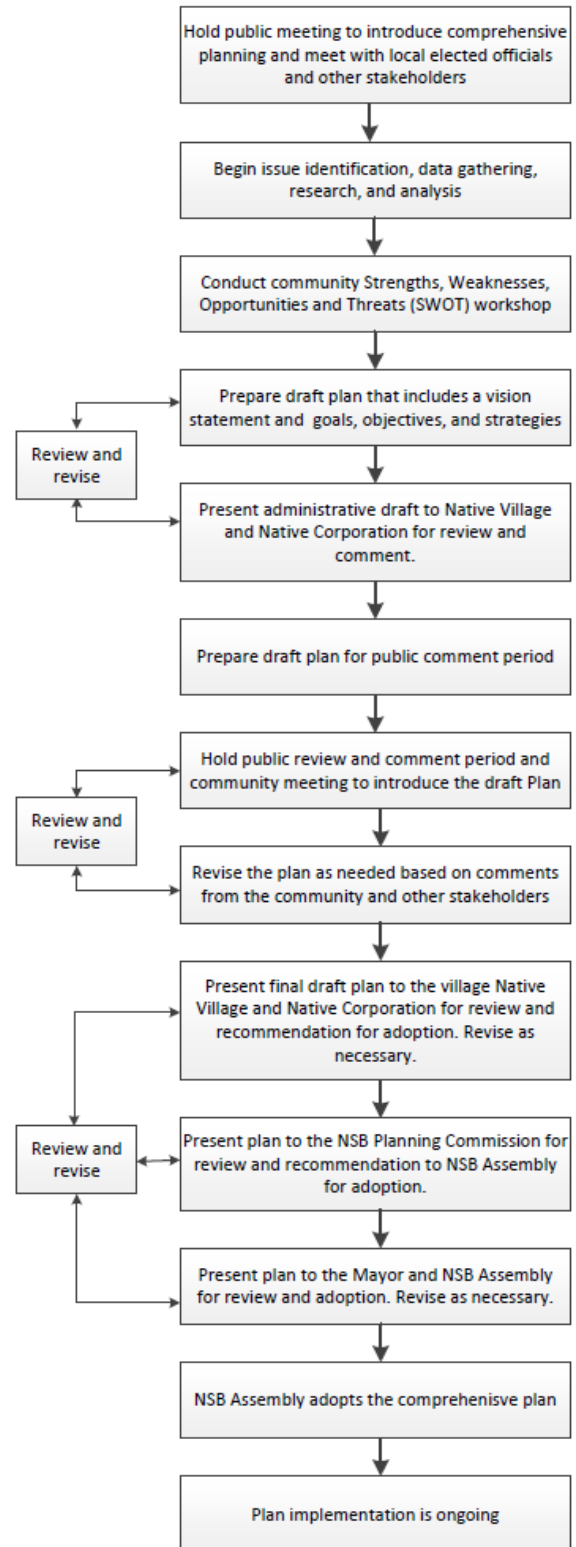
There have been two recent community planning efforts in Point Lay. The first is the August 2015 draft Point Lay Strategic Community Plan, an effort for the Native Village of Point Lay with community participation funded by Arctic Slope Regional Corporation (ASRC) Federal Holding Corporation and prepared by Alaska Project Solutions, Inc. The draft plan includes input from a community meeting regarding resident concerns and priorities as well as focus areas for future action. The second planning initiative is the Kali Strategy, an effort with the Native Village of Point Lay to identify its values and priorities. This document provides the Native Village of Point Lay’s mission, values, and one year priorities within three categories: organization structure and improvements, infrastructure, and program and events.

1.4 Planning Process and Public Involvement

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

- Public notices posted throughout the village providing notification on meeting dates and locations;
- Provision of informational material during meetings, including maps and comprehensive planning background, and process handouts;
- A community workshop, including an introduction to comprehensive planning held on July 15, 2016 and a Strengths, Weaknesses, Opportunities and Threats (SWOT) workshop held on August 17, 2016;

Figure 1: Planning Process Flowchart



- Presentations and discussions held on October 21, 2016 with Point Lay leadership;
- Attendance at Cully Corporation Board meeting to discuss the draft plan on December 13, 2016 and staff follow-up meetings on January 16 and January 25, 2017;
- Direct contact with community leaders and residents through phone interviews and visits; and
- Meeting and other announcements made on the North Slope Comprehensive Planning Facebook page. (www.facebook.com/NorthSlopeVillagePlans)

Collaboratively, Point Lay residents, village leadership, North Slope Borough Planning and Community Services Department staff, and other NSB employees that provide services in the village developed this plan. Local village leadership primarily includes the Native Village of Point Lay Tribal Council President and Council members, Cully Corporation (as the primary landowner) board members, and the NSB Planning Commissioner and Alternate Commissioner representing Point Lay.

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

Community input during SWOT exercise that was held in Point Lay on August 17, 2016 is presented in this section as discussed and written on easel paper during the meeting. The community meeting participants were provided the strengths, weaknesses, opportunities, and threats from the SWOT exercise with the Native Village of Point Lay Strategic Community Plan in 2015 as a starting point for discussion. The 2015 NVPL SWOT items are also provided in this section in italicized text. Information provided during the SWOT exercise, as well as the draft 2015 Point Lay Strategic Community Plan, provided the basis for the Vision Statement in Section 1.5.

Community Strengths⁵

Community resident input on August 17, 2016

- Elders, having history, knowledge of village, caribou migration, language
- There is a significant population from regions throughout Alaska residing in Point Lay, providing diverse strength
- Voice
- Cultural food
- Community will come together when up against a wall and will call for help when needed
- Federal, not municipal
- Lots of minerals, people who have knowledge of this
- Monthly community meetings

⁵ *Italicized text* with an open bullet (O) are from 2015 Native Village of Point Lay Strategic Community Plan and the Native Village of Point Lay Kali Strategy and were provided to Point Lay residents during the community-wide SWOT exercise for this Plan.

Community Strengths (continued)

- Local knowledge
- Lots of sun
- Coal mine
- Lots of land
- Lots of studies done – land, animals for example
- Have a lot of youth
- Good soil
- Protection & managing of subsistence resources
- Clean air
- Non-NPRA, can go after different funding

Native Village of Point Lay 2015 SWOT

- *Elders*
- *Tribal Council*
- *Community Members*
- *Youth/Children*
- *Family and Knowledge of Family Tree*
- *Spirituality*
- *Local Businesses*
- *Schools*
- *Traditional / Iñupiaq Values – Pass on to Children*
- *Knowledge of Language*
- *Dry village*
- *Hunting & Survival Techniques*
- *Strong Leadership*
- *Sharing with those who don't have enough*

Community Weaknesses⁶

Community resident input on August 17, 2016

- Water system/infrastructure
- Running out of food
- Only one airline and high cost
- Street Lighting; old street lighting had a glow you could see at a distance. Need streetlights we can see at a distance
- Lack of communication between entities
- Need more cooperation / communication between Cully, Native Village, and community, which direction to move
- Lack of knowledge

⁶ *Italicized text* with an open bullet (○) are from 2015 Native Village of Point Lay Strategic Community Plan and the Native Village of Point Lay Kali Strategy and were provided to Point Lay residents during the community-wide SWOT exercise for this Plan.

Community Weaknesses (continued)

- Those coming in don't ask about local knowledge; e.g. those who didn't ask about the permafrost and what areas are stable. Result: Houses built on unstable permafrost (also building materials and techniques)
- Permafrost
- Cost of living
- Have a wood shop but no teacher
- Lots of land but haven't expanded in a long time, lack of ability to expand
- Need to promote language
- Large NANA region population whose elders aren't in community
- NANA folks can't enjoy services of the borough (NSB)
- Need more IHLC work in community
- Need localized leadership training & opportunity for youth; youth/elders programs, need more funding for these programs
- Need for better communication infrastructure
- Need funding for school programs like camp/cabin
- Need stronger partnerships; NSB, ASRC, Cully, etc.
- Need round table partnerships
- Water sources
- Infrastructure
- Lack of housing
- Abandoned houses
- Not being heard
- Not enough businesses
- Non-NPRA, lack of certain funding sources
- AOI – rivers that come NPRA impacts subsistence resources in NPRA

Native Village of Point Lay 2015 SWOT

- *Tobacco, Alcohol, & Drug Use*
- *Domestic Violence*
- *Need to continue Cultural Knowledge for the community & for future generations*
- *Need for a stronger local economy, more jobs*
- *Need for more housing, develop a housing program*
- *Improve council and corporation relationship*
- *Need more school supplies*
- *Community Wellness - Keep the Village Clean*
- *Discipline & Teach Respect*
- *Need for more Environmental Studies*
- *Need for Historical Site Preservation in Icy Cape*

Community Opportunities⁷

Community resident input on August 17, 2016

- Small population translating to a new group of upcoming elders
- New generation of elders needs to recognize their role & step up
- Local follow-up on broader elder/youth programs
- Training / educations of laws that affect the community members such as ANILCA, ANCSA; a workshop, educate kids

Native Village of Point Lay 2015 SWOT

- *Improving Leadership Skills*
- *Jobs Opportunities & Vocational/Educational Training, Technical Assistance, & Hands on Opportunities*
- *Grant Training*
- *Survival Training*
- *Improve the current educational programs and services in the community*
- *Teen Center*
- *Day Care & Training*
- *Elder Care Training*
- *Improve Community Center*
- *Heritage Center/Cultural Center/Museum (Multi-Use Facility)*
- *Baseball field for kids and adults, expand outdoor recreation space.*
- *Summer Camps*
- *Snow machine, sled and vehicle shop*
- *Expand Store & Upgrades*
- *Repair the Search and Rescue building*
- *Bank*
- *Wind Energy*
- *Hydroelectric Plant*
- *Coal Mine*
- *Boat Dock*
- *Washeteria*
- *Post Office Building*
- *Gravel, Water, Sewer*
- *Expand a lumber yard at the school for community use*

⁷ *Italicized text with an open bullet (○) are from 2015 Native Village of Point Lay Strategic Community Plan and the Native Village of Point Lay Kali Strategy and were provided to Point Lay residents during the community-wide SWOT exercise for this Plan.*

Community Threats⁸

Community resident input on August 17, 2016

- Outside influence due to lack of education
- Climate change; erosion (coastal, river, bluffs)
- Prejudice between “Natives,” all one Native, this needs to stop
- Running out of food
- Only one airline and high cost
- Technology leads to less eye contact with community
- Subsidence, e.g. with ice cellar

Native Village of Point Lay 2015 SWOT

- *Protect the Environment*
- *High Cost of Energy*
- *Impending presence of Oil Industry & the resulting social, cultural, & subsistence impacts on Point Lay*
- *Floater in our rivers*
- *Need for a gaming board, manage volunteers, money & coordinate events*
- *Permafrost*
- *Erosion*
- *Barge Access*

⁸ *Italicized text* with an open bullet (○) are from 2015 Native Village of Point Lay Strategic Community Plan and the Native Village of Point Lay Kali Strategy and were provided to Point Lay residents during the community-wide SWOT exercise for this Plan.

Additional comments from the August 17, 2016 SWOT meeting

- Need cooperation with residents, Native Village and village corporation
- Big change from one generation to the next; from a generation that was given land to one that has to pay for a lot for housing, cost of living
- Education; need to be taught to live in this area
- Need a center for kids
- Need training – job, how to run village
- Need own Assembly seat
- Four rivers come into lagoon; good quality gravel
- Want to stay Point Lay, a Native village. Don't want to be a second class society. Don't want to be too westernized.
- Need plans in Iñupiaq on CDs for elders
- Elders need to understand presenters; presenters need to understand elders
- Want to Westernize at own pace
- In plan, note that Point Lay wasn't established through ANCSA, ICAS and ASRC assistance
- Go back to Section 8 housing
- Difficulty of qualifying for HUD housing because of dividends are income
- Vision: to be self-sufficient
- Iñupiaq value – avoiding conflict. Need to stop conflict in village
- Water/sewer system needs to be changed
- Need to monitor air quality
- Hands on jobs to teach youth
- 50+ year olds to pay attention and prepare to become elder generation
- Goal: Community comes to together to find solutions
- Need internships for adults, not just youth

Additional SWOT comments received during plan review⁹

- ❖ The community wishes to take ownership of the three remaining buildings at the DEW Line Site, potentially to re-purpose the warehouse into an evacuation center if the village were ever facing a disaster.
- ❖ Dredge the Lagoon to create shipping channels in what otherwise is a very shallow waterway. The sand/silt collected from the dredging would be used to cap the village site to help manage the subsidence and erosion.

⁹ ❖ Indicates comments received during the review of the administrative review of this plan.

1.5 Vision Statement

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

We, the residents of Point Lay, envision a healthy community – economically, socially, culturally, and environmentally. We practice Tribal self-determination and honor our cultural heritage by prioritizing a traditional subsistence lifestyle and Iñupiaq values, while emphasizing sustainable growth through quality affordable housing, economic development, and community cooperation and respect.

Our community cultivates future leaders that actively participate in public policy and decision-making for the betterment of all village residents. We support quality education and training opportunities so that residents are prepared for careers and job advancement. We foster recreational opportunities to promote healthy and active lifestyles. We strive for quality infrastructure and community facilities and services that meet the needs of our community residents.

1.6 Plan Scope and Organization

As a result of community input, seven goals have been established for the plan that provide the overall direction for the plan's implementation, shown in Figure 2. Objectives for each of these goals and associated strategies for reaching those objectives are included in the tables in Chapter 10.

This Plan has been designed so that readers may focus on (a) specific section(s) of interest, versus reading the Plan in its entirety. Chapters 1 through 9 provide introductory material and a context for the goals, objectives and strategies, which are included in Chapter 10 along with a plan implementation discussion in Chapter 11. The references at the end of the plan identify studies, reports, and other sources of information consulted while developing this plan. The 11 chapters of the plan and appendices are organized as follows:

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

Chapter 2 provides an overview of both the local and regional governments involved in the administration of the community as well as a discussion of Point Lay's history and language.

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

Chapter 4 includes discussion of the importance of subsistence to community residents.

Chapter 5 includes information on the historical, current, and projected future population of Point Lay.

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

Chapter 7 discusses health, education, and the economy in Point Lay.

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

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

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

Chapter 11 concludes a discussion of Plan implementation and revision.

Figure 2: Point Lay Comprehensive Plan Goals¹⁰



1.7 Consistency with Adopted Plan Policies

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

- Develop community comprehensive plans to address existing and future growth and development needs. [Policy 2.2.1.14, pg 2-18]
- Establish means for communities to assume greater land use control, as well as corresponding fiscal responsibilities. [Policy 2.2.1.12, pg 2-18]
- Determine which communities desire zoning and enforcement mechanisms by conducting a survey in each village. [Policy 2.2.1.13, pg 2-18]

¹⁰ Photo courtesy of ASRC Energy Services. 2016.

- Develop land use zones that encourage use of existing facilities and infrastructure in villages that desire zoning. [Policy 2.2.1.14, pg 2-18]
- Document housing needs for each village and incorporate into village comprehensive plans or the Borough Comprehensive Plan. [Policy 2.2.7.101, pg 2-47]
- Emphasize compactness in community development during project planning to minimize operations and maintenance costs of community infrastructure. [Policy 2.2.1.14, pg 2-18]
- Document sensitive subsistence use areas to avoid development in critical areas. [Policy 2.2.3.38, pg 2-27]
- Consider maintaining important subsistence areas as Conservation Districts, or rezone as Subsistence, Districts. [Policy 2.2.1.17 and 18, pg 2-19]
- Include villages in the notification and decision making process before permits are issued. [Policy 2.2.20, pg 2-21]
- Review development plans for opportunities to decrease inefficient development. [Policy 2.2.1.26, pg 2-21]
- Encourage land uses that maximize the use of existing infrastructure. [Policy 2.2.1.26, pg 2-21]
- Create a land use, development phasing, and improvement financing plan for the construction of roads and utilities in the Borough communities. [Policy 2.2.1.11, pg 2-16]
- Develop cooperative agreements between the Borough, cities, tribes, and the corporation to expand roads and utilities to support housing construction. [Policy 2.2.7.101, pg 2-46]
- Require those developing outside of current utility service areas to pay their fair share for extending service. [Policy 2.2.1.15, pg 2-21]
- Require developers to pay their fair share for extending utilities and building roads. [Policy 2.2.1.11, pg 2-16]
- Identify important cultural and traditional resources and activities in the vicinity of proposed resource development and incorporate into planning for impact avoidance and mitigation. [Policy 2.2.4.49, pg 2-31]
- Economic development activities within villages should avoid or minimize uses of areas and resources important to subsistence and traditional activities. [Policy 2.2.4.58, pg 2-33]

- Identify and map hazard zones in each village. [Policy 2.2.5.59, pg 2-34]
- Develop alternative energy sources for Borough communities, such as coal, natural gas and wind power. [Policy 2.2.7.97, pg 2-45].



UMIAQ Design & Municipal Services. 2011.

Chapter 2: Government, History, and Culture

2.1 Local Governance

Unlike other North Slope villages, Point Lay does not have a local municipal government. However, it does have local and regional Tribal governments as well as a regional municipal government. In addition to government leadership, the Cully Corporation, a Native village corporation established in 1971 under the Alaska Native Claims Settlement Act (ANCSA), also assumes a community leadership role. Each of the three governmental organizations is described below.

Native Village of Point Lay. The seven-member Native Village of Point Lay Tribal Council governs the Village of Point Lay, a federally-recognized tribe. It was established under authority of the Indian Reorganization Act (IRA) of 1934. A federally recognized Indian Tribal government and its political subdivisions, including Alaska Native governments like the Native Village of Point Lay and the Iñupiat Community of the Arctic Slope are treated like states for certain federal tax purposes.¹¹

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

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

¹¹ McCray, Sr. Richard A. and Marvin Friedlander. 2004. Organizations Closely Affiliated with State or Indian Tribal Governments Reference Guide. Accessed July 21, 2016. www.irs.gov/pub/irs-tege/eotopich04.pdf.

2.2 History and Cultural Resources

Although the current town site of Point Lay was settled relatively recently, the Iñupiat of Kali have a strong cultural and traditional history. Archaeological sites surrounding the Kasegaluk Lagoon and its river tributaries are a testament to the extensive use of the land and sea by Iñupiat for thousands of years. Archaeological and cultural resource surveys have located sites, often with the guidance of local the Iñupiat. During the 1940s, Waldo Bodfish, a Wainwright resident, helped archaeologist Helge Larsen locate, identify, and excavate many houses and sites throughout the Point Lay area although many archaeological remains had already been eroded into nearby rivers.¹² The team excavated 13 houses near Icy Cape, located between Point Lay and Wainwright, as well as several more along the rivers including one large ceremonial men's house at Pianlu, an old Utaqqagmiut interior winter village site. The Utokok River was surveyed in 1947-1948. Several village sites along its banks were documented; a large site was found on the barrier island adjacent to the mouth of the Utokok.¹³ An ancient village site near the mouth of the Kukpowruk River was also found in 1950, as well as an additional site 35 miles inland.^{14, 15} The U.S. Geological Survey (USGS) also recorded several hundred archaeological sites along the Utokok, Kukpowruk, and Kokolik river drainages.¹⁶

Traditionally the Iñupiat people have had a strong sense of belonging to specific territorial groups, also referred to as 'nations'.¹⁷ The area between Icy Cape and Cape Lisburne has traditionally been occupied by three different Iñupiat groups. The Tikiargmiut, or people from Point Hope, traditionally occupied the area around Point Hope, Cape Lisburne (Wevok), and up the beach past Wevok nearly 50 miles. The Utaqqagmiut, people of the Utokok River area that also the upper Kokolik, upper Kukpowruk, and upper Kuuk rivers, and the Colville River head waters. Many of the Utaqqagmiut travelled down to the coast during the summers, into Siaiñagmiut territory, and spent the summers trading and hunting marine mammals at Sullivik, a barrier reef island on Kasegaluk Lagoon adjacent to the mouth of the Utokok River.¹⁸ The Siaiñagmiut occupied the Kasegaluk Lagoon and Icy Cape coastal areas, with Icy Cape being their major settlement. Ernest Burch, an Arctic anthropologist, estimated that during the 1800s there were approximately 450 Siaiñagmiut¹⁹ and 400 Utaqqagmiut²⁰ in the Point Lay area. During winter, the Siaiñagmiut focused on seal hunting; in April, most of this population gathered at Icy Cape for whaling.²¹ After spring whaling, the population spread out along the coast to utilize walrus, seals, fish, and berries.

¹² Bodfish, Waldo Kusiq. 1991. *Kusiq: An Eskimo Life History from the Arctic Coast of Alaska*. Fairbanks: University of Alaska Press.

¹³ Thompson, R.M. 1948. *Notes on Archaeology of the Utokok River, Northwestern Alaska*. In *American Antiquity*, 14(1), 62-5.

¹⁴ Solecki, R.S. 1950. A Preliminary Report of an Archaeological Reconnaissance of the Kukpowruk and Kokolik Rivers in Northwest Alaska. In *American Antiquity* 16(1).

¹⁵ Jensen, Anne M. 2014. *The Archaeology of North Alaska: Point Hope in Context*. In Charles E. Hilton, Benjamin M. Auerbach and Libby W. Cowgill (eds.) *The Foragers of Point Hope: The Biology and Archaeology of Humans on the Edge of the Alaska Arctic*. Cambridge: Cambridge University Press.

¹⁶ Neakok, Warren, Dorcus Neakok, Waldo Bodfish, David Libbey, Edwin S. Hall, Jr., and the Point Lay Elders. 1985. *To Keep the Past Alive: The Point Lay Cultural Resource Site Survey*. Barrow: North Slope Borough.

¹⁷ Burch, Ernest S. 1998. *The Iñupiaq Eskimo Nations of Northwest Alaska*. Fairbanks: University of Alaska Press.

¹⁸ Burch, Ernest S. 2005. *Alliance and Conflict: The World System of the Iñupiaq Eskimos*. Lincoln: University of Nebraska Press.

¹⁹ Burch, Ernest S. 1981. *The Traditional Hunters of Point Hope Alaska, 1800-1875*. Barrow: The North Slope Borough.

²⁰ Burch, Ernest S. 2005. *Alliance and Conflict: The World System of the Iñupiaq Eskimos*. Lincoln: University of Nebraska Press.

²¹ Neakok, Warren, Dorcus Neakok, Waldo Bodfish, David Libbey, Edwin S. Hall, Jr., and the Point Lay Elders. 1985. *To Keep the Past Alive: The Point Lay Cultural Resource Site Survey*. Barrow: North Slope Borough.

In fall, the focus shifted to caribou hunting and additional fishing. A sudden decline in the population of the Western Arctic Caribou herd during the 1870s forced the Utaqqagmiut to move to the coast to utilize marine resources to compensate for the loss.

Trade fairs were an important part of traditional Iñupiat culture. An annual trade fair traditionally occurred in the Icy Cape area, usually at the Cape or at Sullivik, just a short distance from the Utaqqagmiut summer campground. This area was optimal for a trade fair because it was easily accessed by several groups from the region, and was a significant distance from other trade fairs such as Sisualik (Kotzebue Sound) and Nigliq (mouth of the Colville River).²² Oswalt notes that the Iñupiat trade network was “widespread and well-coordinated with both formal markets and exotic goods imported from afar”.²³

Whalers, explorers, and other Euroamericans encountered Iñupiat in the Point Lay area. In 1826, Captain Beechey with the H.M.S. Blossom, landed at Kali for fresh water. Near Icy Cape, he was approached by four umiat carrying approximately 60 people. In 1838, Kashevanov, a Russian explorer, encountered 100 Utaqqagmiut at the mouth of the Utokok River and 300 Siaiñagmiut at Icy Cape.²⁴ In 1881, while spending a few days near Point Lay, John Muir recorded several families pass along the coast with eight umiat full of people and gear, and watched them set up a large encampment on one of the barrier islands.²⁵ Charles Brower, one of the earliest non-Natives to permanently live on the North Slope concluded that the Iñupiat of the Point Lay area were “a fine race of people ... and they have produced males and females of not only splendid physical appearance, but of far more intelligence than any of the tribes”.²⁶

In 1906, a school at Icy Cape opened, drawing a more permanent Iñupiat population to the area. However, by 1926, the school closed. During the next four years, the school was taken down and reassembled at Point Lay. By 1931, the Point Lay School opened and many families moved to the village from Kuutchiaq, near the Brooks Range foothills,²⁷ and from Point Hope.^{28, 29}

Reindeer herding was an important economic activity in Point Lay from 1900 to 1940, and it drew people to the region for employment, especially during corralling. The late Dorcus Neakok, a respected Elder and one of the only residents to live in Point Lay during its mid-twentieth century depopulation, remembered growing up on the reindeer herding range: “The whole town and people from other places helped with corralling. There were over 150 people ... it was fun work”.³⁰

²² Burch, Ernest S. 2005. *Alliance and Conflict: The World System of the Iñupiaq Eskimos*. Lincoln: University of Nebraska Press.

²³ Oswalt, Wendell H. 1979. *Eskimos and Explorers*. Chandler & Sharp Publishers. Novato, CA. pp 207.

²⁴ Vanstone, James W., ed. 1977. *A. F. Kashevarov's Coastal Explorations in Northwest Alaska, 1838*. Fieldiana Anthropology, Vol. 69. Sept. 28, 1977.

²⁵ Neakok, Warren, Dorcus Neakok, Waldo Bodfish, David Libbey, Edwin S. Hall, Jr., and the Point Lay Elders. 1985. *To Keep the Past Alive: The Point Lay Cultural Resource Site Survey*. Barrow: North Slope Borough.

²⁶ Brower, Charles David. n.d. *The Northernmost American: An Autobiography*. Manuscript, Stefansson Collection, Dartmouth College Library, Hanover N.H. (Photocopied version in Burch Personal Collection at SASC). pp 130.

²⁷ Neakok, Dorcas. 1989. Personal Account in *Point Lay Biographies, 2nd ed., revised and expanded, 2012*. Yvonne Yarber, ed. Barrow: North Slope Borough.

²⁸ Spencer, Robert. 1959. *The North Alaskan Eskimo: A Study in Ecology and Society*. Washington: Government Printing Office.

²⁹ Rainey, Froelich G. 1947. *The Whale Hunters of Tigara*. New York: The American Museum of Natural History.

³⁰ Neakok, Dorcas. 1989. Personal Account in *Point Lay Biographies, 2nd ed., revised and expanded, 2012*. Yvonne Yarber, ed. Barrow: North Slope Borough. pp 7.

By 1925, a different approach to reindeer herding in Alaska was introduced that made significant changes in managing the herds. The new approach required that all herders collectivize and create associations, while transferring all individual ownership of reindeer to the association. Each herder would be given shares in the association. Also, it promoted 'open herding', a new form of reindeer herding that allowed reindeer to roam freely for much of the year to find the best vegetation and to mass reproduce. Open herding sharply contradicted the former and more traditional practice of close herding which required closely regulating herds, controlling reproduction, and protecting the reindeer during fawning.

In the late 1920s and 1930s, the population of wolves grew significantly in the region and preyed on reindeer as a primary food source while caribou populations began to rebound and move back into the area. Caribou herds drew reindeer away from their pastures, and scattered herds into opposing ranges, while new herding practices introduced in 1925 decreased the protection and confinement of herds. Burch points out that, "As the caribou and wolf populations grew, the reindeer population shrank. Wolves killed and dispersed reindeer; caribou dispersed them and lured them on their travels. Between them, they brought the reindeer industry of northwest Alaska to its knees".³¹ Due to the lack of herdsman after the creation of reindeer herders associations, as well as the loss of reindeer to caribou and wolves, reindeer herding in Point Lay came to an end. By 1945, the last of the reindeer left the area³² and presumably mixed with the Teshekpuk Lake Caribou herd south of Barrow.

The decline of reindeer herding and the start of World War II drew people away from Point Lay. During the 1950s, the U.S. Department of Defense led the construction of the Distant Early Warning Line (DEW Line), a system of radars that stretched across the North American Arctic region designed to detect Soviet bombers during the Cold War. DEW Line sites sprang up in a total of 57 locations along the Alaskan and Canadian coasts. The DEW Line construction phase brought thousands of workers to the Arctic. A DEW Line station was built on the mainland shore of the Kasegaluk Lagoon about a mile south of the Kokolik River delta. Other DEW Line stations were built in the area, including sites at Cape Sabine, Icy Cape, and Wainwright.³³ Although the construction brought some jobs to Point Lay, the importation of large amounts of alcohol had severe negative impacts on the village, some of which may have led to further depopulation.³⁴

By 1958, due to the decline in the number of students, the Point Lay School closed. After its closure, the federal government forced all school-aged children to be sent to boarding schools. Most families moved away, either to bring their children to a village with a school or to another community after their children were taken from them. Amos Agnasagga remembers being sent to Sitka for High School while his six-year

³¹ Burch, Ernest S. 2012. *The Caribou Herds of Northwest Alaska, 1850-2000*. Fairbanks: University of Alaska Press.

³² Bodfish, Waldo Kusiq. 1991. *Kusiq: An Eskimo Life History from the Arctic Coast of Alaska*. Fairbanks: University of Alaska Press.

³³ Lackenbauer, P. Whitney, Matthew J. Farish, and Jennifer Arthur-Lackenbauer. 2005. The Distant Early Warning (DEW) Line: A Bibliography and Documentary Resource List. The Arctic Institute of North America.

³⁴ Agnasagga, Amos. 1989. Personal Account in *Point Lay Biographies, 2nd ed., revised and expanded, 2012*. Yvonne Yarber, ed. Barrow: North Slope Borough.

old sister was sent to a school in Wrangell for eight years.³⁵ The population continued to decline until only one couple remained at Point Lay: Dorcus and Warren Neakok.³⁶ By 1970, many of the children and families who had been forced to leave Point Lay in 1958 wanted to return home. Agnasagga recalls “So back in 1970 a lot of us had come back to Alaska from the lower ‘48 and were living in places we didn’t really want to be. I was happy when people started moving back here [to Point Lay]”.³⁷ Neakok remembers when the ‘kids’ collectively decided to reestablish their community, “I always knew they would come back. That’s what we were getting ready for all those years. We’re all family here, all related”.³⁸

The reestablishment of the village proved to be a huge undertaking. Most of the funding to resettle came from the newly-created Arctic Slope Regional Corporation, formed under the Alaska Native Claims Settlement Act of 1971 (ANCSA). The village at the time was located at what is now known as the “old site” on the barrier island adjacent to the Kokolik River mouth. The available space at the old site was limited; there wasn’t enough room for the construction of facilities, such as a new school, a power plant, houses, and storage tanks. Additionally, the barrier islands did not offer a viable water source and was prone to flooding and erosion. The North Slope Borough chose to relocate the village across the Kasegaluk Lagoon on the Kokolik River delta, a location now commonly referred to as the “new site” or “river site”. However, after several years of building, including the construction of ten houses and several public buildings, the site proved inadequate due to river flooding and lack of area required for a new runway. Point Lay then relocated to its present townsite near the DEW Line station in 1980. Many people with ancestral roots in Point Lay moved back after its final relocation. Some families began building their Bureau of Indian Affairs (BIA) homes as early as 1975 - 1976, including Bill and Marie Tracey, Ben Neakok, and Lily Anniskett. ASRC also built homes in the new location allowing Kali shareholders to relocate back to Point Lay.³⁹

Today Point Lay is the smallest village on the North Slope. The geographical location of Point Lay allows its residents access to a variety of subsistence resources from the land and sea. During the summer and fall, residents utilize walrus, beluga whale, ugruk, and seals from the ocean, in addition to many fish species. Salmon, whitefish, char, herring, and smelt are caught in the summer and fall and grayling are caught on the Kukpowruk River in early winter. Subsistence fishing is most frequent near the mouth of the Kokolik River and on a two-mile stretch along both the ocean and lagoon banks of the barrier island near the old village site.⁴⁰ During the fall, spring, and summer, caribou migrate through the region and are

³⁵ Agnasagga, Amos. 1989. Personal Account in *Point Lay Biographies, 2nd ed., revised and expanded, 2012*. Yvonne Yarber, ed. Barrow: North Slope Borough.

³⁶ Neakok, Dorcas. 1989. Personal Account in *Point Lay Biographies, 2nd ed., revised and expanded, 2012*. Yvonne Yarber, ed. Barrow: North Slope Borough.

³⁷ Agnasagga, Amos. 1989. Personal Account in *Point Lay Biographies, 2nd ed., revised and expanded, 2012*. Yvonne Yarber, ed. Barrow: North Slope Borough. pp. 73.

³⁸ Neakok, Dorcas. 1989. Personal Account in *Point Lay Biographies, 2nd ed., revised and expanded, 2012*. Yvonne Yarber, ed. Barrow: North Slope Borough. pp. 1.

³⁹ U.S. Department of the Interior. Minerals Management Service. 1989. Point Lay Case Study. OCS Study MMS 89-0093 Technical Report No. 139. Prepared by Michael Galginitis, Michael A. Downs, and James W. VanStone with Impact Assessment, Inc. Accessed Mar. 22, 2017. www.boem.gov/BOEM-Newsroom/Library/Publications/1989/89_0093.aspx.

⁴⁰ Craig, P. and D. Schmidt. 1982. Survey of Potential Dredge Sites at Wainwright, Point Lay, Atqasuk, Nuiqsut, and Kaktovik. Barrow: North Slope Borough.

an important subsistence resource. Whaling is also important in Point Lay, both as a resource and as a traditional activity.

Point Lay's geographical location along the Kasegaluk Lagoon is not as close to the migratory routes of bowhead whales as Point Hope, Icy Cape, and Barrow. The difficulty in harvesting whales out of Point Lay has been evident in the past, but the residents have remained involved in the North Slope whaling tradition over time. The Siaiñagmiut and other coastal Iñupiat would traditionally gather at Icy Cape or Point Hope to take part in whaling. Whales were also taken in the 1930s while the village was occupied with enough people and resources to complete the task. Dorcus Neakok, a long-time resident of Point Lay, recalled how difficult it was to harvest a whale 25 miles outside of Point Lay on the ice in 1937. The muktuk and meat was hauled back via dog team and proved to be a strenuous task that took the entire village, to complete.⁴¹

After the resettlement of the village in the 1970s, many people in the Point Lay continued to travel to other North Slope communities to take part in whaling. In 1989 Amos Agnasagga stated that "I go to Wainwright for whaling, along with a few others. Some people go to Barrow and Point Hope. So there are still quite a few that go whaling".⁴² On May 5, 2009, after reestablishing a share of the whaling quota, a Point Lay crew led by Julius Rexford struck and brought home a bowhead and held the first Nalukataq in 72 years. The Nalukataq was held in honor of the highly respected Iñupiaq elder Dorcus Neakok, who had played a crucial role in the reestablishment of the village and had recently passed in 2008.

Because the Iñupiat have lived in the Point Lay area and across the North Slope for thousands of years, cultural heritage sites are scattered across the region. Tools, household items, artwork, and dwellings are just some of the artifacts found on the North Slope. There are 210 NSB Traditional Land Use Inventory (TLUI) cultural resource sites⁴³ within the Point Lay Area of Influence (Map 5) and 481 Alaska Heritage Resource Survey (AHRs) sites.⁴⁴ However, a complete survey of the area's cultural resources has not been conducted. Projects that utilize federal funding or involves federal authorization requires a cultural resources survey and clearance. Projects in areas with known cultural resources also require clearance. The North Slope Borough Planning and Community Resources Department also often requires cultural resource clearance from the NSB Iñupiat History, Language, and Culture Department before issuing some permits. The potential need for a cultural resources survey should be considered during the early stages of project development.

⁴¹ Neakok, Dorcas. 1989. Personal Account in *Point Lay Biographies, 2nd ed., revised and expanded, 2012*. Yvonne Yarber, ed. Barrow: North Slope Borough.

⁴² Agnasagga, Amos. 1989. Personal Account in *Point Lay Biographies, 2nd ed., revised and expanded, 2012*. Yvonne Yarber, ed. Barrow: North Slope Borough. pp. 73.

⁴³ North Slope Borough. 2017. *Traditional Land Use Inventory*.

⁴⁴ Alaska Department of Natural Resources. 2017. Office of History & Archeology. *Alaska Heritage Resource Survey*.

2.3 Iñupiaq Values and Language

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

Table 1: Iñupiaq Values⁴⁵

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

Fewer people speak Iñupiaq fluently than they have in the past, which usually parallels the passing of elders. In 2003, the North Slope Borough Economic Profile and Census Report (NSB Census) estimated there were 33 fluent Iñupiaq speakers in Point Lay, making up 18 percent of the community's population.

⁴⁵ North Slope Borough. 2005. *North Slope Borough Comprehensive Plan*. Prepared by URS Corporation for the North Slope Borough. October. www.north-slope.org/your-government/comprehensive-plan.

This number dropped to 16 in 2010 (9.8 percent) and 12 in 2015 (5.2 percent).^{46, 47} There has also been a sharp rise in English usage. Between 1998 and 2015, the percentage of North Slope households speaking mostly English rose from 25 percent to 65 percent. Point Lay saw an increase of 67 percent to 74 percent.⁴⁸

Because a dramatic decline in fluent Native speakers resulted when schools forbade students from speaking their native language, the North Slope Borough School District (NSBSD) has made an effort to strengthen the Iñupiaq language by offering language classes from early childhood through 8th grade.⁴⁹ Kali School has Iñupiaq language classes as well as making arts and crafts with traditional materials.⁵⁰ The Borough places great importance on expanding fluency in Iñupiaq to preserve traditional culture and values. To assist adults in learning or re-learning Iñupiaq, the NSB Iñupiat History, Language and Culture Department (IHLC) sponsored the production of an online Iñupiaq language program in partnership with the Rosetta Stone program for Endangered Languages.

⁴⁶ North Slope Borough. 2010. *North Slope Borough 2010 Economic Profile and Census Report Volume X*. Prepared by Circumpolar Research Associates Shepro, C., Maas, C. and D. Gallaway with J. McNich for the North Slope Borough. www.north-slope.org/your-government/census-2010.

⁴⁷ North Slope Borough. 2015. *North Slope Borough 2015 Economic Profile and Census Report Volume XI*. Unpublished. Prepared by Circumpolar Research Associates Shepro, C., Maas, C. and D. Gallaway and edited by Jason Bergerson for the North Slope Borough.

⁴⁸ Ibid

⁴⁹ North Slope Borough School District. 2016. *Iñupiaq Education Department*. Accessed May 16, 2016. www.nsbsd.org/domain/44.

⁵⁰ North Slope Borough School District. 2016. *Kali School. Mrs. Julie Qayyuuttag Itta Teacher Website*. Accessed Oct. 16, 2016. www.nsbsd.org/domain/667.



ASRC Energy Services. 2016.

Chapter 3: Natural Environment

3.1 Geography

The Iñupiat village of Point Lay is located on Alaska's Chukchi Sea coast and protected from the open ocean by the Kasegaluk Lagoon. The Kasegaluk Lagoon is a shallow stretch of water extending approximately 125 miles parallel to the coast from Icy Cape to Kuutchiuk Creek and is separated from the ocean by a narrow strip of barrier reef islands. The lagoon is connected to the ocean through a series of passes that can breach during storm surges. Several rivers flow into the lagoon including, most notably the Utokok and Kukpowruk rivers, but also the Kokolik, Pitmega, and Epizetka rivers.

The landscape adjacent to Kasegaluk Lagoon consists of the Arctic Coastal Plain (ACP) as it slowly rises to the Brooks Range foothills inland to the east. The Alaskan ACP is a gently rolling, treeless landscape with many lakes, streams, and wetlands scattered across tundra underlain by permafrost.⁵¹ The community is approximately one mile south of the Kokolik River delta. The Kokolik River begins in the western Brooks Range and meanders approximately 200 miles across the ACP north and northwest into the Kasegaluk Lagoon.

Point Lay is located approximately 217 miles above the Arctic Circle on the western edge of Alaska's North Slope. The nearest villages are Wainwright, 93 air miles to the northeast, Point Hope, 133 air miles to the southwest, both along the Chukchi Sea coast, and Atkasuk, located air 140 miles to the northeast. Point

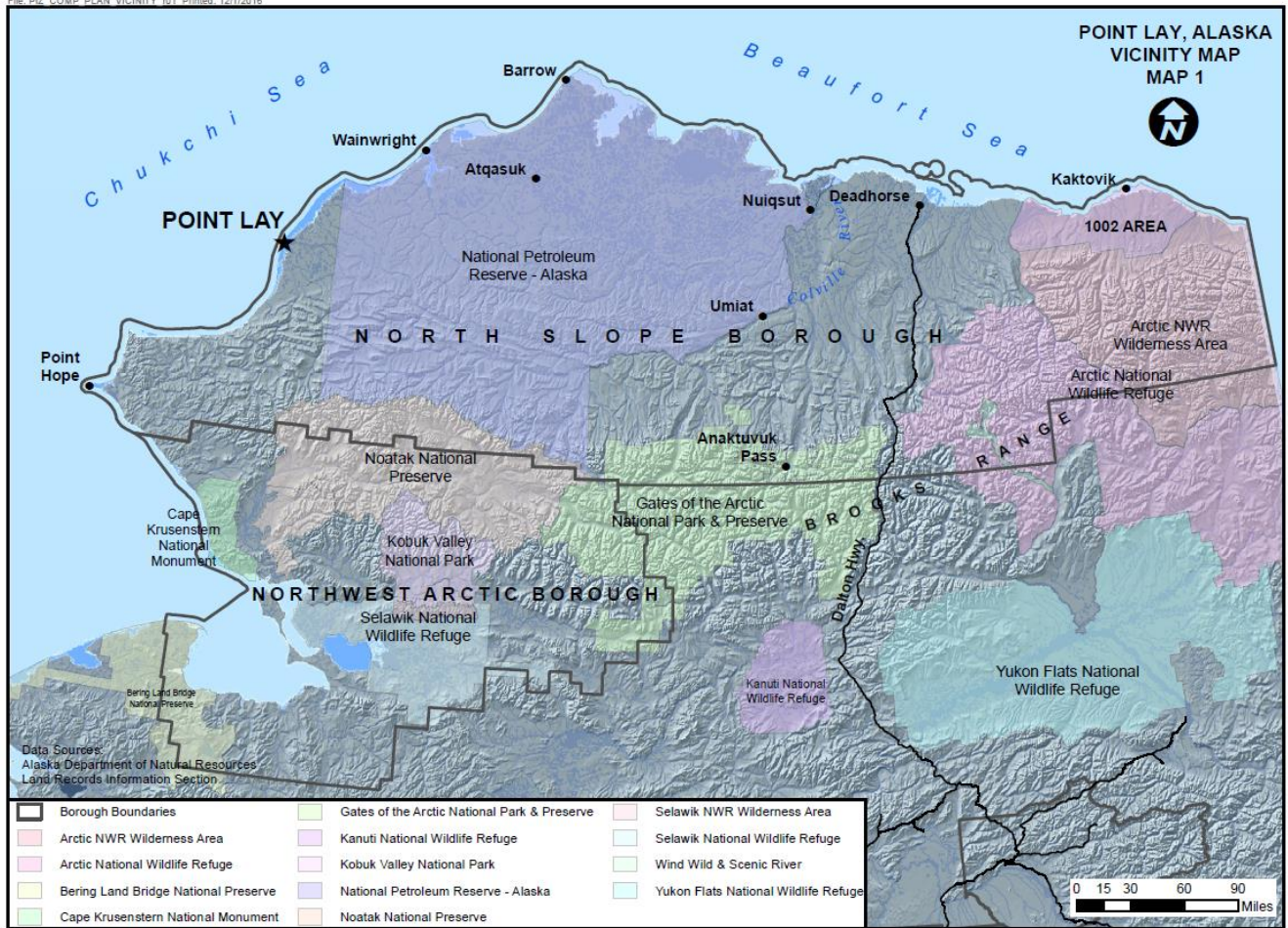
⁵¹ U.S. Department of the Interior. U.S. Geological Survey. 2016. *The Arctic Coastal Plain: Measuring and Forecasting the Response of Alaska's Terrestrial Ecosystem to a Warming Climate*. Accessed Oct. 3, 2016. http://alaska.usgs.gov/science/interdisciplinary_science/cae/arctic_coastal_plain.php.

Lay encompasses 17 square miles of land and 33 square miles of water.⁵² Map 1 illustrates the location of the community within the North Slope Borough.

⁵² Alaska Department of Commerce, Community, and Economic Development. 2016. *Alaska Community Database Online: Point Lay*. Accessed Oct. 3, 2016. www.commerce.alaska.gov/dcra/DCRAExternal/community.

Map 1: Point Lay Vicinity

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3.2 Climate

Point Lay falls within the arctic climate zone and has low average annual temperatures and low precipitation rates. Summers are short and warm, lasting from approximately June 2nd to September 16th. Summer temperatures range from 32 degrees Fahrenheit (°F) to 53°F, with an average daily high above 42°F.⁵³ The cold season lasts from approximately December 20th to April 3rd, when the average daily high is below 0°F. Winter temperatures range from -27°F to -5°F, with an average daily high temperature below 0°F. Strong winds are common during winter months. Prevailing winds are from the north with an annual average wind speed of 15.2 miles per hour (mph).⁵⁴

Precipitation is very low with an annual average of seven inches of rain and 21 inches of snow.⁵⁵ Most precipitation falls as rain in July and August. Precipitation from October through May is typically in the form of snow.

3.3 Geology

The US Geological Survey and Division of Oil and Gas at the Alaska Department of Natural Resources have compiled the geology of the Point Lay region. The Arctic Coastal Plain spans most of the North Slope of Alaska including the Point Lay Region, and is characterized by extensive areas of tundra cover, shallow tundra lakes, and a few meandering streams with few bedrock exposures. Soils on the Arctic Coastal Plain include fine-grained, organic-rich silt and some sand which has been deposited by rivers. The Kokolik River deposits sand and gravel in the braided and meandering stream floodplain.

South of Point Lay towards Cape Beaufort are upland areas that are underlain dominantly by sandstone deposited from eroding mountains about 100 million years ago. This rock type is called the Nanushuk formation, and often has qualities for oil and gas in Alaska.⁵⁶ The Nanushuk formation is visible south of Point Lay where the Kukpowruk River and its tributaries cut downward through their riverbeds, exposing the bedrock. These rock outcroppings can be followed long distances along the Kukpowruk River to the foothills of the northern Brooks Range, where underlying rock is often deformed or altered by the stress and force. The altered rocks of the Brooks Range foothills are in contrast to the bedrock underlying the Arctic Coastal Plain, which is generally intact and undeformed by stress.

3.4 Soils

Soils in the Point Lay vicinity generally consist of a poorly-drained organic tundra mat with permafrost underneath. Permafrost is any soil or material that remains below freezing thorough the year. Thick,

⁵³ WeatherSpark. n.d. *Average Weather for Point Lay, Alaska*. Accessed Oct. 3, 2016. www.weatherspark.com/averages/33146/Point-Lay-Alaska-United-States.

⁵⁴ Alaska Energy Authority. 2006. *Weather Station Wind Resource Summary for Point Lay*. Accessed Oct. 4, 2016. www.akenergyauthority.org/Content/Programs/AEEE/Wind/WindResourceAssessment/PointLay_StationSummary.pdf.

⁵⁵ North Slope Borough. 2005. *Point Lay Village Profile*. Prepared by URS Corporation for the North Slope Borough. October 2005. Accessed Sept. 22, 2016. www.north-slope.org/assets/images/uploads/PtLayVillageProfile06.pdf.

⁵⁶ DeMarban, Alex. 2016. *Overlook North Slope formation may hold 120,000-barrel-a-day-secret*. Sept. 12, 2016. Accessed May 22, 2017. www.adn.com/business-economy/energy/2016/09/11/overlooked-north-slope-formation-may-hold-120000-barrel-per-day-secret.

continuous permafrost generally exists north of Kotzebue Sound. Permafrost in the Point Lay vicinity is exposed on eroding bluffs that form part of the coast. The upper 12 to 18 inches of soil consists of ice-rich Holocene age silty loam. The area is underlain with shallow medium to fine-grained sand and silt of unknown depth.⁵⁷ Freeze-thaw cycles of the underlying permafrost create polygonal ground patterns which are separated by ice wedges.⁵⁸ Permafrost and ice wedges along the coastal bluff are exposed in some areas where thermal degradation and water movement accelerates erosion. Also present in Point Lay are ice lenses, localized ice formations that often melt at a different rate than the surrounding soil.

3.5 Vegetation and Wetlands

Low shrubs, mosses, sedges, and lichens cover the North Slope of Alaska. Arctic tundra receives little precipitation but wetlands are abundant due to an impermeable layer of permafrost under thin tundra soil. Wetlands are defined by the U.S. Army Corps of Engineers (USCOE) as “areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support a prevalence of vegetation typically adapted for life in saturated soil conditions”.⁵⁹ Wetlands in the Point Lay area are shown on Map 2. The community is bordered by freshwater emergent wetlands, a grouping which includes wet meadows, marshes, swamps, or bogs where standing surface water and ice provide habitat for plants that grow through the water to reach air.⁶⁰ Freshwater forested / shrub wetlands have been identified south and east of the community, which includes forested swamps and shrub bogs.

Excavating or filling wetlands for any project that utilizes federal funding or involves federal authorization requires avoidance, minimization, and mitigation of wetlands impact. Mitigation efforts may include conservation of lands, restoration projects, or compensatory mitigation. The wetlands that surround Point Lay are important biologically because they support a vast number of species, some of which are listed under the Endangered Species Act (ESA). Mitigation of wetlands impact should be considered early in the life of a project to ensure successful development.

⁵⁷ North Slope Borough. 2015. *Point Lay Environmental Baseline Survey*. August 26, 2015. Prepared by UMIAQ Environmental for the North Slope Borough.

⁵⁸ U.S. Department of Agriculture. Soil Conservation Service. 1979. *Exploratory Soil Survey of Alaska*. Accessed Oct. 12, 2016. Feb. 1979. www.nrcs.usda.gov/Internet/FSE_MANUSCRIPTS/alaska/AK_exploratory1979/alaska.pdf.

⁵⁹ U.S. Army Corps of Engineers. 1982. *RGL 82-02 Clarification of 'Normal Circumstances' in the Wetland Definition*. Feb. 11, 1982.

⁶⁰ U.S. Department of the Interior. U.S. Geological Survey. 1997. *Wetland Definitions and Classifications in the United States*. Accessed Sept. 28, 2016. <https://water.usgs.gov/nwsum/WSP2425/definitions.html>.

Map 2: Wetlands



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3.6 Wildlife

Point Lay and the surrounding lands and waters are abundant with wildlife. Migratory birds, land mammals, marine mammals, invertebrates, and fish find habitat on the ACP of northern Alaska and provide subsistence goods and foods to the community.

Migratory birds travel to coastal breeding areas in late March through early May where feeding, breeding, and nesting takes place in arctic bays, lagoons, and river outlets. Many birds can be found in the Point Lay region, including red-throated and pacific loon, greater white-fronted goose, brant, northern pintail, oldsquaw, American golden plover, long-billed dowitcher, parasitic jaeger, arctic tern, yellow wagtail, savannah sparrow, lapland longspur, and multiple species of sandpipers.⁶¹ All native birds in Alaska except grouse and ptarmigan (protected by the State of Alaska) are federally protected under the Migratory Bird Treaty Act (MBTA) (1918) which prohibits the “take”^{62,63} of migratory birds, their feathers, or their nests.⁶⁴

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.⁶⁵

Terrestrial mammals and fur-bearers provide important subsistence resources to Point Lay residents. Caribou from both the Teshekpuk Caribou Herd and the Western Arctic Caribou Herd find insect relief in their summer grounds outside of Point Lay.⁶⁶ In addition to caribou, terrestrial mammals known to inhabit the Point Lay area include fox, ground squirrel, lemming, brown bear, moose, muskox, porcupine, wolf, and wolverine.⁶⁷

⁶¹ U.S. Department of the Interior. U.S. Fish and Wildlife Service. 2000. *Inventory of Breeding Birds at Point Hope and Point Lay*. Brad A. Andres and D.L. Brann, Nongame Migratory Bird Management. U.S. Fish and Wildlife Service. Anchorage, Alaska 99503. Mar. 2000.

⁶² “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

⁶³ Alaska Statute. §16.05.940. *Fish and Game Definitions*. Accessed Mar. 22, 2017. www.legis.state.ak.us/basis/statutes.asp#16.05.940.

⁶⁴ U.S. Fish and Wildlife Service. 2009. *Land Clearing Timing Guidance for Alaska: Plan Ahead to Protect Nesting Birds*. Accessed Mar. 22, 2017. www.fws.gov/alaska/fisheries/fieldoffice/anchorage/pdf/vegetation_clearing.pdf.

⁶⁵ U.S. Department of the Interior. U.S. Fish and Wildlife Service. 2016. *The Federal Subsistence Management Program: An Overview*. Accessed Mar. 22, 2017. www.doi.gov/sites/doi.gov/files/uploads/Subsistence%20Management%20Program%20Brochure%202016.pdf.

⁶⁶ Northern Alaska Environmental Center. 2012. *Western Arctic Caribou Herd Range Map*. Accessed Sept. 21, 2016. http://northern.org/media-library/maps/arctic/western-arctic-npr-a-maps/western-arctic-caribou-herd-range-npr-a-plan-alt.-b-protections/image_view_fullscreen.

⁶⁷ Alaska Department of Fish and Game. 2016. *Species Profiles*. Accessed Sept. 21, 2016. www.adfg.alaska.gov/index.cfm?adfg=species.main.

The Chukchi Sea supports a diverse biological system including marine mammals such as beluga, bowhead and gray whale; pacific walrus; bearded, ribbon, ringed, and spotted seal; and polar bear, among others.⁶⁸ 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 Point Lay.

Many species of freshwater and anadromous fish are known to occur in the streams and lakes surrounding Point Lay. These species include arctic grayling, chum, king, pink salmon, silver salmon, rainbow smelt, broad whitefish, and Dolly Varden trout.⁶⁹ The Alaska Department of Fish and Game (ADF&G) maintains the Catalog of Waters Important for the Spawning, Rearing or Migration of Anadromous Fishes for the State of Alaska (the Catalog). The Kokolik River, which drains into the Kasegaluk Lagoon, is listed in the Catalog for its importance to chum salmon, pink salmon, and Dolly Varden trout. Both the Utukok River, located approximately 30 miles to the northeast of Point Lay and the Kukpowruk River, located approximately ten miles to the south, are also included in the Catalog for their importance to chum salmon, pink salmon, and Dolly Varden trout.⁷⁰ Under Alaska Statute §16.05.871, listing in the Catalog requires ADF&G approval should any agency or person wish to construct a hydraulic project, or use, divert, obstruct, pollute, or change the natural flow or bed of the Kokolik River, or to use wheeled, tracked, or excavating equipment or log-dragging equipment in the bed of the Kokolik River.⁷¹

3.7 Candidates and Endangered Species

The Endangered Species Act (ESA) (1973) requires federal agencies to work to conserve threatened and endangered species and the habitat on which they depend. Marine mammals listed under the ESA include the endangered bowhead whale and the threatened spotted and arctic ringed seal.

Bowhead whales migrate past Point Lay in the spring en route to their summer habitat in the Beaufort Sea. All whales, including bowhead, are protected by the International Whaling Commission (IWC). Bowhead hunts are regulated by a catch limit imposed by the IWC. The Commission estimates that subsistence hunts take less than one percent of the stock of bowhead whales per year.⁷² The Alaska Eskimo Whaling Commission (AEWC) advocates for subsistence whaling rights of Alaska Eskimos and the protection of the habitat of the bowhead whale.⁷³

⁶⁸ North Slope Borough. 2013. *Master Species List*. Accessed Oct. 22, 2015. www.north-slope.org/assets/images/uploads/MASTER_LIST_OF_SPECIES_with_scientific_names_Oct_2013a.pdf.

⁶⁹ Alaska Department of Fish and Game. 2016. *Species Profiles*. Accessed Sept. 21, 2016. www.adfg.alaska.gov/index.cfm?adfg=species.main.

⁷⁰ Alaska Department of Fish and Game. 2016. *Catalog of Waters Important for Spawning, Rearing, or Migration of Anadromous Fishes – Arctic Region*. Mar. 2016. Accessed Sept. 28, 2016. www.adfg.alaska.gov/static-sf/AWC/PDFs/2016arc_CATALOG.pdf.

⁷¹ Alaska Statute §16.05.871. Accessed Sept. 28, 2016. <http://codes.findlaw.com/ak/title-16-fish-and-game/ak-st-sect-16-05-871.html>.

⁷² International Whaling Commission. 2014. *Aboriginal Subsistence Whaling*. Accessed Oct. 21, 2015. <https://iwc.int/aboriginal>.

⁷³ Alaska Eskimo Whaling Commission. 2015. *Alaska Eskimo Whaling Commission: About Us*. Accessed Oct. 18, 2015. www.aewc-alaska.com/About_Us.html.

Spotted and ringed seals are an important subsistence resource and are also prey for other protected species including the pacific walrus and polar bear. In December 2014, the National and Atmospheric Administration (NOAA) Fisheries proposed the Alaska coastline and Exclusive Economic Zone (EEZ) from the Beaufort Sea south to Cape Avinof be designated as critical habitat for the arctic ringed seal. The proposed critical habitat provides sea ice conditions that are essential for the survival of arctic ringed seals. This critical habitat has not yet been adopted and finalized into regulation.

Currently, the pacific walrus is a candidate for listing under the ESA. Candidate species are those for which listing under the ESA is warranted, but precluded by higher priority actions. Pacific walrus are known to use Chukchi Sea waters for foraging and transiting and are known to haulout in large numbers to rest in many locations along the Chukchi Sea coastline, as shown in Figure 3. Each year since 2007, with the exception of 2008 and 2012, thousands of walrus used terrestrial haulout near Point Lay.⁷⁵ Large herds of walrus at a haulout can panic and stampede if disturbed. Due to receding sea ice, walrus spend more time at terrestrial haulouts where calves and young suffer increased mortality due to stampeding. During times when walrus are hauled out on the ice near the community, the Native Village of Point Lay, in partnership with U.S. Fish and Wildlife Service (USFWS) and other federal organizations, have requested that the media, tourists, and other organizations keep their distance and refrain from visiting the community to view the walrus. The Native Village of Point Lay has reduced and redirected subsistence hunters from walrus haulouts, and even reroute local airline flights to avoid causing mortality due to stampede.⁷⁶

Figure 3: Walrus Haulout⁷⁴



Terrestrial mammals in the Point Lay vicinity that are listed as Threatened under the ESA include polar bears and both Steller's and spectacled eiders. Point Lay is on the southern edge of the breeding grounds for both Steller's and spectacled eiders, and eiders move through the community during the summer months. After departure from their nesting and breeding grounds in the late summer and fall, both Steller's and spectacled eiders undergo wing molt. Steller's eiders migrate south through the Chukchi Sea

⁷⁴ Photo courtesy of Point Lay resident Bill Tracey, Sr.

⁷⁵ U.S. Department of the Interior. U.S. Geological Survey. 2015. *The Science Behind the 2015 Walrus Haul-out: FAQ*. Paul Lausten, Alaska. Aug. 25, 2015. Assessed Sept. 7, 2016. http://alaska.usgs.gov/science/biology/walrus/pdfs/The_Science_Behind_the_2015_Walrus_Haul-out_FAQ.pdf.

⁷⁶ U.S. Department of the Interior. U.S. Fish and Wildlife Service. 2015. *If Walrus Haul Out, Eliminating Disturbance is Essential*. With the Native Village of Point Lay, U.S. Department of the Interior U.S. Geological Survey, U.S. Department of Commerce National Oceanic and Atmospheric Administration Fisheries. Accessed Sept. 27, 2016. http://alaska.usgs.gov/outreach/NR_08-12-15_Point_Lay_and_Partners_Request_Space_for_Walrus.pdf.

to southwest Alaska to molt and winter. Spectacled eiders gather along the Chukchi and Bering Sea coasts to molt in very large flocks of over 80,000 individuals.

Ledyard Bay is one of the primary molting grounds for female spectacled eiders breeding on the North Slope and has been designated as critical habitat for molting spectacled eiders, shown in Map 3. Critical habitat is defined for a threatened or endangered species when the USFWS determines that a specific geographic areas contains features essential for the conservation of the species. During molt, eiders are highly susceptible to disturbance by vessel because they occur in dense concentrations and are flightless for several weeks. Critical habitat exists within about 40 nautical miles (nm) of shore and excludes waters less than one nm from shore. Digital bathymetry data from NOAA indicates that spectacled eiders in Ledyard Bay make almost exclusive use of marine waters greater than 16.4 feet and less than or equal to 82 feet in depth.⁷⁷ Wing molt occurs from late June through mid-October. After molting, spectacled eiders move to their wintering area and by late October when sea ice formation has begun and most marine and coastal birds have migrated out of the Chukchi Sea.

The USFWS originally designated polar bear critical habitat on December 7, 2010. Approximately two years later, the critical habitat designation was removed when the U.S. District Court for the District of Alaska found that the USFWS failed to comply with requirements of the ESA. On February 29, 2016, the Ninth Circuit Court of Appeals upheld the critical habitat that was originally designated in 2010. Three distinct types of critical habitat currently exist for polar bear: sea ice habitat, terrestrial denning habitat, and barrier island habitat. Both sea ice and barrier island critical habitat areas are within the vicinity of Point Lay (Map 3). Sea ice critical habitat for the polar bear exists offshore from the community in the Chukchi Sea and provides resources for bear feeding, breeding, denning, and movement. Barrier island critical habitat encompasses offshore islands offset from the mainland coast of Alaska, including the chain of barrier islands which separate the Kasegaluk Lagoon from the Chukchi Sea and areas within one mile of the barrier islands known as the no-disturbance zone. According to the USFWS, a one mile distance was chosen because female polar bears were shown to react to snow machine traffic within this distance, and adult females are the most important age and sex class in the population.⁷⁸

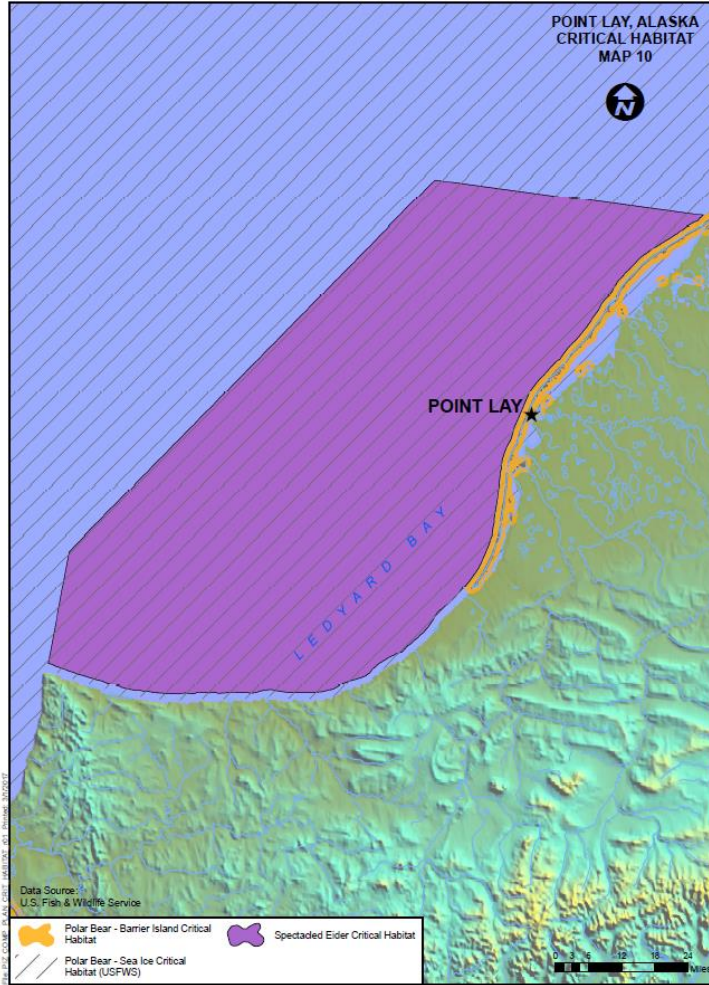
Projects within threatened or endangered species habitat or critical habitat which involve federal funding or authorization require consultation with USFWS to ensure the project is compatible with the ESA. USFWS may require mitigations such as avoiding ground disturbance during bird nesting windows, minimizing vessel lighting and/or speed in Ledyard Bay during eider wing molt, or preparation of a polar bear/human interaction plan. Specific requirements depend on conditions and type of activity. Common stipulations require lighting and speed reductions. Project schedule and USFWS consultation should be considered early in the life of a project to ensure successful development.

⁷⁷ U.S. Department of Interior. U.S. Fish and Wildlife Service. 2001. *Endangered and Threatened Wildlife and Plants; Final Determination of Critical Habitat for the Spectacled Eider*. Federal Register Vol. 66 No. 55 Tues., Feb. 6, 2001. 50 CFR Part 17. Accessed Sept. 29, 2016. <https://alaskafisheries.noaa.gov/sites/default/files/finalrules/spectacledeider.pdf>.

⁷⁸ U.S. Department of Interior. U.S. Fish and Wildlife Service. 2010. *Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the Polar Bear (Ursus maritimus) in the United States*. Federal Register Vol. 75 No. 234 Tues., Dec. 7, 2010. 50 CFR Part 17. Accessed Sept. 29, 2016. www.gpo.gov/fdsys/pkg/FR-2010-12-07/pdf/2010-29925.pdf#page=2.

Map 3: Critical Habitat

Point Lay Comprehensive Plan ■ Public Review Draft ■ October 2016



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3.8 Permafrost and Subsidence

The Arctic is on the front lines of climate change and climate patterns on the North Slope and in Point Lay are changing dramatically. The warming climate contributes to the thawing of the Arctic's thick, continuous permafrost. Thawing permafrost results in land subsidence, which can create sink holes and damage infrastructure. Residents of Point Lay are familiar with the high rate of subsidence experienced in the community. High-centered polygonal ground formations on the tundra reveal degrading ice wedges, which allows for water flow in the space between the wedges, creating further melting. Ice wedges near the Kasegaluk Lagoon are exposed on coastal bluffs and are melting faster than inland ice wedges. In addition to the ice wedge patterns in the region, ice lenses also occur within the soil in Point Lay. These are localized ice formations that do not follow the polygonal wedge pattern, and they often melt at a different rate than the surrounding soil. According to geophysical surveys collected by the Cold Regions Research and Engineering Laboratory (CRREL), the upper 10-15 feet of soils within the village are extremely ice rich, between 60-100 percent ice by volume.⁷⁹ When this ice melts, the soil is compacted. Additional factors contributing to thawing permafrost include snow drifting, sun reflection, increased water ponding, and vegetation disturbance.

Subsidence threatens infrastructure stability. Structures built on pile foundations are experiencing the ground sinking beneath them, threatening failure of the piles as the permafrost table recedes. Sinkholes occur in the village as water flows through utility trenches, melting ice wedges or lenses. Aboveground alternatives have been proposed to combat failing piles and buried utilities. As permafrost recedes, underground ice cellars have been damaged or have failed entirely. Ice cellars are used traditionally to store harvested subsistence foods and are passed down in families for generations. Damaged and failing ice cellars threaten both food security and safety.

3.9 Temperature and Sea Level Rise

Over the last 50 years, Alaska has warmed at more than twice the rate of the lower 48 states.⁸⁰ The northwest Arctic felt a 3.2°F increase in average annual temperature in the 57 years between 1949 and 2006.⁸¹ The projected temperature for Point Lay over the next 50 years forecasts that no month will have an average temperature below 0°F and the average monthly temperature will be between 5° and 30°F.⁸² The changing climate has already begun to transform the traditional lifestyle enjoyed by Point Lay residents by altering subsistence harvest patterns and food security, resulting in impacts to both community and individual health.

⁷⁹ UMIAQ Design & Municipal Services. 2016. *Point Lay Water/Sewer Existing System and Performance Presentation*. May 13, 2016.

⁸⁰ Fitzpatrick J., Alley R., Brigham-Gretto J., Miller G., Polyak L., Serreze M., 2008. *Preface: Why and how to use this synthesis and assessment report*. In: Past Climate Variability and Change in the Arctic and at High Latitude. Synthesis and Assessment Product 1.2. U.S. Geological Survey, Reston, VA, pp. 8-21.

⁸¹ Shulski, M. *Climatological Data and Trends for Kotzebue*. Presentation at Workshop: Planning and Preparing for Climate Change in the Northwest Arctic, Alaska Climate Research Center, Geophysical Institute, University of Alaska Fairbanks, Nov. 19-20, 2007.

⁸² SNAP: Scenarios Network for Alaska Planning. 2010. *Community Charts*. University of Alaska Fairbanks. Accessed Sept. 8, 2016. www.snap.uaf.edu/sites/all/modules/snap_community_charts/charts.php.

Increased water and air temperatures have diminished perennial sea ice cover to record low levels.⁸³ Chukchi Sea ice is forming later in the fall and breaking up earlier in the spring. An increase in ice-free days means a shortened winter hunting season. Maritime use of the Chukchi Sea during winter months is expected to increase, as the U.S. Coast Guard projects additional vessel traffic through the Arctic as sea ice retreats.⁸⁴

The changing climate is expected to result in global sea level rise due to melting ice reserves and thermal expansion. Neither the State of Alaska nor Point Lay have established a sea level prediction, but studies project the greatest amount of sea level rise occurring in the Arctic.⁸⁵ Sea level rise in Point Lay would reduce the amount of available land for housing and boat launch facilities and accelerate erosion inland.

3.10 Storm Surges, Flooding, and Erosion

Point Lay historically experiences gradual erosion from tidal and wave action, as well as periodic storm surges which can cause accelerated erosion and flooding during summer months. Rising sea level and loss of sea ice can increase the intensity and frequency of storm surges. Coastal erosion is accelerated by melting permafrost and the resulting subsidence, which also threatens the community with increased flooding.

The community of Point Lay is currently in its third location. The community's first location on the barrier island between the Kasegaluk Lagoon and the Chukchi Sea was threatened by seasonal storm surges and flooding. Point Lay was relocated to the banks of the Kokolik River, where residents experienced seasonal flooding and swampy conditions.⁸⁶ To escape the flooding, the community moved south to its current location. Beach and bluff erosion and flooding due to storm surge continue to be of concern to the community. The community's water source eroded its bank with the Kokolik River and drained in August of 2016. The Kokolik River has been used as a temporary water source and an investigation is underway to locate a permanent water source. The community's infrastructure continues to be threatened by melting permafrost, subsidence, and the resulting accelerated erosion.

⁸³ U.S. Coast Guard. 2014. *Draft Programmatic Environmental Assessment: Arctic Operations and Training Exercises*. Juneau, Alaska: U.S. Coast Guard District Seventeen. Accessed Sept. 8, 2016.

www.uscg.mil/d17/docs/DRAFT%20PROGRAMMATIC%20ENVIRONMENTAL%20ASSESSMENT.pdf.

⁸⁴ Jones, B.M., Arp, C.D., Jorgenson, M.T., Hinkel, K.M., Schmutz, J.A., Flint, P.L. 2009. *Increase in the rate and uniformity of coastline erosion in Arctic Alaska*. *Geophysical Research Letters*, 36, doi:10.1029/2008GL036205. Accessed Sept. 9, 2016. <http://onlinelibrary.wiley.com/doi/10.1029/2008GL036205/abstract>.

⁸⁵ Walsh, J. 2005. *Cryosphere and Hydrology*. In: *Arctic Climate Impact Assessment*. Cambridge University Press, Cambridge, UK, and New York. Accessed Sept. 12, 2016. www.acia.uaf.edu/pages/scientific.htm.

⁸⁶ North Slope Borough. 2005. *North Slope Borough Comprehensive Plan, Point Lay Village Profile*. Prepared by URS Corporation for the North Slope Borough. October 2005. Accessed Aug. 2, 2016. www.north-slope.org/assets/images/uploads/PtLayVillageProfile06.pdf.

3.11 Contaminated Materials and Hazardous Waste

The Alaska Department of Environmental Conservation (ADEC) maintains an online database of contaminated sites in Alaska. A contaminated site is defined as “a location where hazardous substances, including petroleum products, have been improperly disposed.” Contaminated sites are designated by ADEC as Active or Cleanup Complete. Cleanup Complete sites may require Institutional Controls, meaning the land use and activity must be maintained by the owner in an ADEC-specified manner to protect human health and the environment.⁸⁷ Active sites are where remediation is pending and/or characterization of the contamination has not been completed. In Alaska, landfills cannot accept hazardous materials, and all hazardous materials are eventually shipped out of state for proper disposal.

There are seven active contaminated sites within the village of Point Lay, that became contaminated for various reasons including a heating oil spill, improper fuel dispensing, drum storage, disposal of contaminated material, and breach of the below-ground fuel supply. Active contaminated sites have the potential to become exposed or seep into surrounding soils, threatening public health and the environment. Active sites must be monitored and managed carefully in order to ensure the safety of the community and health of the land. Within the community of Point Lay and its vicinity, ADEC has identified a total of thirteen contaminated sites (seven active and six cleaned-up) and one additional informational site, which are listed in Table 2 and illustrated in Map 4.

Table 2: Contaminated Sites⁸⁸

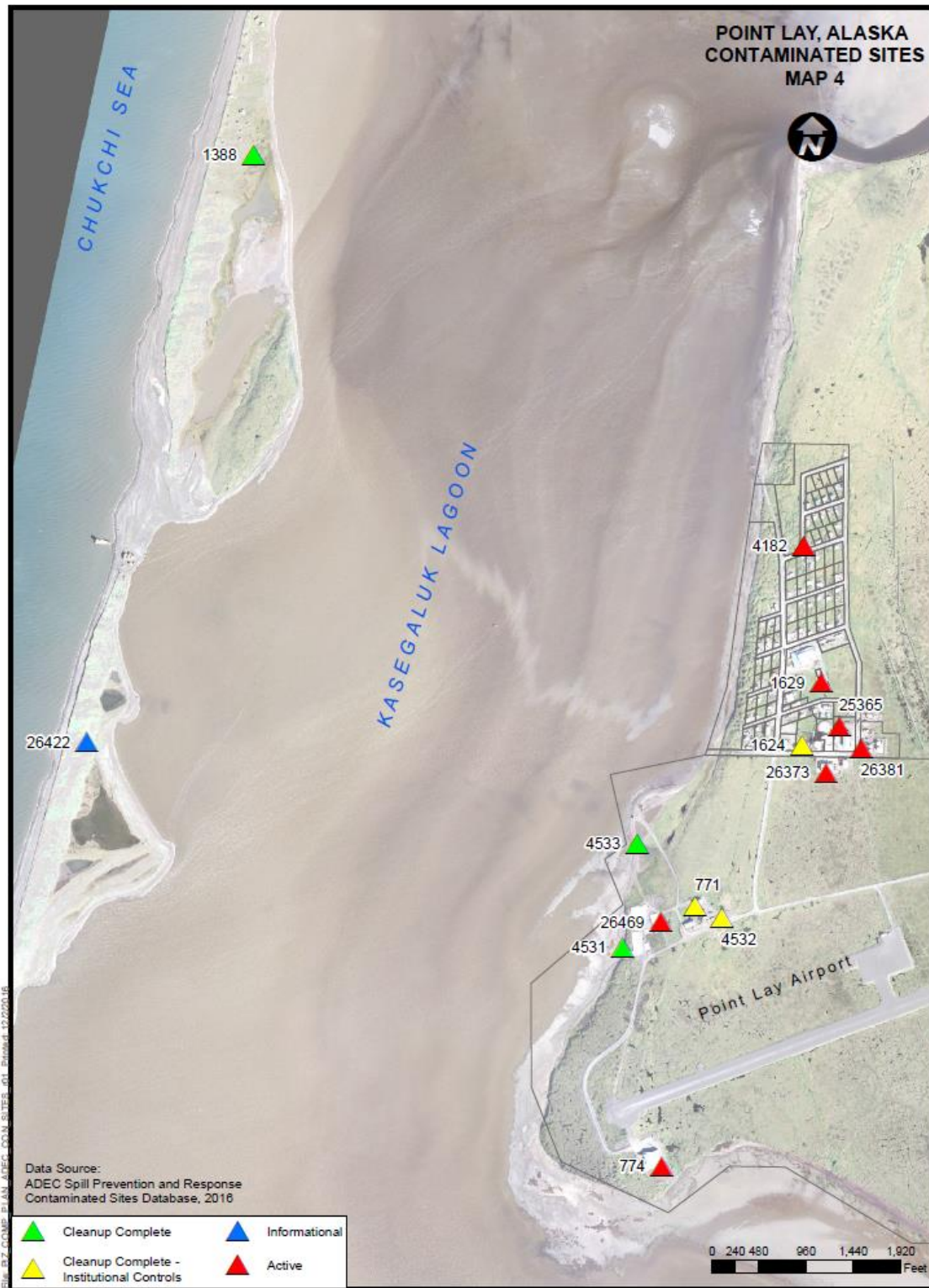
No.	ADEC Hazard ID	Site Name	Address	Status	ADEC File ID
1	26469	Point Lay Dewline LIZ-2 ASTs (TA013)	Camp Area; 1,400 Feet North of Airstrip	Active	425.38.001
2	26422	Point Lay NALEMP	Four Locations Near Point Lay	Informational	425.38.009
3	26381	NSB Point Lay Tank Truck Loading Area	Tuttunniagvik Street; Point Lay Tank Farm	Active	425.38.007
4	26373	NSB Point Lay Warm Storage Area	Tuttunniagvik Street	Active	425.38.008
5	25365	NSB Point Lay DMS Drum Storage Area	NW of DMS Building, Along Edge of Gravel Pad	Active	425.38.006

⁸⁷ Alaska Department of Environmental Conservation. 2015. *Contaminated Sites Program: The Cleanup Process*. Accessed Oct. 16 2015. <https://dec.alaska.gov/spar/csp/process.htm>.

⁸⁸ Alaska Department of Environmental Conservation. 2016. *Contaminated Sites Search*. Accessed Sept. 8, 2016. <http://dec.alaska.gov/Applications/SPAR/PublicMVC/CSP/Search>.

No.	ADEC Hazard ID	Site Name	Address	Status	ADEC File ID
6	4533	Point Lay Dewline LIZ-2 Barge Beach Area (SS10)	Immediately North of Point Lay LRRS	Cleanup Complete	425.38.001
7	4532	Point Lay Dewline LIZ-2 Crushed Drum Area (SS08)	East Side of Point Lay Installation	Cleanup Complete - Institutional Controls	425.38.001
8	4531	Point Lay Dewline LIZ-2 Drainage Pathway (SS07)	Kasegaluk Lagoon	Cleanup Complete	425.38.001
9	4182	USPS Point Lay Post Office	Intersection of Sisugvik Ave and Kavutualuk Street	Active	425.38.005
10	1629	NSB Point Lay Kali School Site	1029 Qasiglalik Street	Active	425.38.004
11	1624	NSB Point Lay Former Tank Farm/Point Lay Power Plant	Point Lay	Cleanup Complete - Institutional Controls	425.38.003
12	1388	Eagle Creek Airstrip Pad	50 Miles NW Point Lay	Cleanup Complete	427.38.001
13	774	Point Lay Dewline LIZ-2 Landfill (LF001)	South of Hangar Building	Active	425.38.001
14	771	Point Lay Dewline LIZ-2 Garage (SS006)	Kasegalik Lagoon	Cleanup Complete - Institutional Controls	425.38.001

Map 4: ADEC Contaminated Sites



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ASRC Energy Services. 2016.

Chapter 4: Subsistence

4.1 Definition of Subsistence

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

The North Slope Borough Municipal Code defines subsistence as

“An activity performed in support of the basic beliefs and nutritional needs of the residents of the Borough and includes hunting, whaling, fishing, trapping, camping, food gathering, and other traditional and cultural activities (NSBMC 19.20.020).”

The State of Alaska defines subsistence uses as

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

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

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

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

4.2 Village Area of Influence

Village subsistence users travel as far north as Wainwright (approximately 90 miles northeast), as far south as Cape Lisburne (approximately 100 miles southeast), and as far 60 miles east to the upper Utukok River to meet subsistence needs. Point Lay residents subsist upon many marine mammals, such as bowhead whales, beluga whales, ringed and bearded seals, and walrus. The Point Lay area also has an abundance of caribou, moose, waterfowl, and various species of fish.

The Point Lay Area of Influence depicted in Map 5 is an aggregation of traditional subsistence use areas but is not the maximum extent that hunters will go for subsistence activities; it is a typical hunting range based on past hunting, fishing, and whaling use. This area can change over time as traditional subsistence land use patterns change based on the availability of animals and fish. The area of influence can be used to determine community stakeholders that may need to be consulted prior to activity that may affect their traditional use of the land. The Area of Influence map also includes the areas of influence of nearby communities, ones that overlap with that of Point Lay.⁸⁹

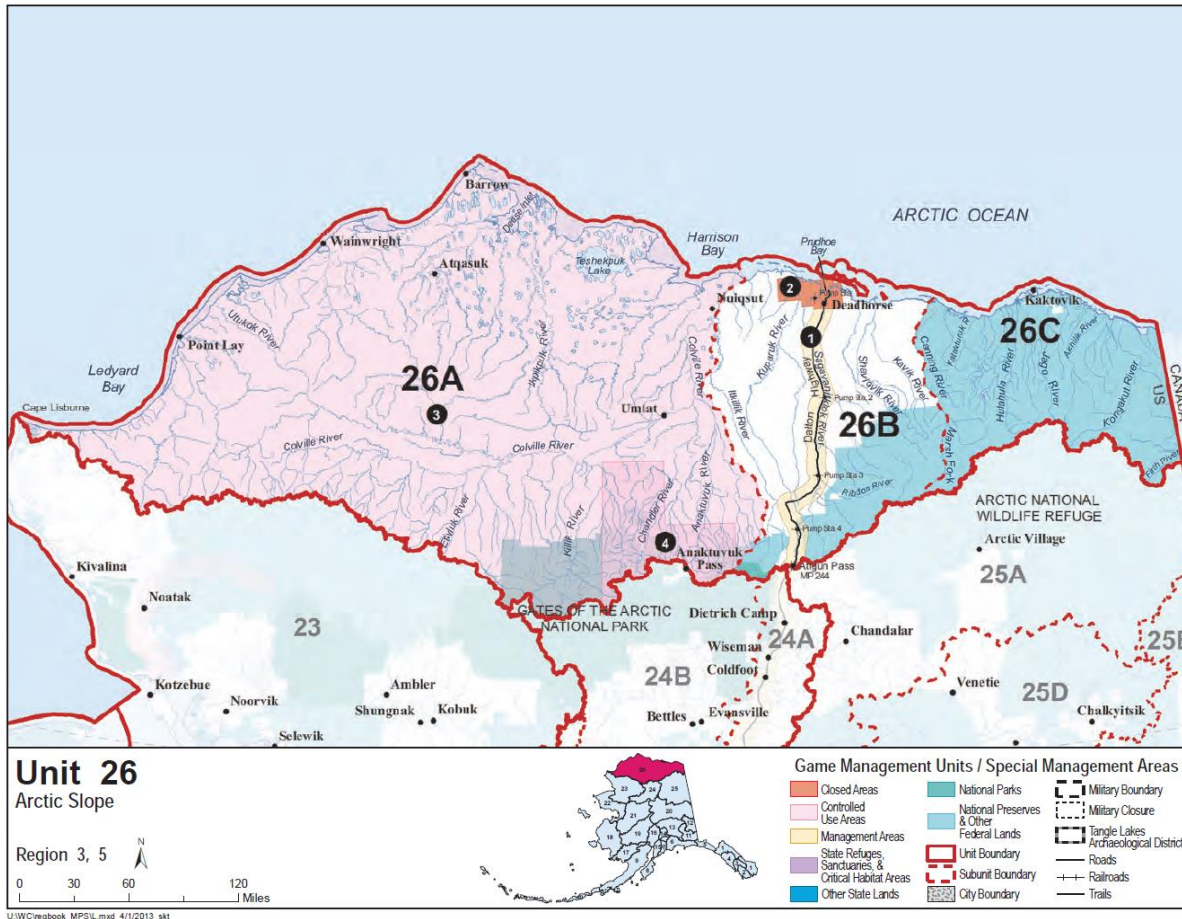
⁸⁹ The Atqasuk Area of Influence is not included because one has not yet been approved by the community.

Map 5: Point Lay Area of Influence

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The Alaska Department of Fish and Game regulates hunting throughout the state. Point Lay is located within the Game Management Unit 26A, shown in Map 6. Bag limits are defined by state and published annually.⁹⁰

Map 6: ADF&G Game Management Unit 26⁹¹



4.3 Point Lay Subsistence Harvest

Subsistence users in the community of Point Lay rely upon a variety of terrestrial and marine mammals, fish, and waterfowl for some or all of their diet. According to a 2015 NSB Census, all Point Lay household diets include at least some subsistence foods up slightly from 2010 when 95.5 percent of residents

⁹⁰ Specific regulations can be found on the Alaska Department of Fish and Game Hunting Maps by Game Management Unit website at: www.adfg.alaska.gov/index.cfm?adfg=huntingmaps.bygmu&gmu=26.

⁹¹ Alaska Department of Fish and Game. 2016. *Game Management Unit (GMU) Information Unit 26*. Accessed Oct. 11, 2016. www.adfg.alaska.gov/static/hunting/maps/gmumaps/pdfs/26.pdf.

reported having at least some subsistence foods in their diet. Thirty-nine percent of Point Lay households receive half or more of subsistence diet from other households.^{92, 93}

The Point Lay subsistence area of influence is fortunate to have lagoon boundaries, the Chukchi Sea, and inland rivers where residents harvest bowhead whales, beluga whales, walrus, bearded and ringed seals, polar bear, several species of salmon, grayling, broad white fish, smelt, flounder, clams, and mussels. Residents hunt caribou, brown bear, musk ox reindeer, and an occasional moose for subsistence food. Residents also hunt migratory birds such as geese and ducks, along with ptarmigan. Other food sources include salmonberries, low bush cranberries, and multiple types of mushrooms and greens. Locals also hunt wolverine, land otter, lynx, ground squirrels, and ermine for their pelts to make traditional clothing.⁹⁴

Beluga whales are protected under the Marine Mammal Protection Act. Subsistence hunters in Alaska formed the Alaska Beluga Whaling Committee to maintain healthy beluga populations and to ensure adequate subsistence harvests.⁹⁵ Many Point Lay residents participate in the beluga whale subsistence harvesting. The hunt for Point Lay usually occurs from late June into the first couple weeks of July⁹⁶ during their migration northeast through the Chukchi Sea. Hunters herd the a few hundred whales from the main pod into the approximately 125-mile long Kasegaluk Lagoon because the shallower water makes them easier to harvest.⁹⁷

Like other Alaska Natives, those from Point Lay have been hunting bowhead whales for thousands of years. Like belugas, bowhead whales are protected under the Marine Mammal Protection Act and traditional subsistence hunt is allowed under the Act. Hunting bowhead whales is allowed for registered members of the Alaska Eskimo Whaling Commission (AEWC). A quota for the number of whales taken by the AEWC is determined by the International Whaling Commission (IWC). The quota was approved for the years 2013 through 2018, allowing Alaskan whalers to land up to 336 whales over the next six years.⁹⁸ The block quota authorizes the same annual limits and carryovers as have been in place for the last 15 years.

Due to a dwindling village population during the 1960s and 1970s, Point Lay was not among the original nine villages to receive a whale quota when the IWC formally recognized the Native subsistence bowhead hunt in 1978. Even as the population of Point Lay grew over the next several decades, residents bore the

⁹² North Slope Borough. 2015. *North Slope Borough 2015 Economic Profile and Census Report Volume XI*. Unpublished. Prepared by Circumpolar Research Associates Shepro, C., Maas, C. and D. Gallaway and edited by Jason Bergerson for the North Slope Borough.

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

⁹⁴ Tracey, Bill Sr. Point Lay resident. Sept. 21, 2016. Personal communication.

⁹⁵ Alaska Beluga Whale Committee. 2012 *Open Water Meeting*. Accessed Oct. 11, 2016. www.nmfs.noaa.gov/pr/pdfs/permits/openwater/abwc2012.pdf.

⁹⁶ Ibid

⁹⁷ Hess, Bill. 1999. *Gift of the Whale: The Iñupiat Bowhead Hunt, A Sacred Tradition*. Sasquatch Books.

⁹⁸ Alaska Eskimo Whaling Commission. n.d. *Bowhead Harvest Quota*. Accessed Oct. 11, 2016. www.aewc-alaska.com/bowhead-quota.html.

burden of traveling to other whaling villages to participate in bowhead hunts. However, in 2008, Point Lay was officially recognized as a whaling community and received a community quota.⁹⁹ On May 5, 2009, Captain Julius Rexford of Atkaan Crew landed Point Lay's first bowhead whale in over 75 years. The IWC allocated the village of Point Lay one bowhead whale in 2013 and two each year until 2018.¹⁰⁰ The Alaska Eskimo Whaling Commission registered two whaling crews for the 2016 spring whaling season: Julius Rexford and Thomas Nukapigak.

⁹⁹ Alaska Eskimo Whaling Commission. n.d. *Our Whaling Villages*. Accessed Sept. 26, 2016. www.aewc-alaska.com/whaling-villages.html.

¹⁰⁰ North Slope Borough. 2016. *The AEW*. Accessed Oct. 11, 2016. www.north-slope.org/departments/wildlife-management/other-topics/iwc-and-aewc/aewc#AEWCQuota.

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North Slope Borough. 2016. Point Lay. Accessed Oct. 19, 2016. www.north-slope.org/our-communities/point-lay.

Chapter 5: Population

5.1 Historical Population and Population Trends

The U.S. Decennial Census provides data every ten years on the population of Point Lay, since 1880, when approximately 30 people lived in the Point Lay area. The population more than doubled over the next ten year period, to 77 in 1890. The U.S. Decennial Census did not include the Point Lay population in its census reports for four consecutive decades: 1900, 1910, 1920, or 1930. The Decennial Census is provided for Point Lay in 1940 and 1950, only to have it absent over the ensuing two decades, likely due to the significant depopulation of the community during that time.

The village population grew over the fifty year period between census reports, from 77 in 1890 to 117 in 1940. It then dropped to 75 by the next decade's census in 1950. The U.S. Decennial Census again published the total population in 1980. The population nearly quadrupled, from 68 in 1980 to 269 in 2015.

Table 3 provides a historical perspective of Point Lay's population since 1880, the first decade that the U.S. Decennial Census was taken in Alaska.¹⁰¹ Complementing Table 3 is Figure 4, which graphically depicts changes between the 1980 and 2015 NSB and DDCED-certified population estimate. Figure 4 illustrates that the population of Point Lay has steadily increased since 1980 with the exception of 2010, when census counts from the U.S. Decennial Census and the North Slope Borough were dramatically different, at 189 and 247 respectively.

¹⁰¹ Alaska Department of Labor and Workforce Development. 2013. *A History of Alaska Population Settlement*. Accessed Oct. 4, 2016. <http://live.laborstats.alaska.gov/pop/estimates/pub/pophistory.pdf>.

Table 3: Historical Population and Sources, 1880 to 2015

Year	Population	Source
1880	30	U.S. Decennial Census ¹⁰²
1890	77	U.S. Decennial Census
1900	No data	U.S. Decennial Census
1910	No data	U.S. Decennial Census
1920	No data	U.S. Decennial Census
1930	No data	U.S. Decennial Census
1940	117	U.S. Decennial Census
1950	75	U.S. Decennial Census
1960	No data	U.S. Decennial Census
1970	No data	U.S. Decennial Census
1980	68	U.S. Decennial Census
1990	139	U.S. Decennial Census
1998	246	NSB Census ¹⁰³
2000	247	U.S. Decennial Census
2003	260	NSB Census ¹⁰⁴
2010	247	NSB Census ¹⁰⁵
	189	U.S. Decennial Census ¹⁰⁶
2014	242	DCCED Certified ¹⁰⁷
2015	269	NSB Census & DCCED Certified ¹⁰⁸

¹⁰² U.S. Department of Commerce. U.S. Census Bureau. *1880 - 2000. Census of Population, Alaska*. Accessed Sept. 30, 2016. <http://live.laborstats.alaska.gov/cen/hist.cfm>.

¹⁰³ North Slope Borough. 2003. *North Slope Borough 2003 Economic Profile and Census Report, Volume IX*. Prepared by Circumpolar Research Associates Shepro, C., Maas, C. and D. Gallaway.

¹⁰⁴ Ibid

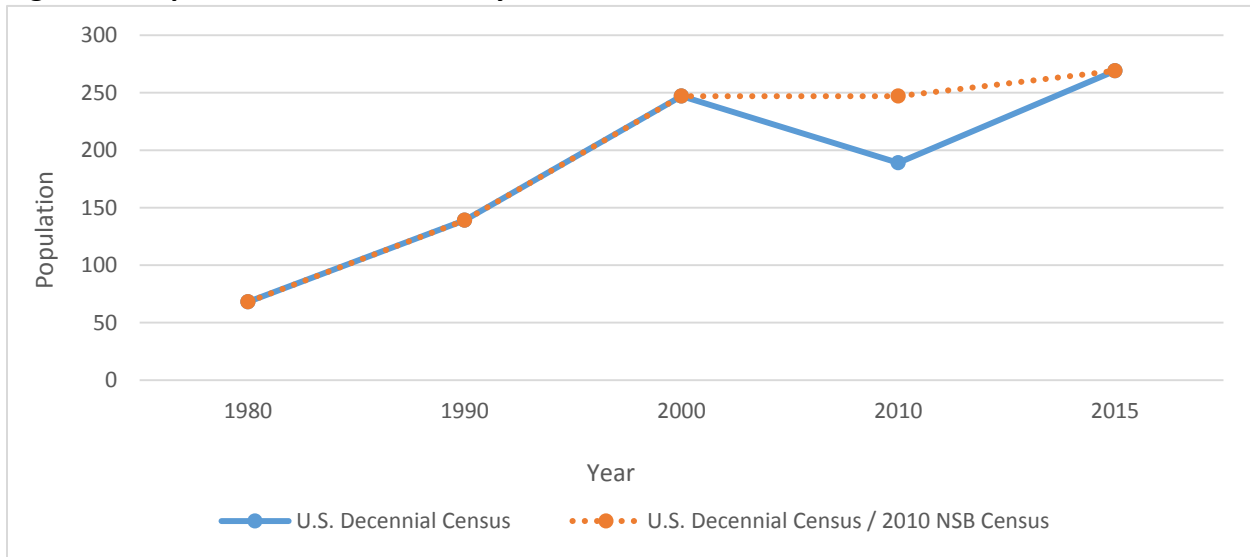
¹⁰⁵ North Slope Borough. 2010. *North Slope Borough 2010 Economic Profile and Census Report Volume X*. Prepared by Circumpolar Research Associates Shepro, C., Maas, C. and D. Gallaway with J. McNich for the North Slope Borough. www.north-slope.org/your-government/census-2010.

¹⁰⁶ This figure has not been used to calculate population projects, needs, or assess current inventories because it is significantly lower than the North Slope Borough Census and is not in line with censuses taken immediately before or after 2010.

¹⁰⁷ Alaska Department of Commerce, Community, and Economic Development. 2016. Division of Community and Regional Affairs. *Population Adjustment*. Accessed Sept. 30, 2016. www.commerce.alaska.gov/web/dcra/ResearchAnalysis/PopulationAdjustment.aspx.

¹⁰⁸ North Slope Borough. 2015. *North Slope Borough 2015 Economic Profile and Census Report Volume XI*. Unpublished. Prepared by Circumpolar Research Associates Shepro, C., Maas, C. and D. Gallaway and edited by Jason Bergerson for the North Slope Borough.

Figure 4: Population, 1980 to 2015 by Decade



While the population of Point Lay has been steadily increasing since its founding and especially since the 1980, as far back as the U.S. Decennial Census reports continuously reported the population, both the North Slope Borough and State of Alaska have increased at a steadier rate, as shown in Figure 5. The rate of growth over the last three and a half decades has varied widely, from 104 percent change between 1980 and 1990, a 78 percent positive change from 1990 to 2000, zero percent change increase between 2000 and 2010, and a nine percent increase between 2010 and 2015. Like Point Lay, population growth in the 1980s was at its highest level over the thirty-five year period; the NSB increased by 42 percent and the State of Alaska by 37 percent. Since 1990, the rates of growth.

Figure 5: Rate of Growth, 1980 to 2015 for Point Lay, NSB, Alaska

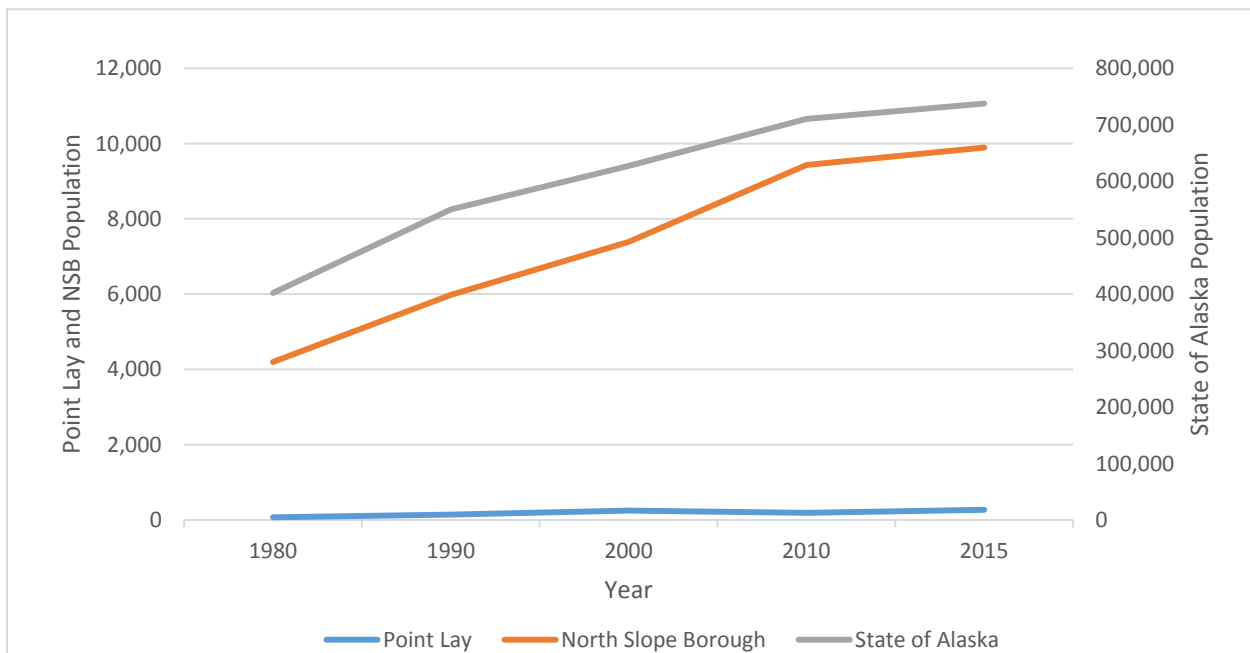


Table 4 provides details on specific population characteristics of Point Lay and the changes that have taken place between 2003 and 2015 based on the NSB Census.

The median age of Point Lay residents has increased slightly, up from 18 in 2003 to 22 in 2015. Over the same timeframe, the average household size has declined, from 3.88 to 3.3. The decrease is seen in both Iñupiat and non-Iñupiat households. A dramatic decrease was seen in Iñupiat households between 2010 and 2015, where the average household size dropped from 4.1 to 3 persons. The decrease may be from new homes available in the community.¹⁰⁹

Table 4: 2003, 2010, and 2015 NSB Census Population Characteristics^{110, 111, 112}

Characteristic	2003	2010	2015
Total Population	260	274	269
Female	42.5%	42.5%	44.2%
Male	57.5%	57.5%	55.8%
Median age of females	20	20	22
Median age of males	16	21	22.5
Median age of total population	18	21	22
Ethnicity			
Iñupiat	86.2%	89.2%	89.7%
Caucasian	12.5%	9.7%	7.3%
Other	1.3%	1.1%	3.0%
Iñupiaq speakers (percent of population who are fluent)	33 (18.3%)	16 (9.8%)	12 (5.2%)
Size of labor force	98	92	123 ¹¹³
Number of occupied households	not available	73	74
Average household size	3.88	3.71	3.3
Iñupiat households	4.6	4.1	3
Non-Iñupiat households	2.7	2.5	1.8

In addition to population increases and decreases, dependency ratios are useful for estimating and preparing for social, economic, health, and educational needs and services. The dependency ratio is a calculation of the proportion of the population not in the workforce who are 'dependent' on those of working-age. Those aged under 15 and over 65 years are classified as dependents and those aged 16 to

¹⁰⁹ North Slope Borough. 2015. *North Slope Borough 2015 Economic Profile and Census Report Volume XI*. Unpublished. Prepared by Circumpolar Research Associates Shepro, C., Maas, C. and D. Gallaway and edited by Jason Bergerson for the North Slope Borough.

¹¹⁰ North Slope Borough. 2010. *North Slope Borough 2010 Economic Profile and Census Report Volume X*. Prepared by Circumpolar Research Associates Shepro, C., Maas, C. and D. Gallaway with J. McAnich for the North Slope Borough. www.north-slope.org/your-government/census-2010.

¹¹¹ North Slope Borough. 2015. *North Slope Borough 2015 Economic Profile and Census Report Volume XI*. Unpublished. Prepared by Circumpolar Research Associates Shepro, C., Maas, C. and D. Gallaway and edited by Jason Bergerson for the North Slope Borough.

¹¹² The census that provided the characteristics took place in February 2015 and the population in July 2015 was certified in January 2016.

¹¹³ The 2015 figure includes retirees.

64 years of age are classified as the working-age population, as shown in Table 5. The youth dependency ratio in 2015 is similar to that of 2010, both significantly lower than the ratio in 2003, indicating that there is a lower percentage people under the age of 15 than there was twelve years ago. The age dependency ratio has decreased from 2010 and is also slightly lower than it was in 2003, indicating a lower percentage of the population is 65 years old or older.

Table 5: Age Distribution and Dependency Ratios, 2003, 2010, and 2015^{114, 115}

Age Range	2003	2010	2015
15 years and under (under 15 in 2015)	46%	36.5%	38.6%
18 years and under	52.2%	43.1%	Not available
18 – 24	11.1%	15.5%	Not available
16 – 64 (15 in 2015)	50%	56.9%	59.2%
55 - 64	7%	7.2%	4.3%
65 and older	1.8%	3.3%	2.1%
Youth Dependency Ratio	92	64.1	65.2
Age Dependency Ratio	4	5.8	3.6
Total Dependency Ratio	95.6	69.9	68.8

5.2 Natural Population Increase

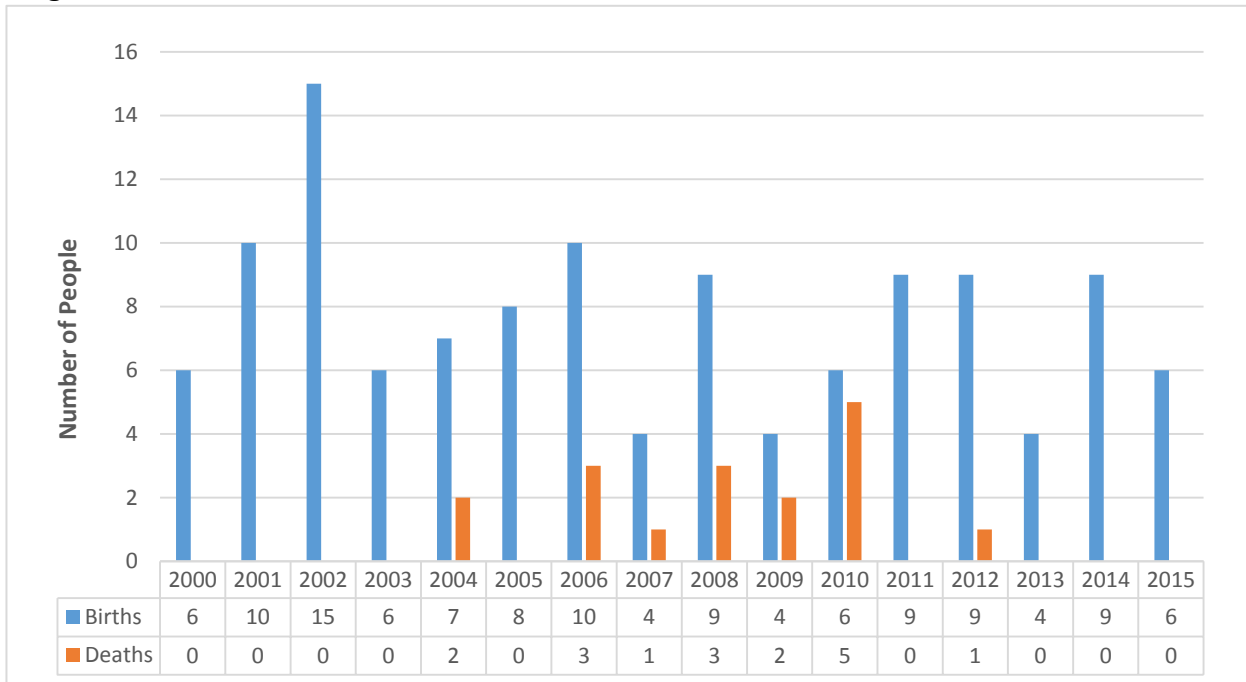
The strongest component of population growth is natural increase, with more births occurring than deaths. Between 2000 and 2015, 122 residents were born and 17 persons passed away, for a net increase of 105 people living in Point Lay.¹¹⁶ As illustrated in Figure 6, births have been variable over the fifteen-year period, ranging from a low of 4 in 2007, 2009 and 2013 to a high of 15 in 2002; deaths have ranged from a low of 0 for nine of the sixteen years shown to a high of five in both 2010. Every year births have exceeded deaths.

¹¹⁴ North Slope Borough. 2015. *North Slope Borough 2015 Economic Profile and Census Report Volume XI*. Unpublished. Prepared by Circumpolar Research Associates Shepro, C., Maas, C. and D. Gallaway and edited by Jason Bergerson for the North Slope Borough.

¹¹⁵ North Slope Borough. 2010. *North Slope Borough 2010 Economic Profile and Census Report Volume X*. Prepared by Circumpolar Research Associates Shepro, C., Maas, C. and D. Gallaway with J. McAnich for the North Slope Borough. www.north-slope.org/your-government/census-2010.

¹¹⁶ Gibson, David. Research Analyst II. State of Alaska Vital Statistics. Personal Communication. Feb. 29, 2016.

Figure 6: Births and Deaths, 2000 to 2015¹¹⁷



5.3 In-Migration and Out-Migration

The U.S. and NSB censuses do not collect data on new residents or current residents moving out of the village, also known as resident in-migration and out-migration. Out-migration is often attributed to high school graduates leaving to attend college, workers seeking employment opportunities elsewhere, or residents leaving to be close to other family members or loved ones. In-migration would most often be attributed to new residents moving to the village to live with or near family members or for employment.

One potential indicator of the prevalence of in- and out-migration in Point Lay may be the number of people who apply for the annual Alaska Permanent Fund Dividend (PFD). The Permanent Fund program tracks the dividend recipients by zip code and community. Figure 7 illustrates the combined number of adult and child applicants for the PFD program living in Point Lay between 2000 to 2015. Over the last fifteen years, the highest combined total of PFD applicants was in 2013 at 242, 27 people less than the NSB census for the same year. The year with the least applications submitted by both child and adult residents of Point Lay was in 2006, at 198.

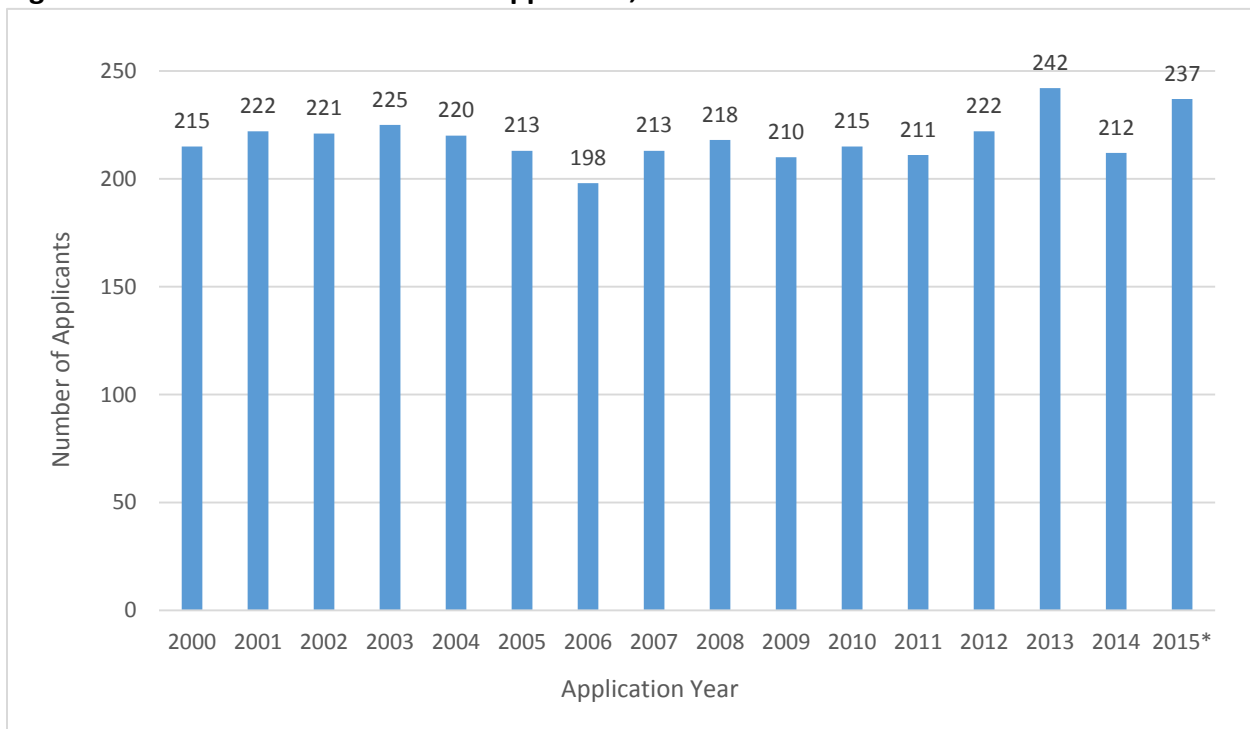
The State of Alaska uses PFD applications in conjunction with birth and death data and the U.S. Census to determine the population of a community. The number of PFD applications does not always provide an accurate portrayal of a community's population, leading to an undercount of the existing population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

¹¹⁷ Gibson, David. Research Analyst II. State of Alaska Vital Statistics. Personal Communication. Feb. 29, 2016.

thus to an estimate that is not reflective of the actual population in the community.¹¹⁸ Some of the issues with using the PDF as an indicator of in- and out- migration can be problematic. There are number of reasons an Alaska resident would choose not to apply for PFD dividend, including:

- Retain residency in another state;
- Consider the PFD investments unethical;
- Consider it a bribe by oil companies that are buying our approval / silence;
- Too much pride / already receive free health care and other dividends;
- In the military;
- Avoid jury duty or other obligations;
- PFD would be garnished by the state for unpaid child support or other liens.^{119, 120}

Figure 7: Permanent Fund Dividend Applicants, 2000 to 2015¹²¹



¹¹⁸ North Slope Borough. 2015. *North Slope Borough 2015 Economic Profile and Census Report Volume XI*. Unpublished. Prepared by Circumpolar Research Associates Shepro, C., Maas, C. and D. Gallaway and edited by Jason Bergerson for the North Slope Borough.

¹¹⁹ North Slope Borough. 2015. *North Slope Borough 2015 Economic Profile and Census Report Volume XI*. Unpublished. Prepared by Circumpolar Research Associates Shepro, C., Maas, C. and D. Gallaway and edited by Jason Bergerson for the North Slope Borough.

¹²⁰ Theriault Boots, Michelle. 2014. *Why some Alaskans don't apply for the PFD*. Accessed Oct. 4, 2015. www.adn.com/alaska-news/article/why-some-alaskans-dont-apply-pfd/2014/10/02/.

¹²¹ Alaska Department of Revenue. 2015. Permanent Fund Dividend Division. *Annual Reports*. Accessed Oct. 4, 2016. <https://pfd.alaska.gov/Division-Info/Annual-Reports>.

5.4 Population Growth Projections

Determining population estimates for small communities in rural Alaska is problematic, even though both the U.S. Census Bureau and the State of Alaska do it annually. According to the 2015 North Slope Borough Census, the problem with the rural Alaska population estimates is, in part, because the U.S. Decennial Census is an estimate based on a combination of surveys and administrative reports.¹²² The U.S. Census reported that for the 2010 Decennial Census “approximately 74 percent of the households returned their census forms by mail; the remaining households were counted by census workers walking neighborhoods throughout the United States.”¹²³ While the U.S. Census does conduct door-to-door counts, rural Alaskan villages are difficult to reach, accommodations are often non-existent, and weather conditions make walking throughout the community difficult, questioning the effectiveness of this method in these communities. The 2015 NSB Census also considers the survey return rate for rural Alaskan communities. Seventy-four percent is a national return rate. These issues may lead to chronic undercounting and/or inaccurate Census data for population and/or employment.¹²⁴

The State of Alaska uses a combination of trend lines based on the prior U.S. Decennial Census as well as Permanent Funds Dividend applications, birth and death rates, and migration to complete population estimates. As noted in Section 5.3, there are many reasons that an Alaska resident may not submit a PDF application. The lack of personal contact with rural residents may also contribute to undercounting.¹²⁵

Because population projections for Alaska’s rural communities are difficult, this comprehensive plan does not simply rely on the linear trend method, which falls well within the range for modest growth. The linear trend projection assumes that the Point Lay population will increase or decrease by the same number of people in each future decade as the average per decade increase or decrease observed during the interval between 1980 and 2010. This relatively simple method of projecting the future population is often as accurate as more complex methods,¹²⁶ but as previously discussed, has limitations for small and rural communities. Ideally, the population estimates used for the linear trend would be North Slope Borough Census population estimates instead of U.S. Decennial Census estimates because of the imprecise nature of the latter. However, given that the NSB Census has not been undertaken for as many years to show trends over longer periods, the linear projection in this plan utilizes the U.S. Decennial Census. The linear trend using 1980 U.S. Decennial Census data and 2010 U.S. Decennial Census data is closely aligned with the one-half percent annual growth rate, and an increase of 21 people from the 2015 population. All population projections are shown in Table 6.

¹²² North Slope Borough. 2015. *North Slope Borough 2015 Economic Profile and Census Report Volume XI*. Unpublished. Prepared by Circumpolar Research Associates Shepro, C., Maas, C. and D. Gallaway and edited by Jason Bergerson for the North Slope Borough.

¹²³ U.S. Department of Commerce. U.S. Census Bureau. 2016. *What is the Census?* Accessed Oct. 7, 2016. www.census.gov/2010census/about/.

¹²⁴ North Slope Borough. 2015. *North Slope Borough 2015 Economic Profile and Census Report Volume XI*. Unpublished. Prepared by Circumpolar Research Associates Shepro, C., Maas, C. and D. Gallaway and edited by Jason Bergerson for the North Slope Borough.

¹²⁵ Ibid

¹²⁶ Rayer, Stefan. 2008. *Population Forecast Errors: A Primer for Planners*. University of Florida. Accessed May 2, 2016. [https://app.bebr.ufl.edu/sites/default/files/Research%20Reports/Rayer%20\(2008\)%20-%20JPER.pdf](https://app.bebr.ufl.edu/sites/default/files/Research%20Reports/Rayer%20(2008)%20-%20JPER.pdf).

Table 6: Twenty Year Population Projections

Rate of Growth	2015 Base Year NSB/DCCED Certified	5 Year Projection, 2020	10 Year Projection, 2025	20 Year Projection, 2035
Percentage Projection				
High Growth (+1%) ¹²⁷	269	283	297	328
Modest Growth (+.5%)		276	283	297
No Growth (-.5%)		262	256	243
Linear Trend Projection				
Based on 1980 and 2010 U.S Decennial Census	N/A	229	250	290

¹²⁷ Facility needs are based on the population projection in this row.

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ASRC Energy Services. 2016. Photo Library.

Chapter 6: Public Facilities

6.1 Recreation and Community Use Facilities

Point Lay does not presently have a child care facility but residents have expressed the desire for one. A facility would need to be staffed with residents that are trained and certified as child care professionals.

Kali School has both a pool and playground facilities. The pool is open for students only because teachers also function as life guards. The existing playground was constructed in 1999 - 2000¹²⁸ and upgrades are desired by the community as well as an additional playground site.

Residents have also expressed a desire for a teen center, bowling alley, washeteria, and an ATM/banking services.

The NSB Health Department currently administers the Meals on Wheels and Congregate Meals programs for Point Lay senior citizens during the regular school year. Transportation and translation services are also provided, as well as assistance in filing out documents.¹²⁹

6.2 Public Safety

Police. The North Slope Borough Police Department dispatches one full-time police officer to Point Lay on rotating two week shifts. The first week of assignment, the officer works 11 hours per day. The second

¹²⁸ Wong, Mel. Plant Manager. North Slope Borough School District. Personal Communication. Jan. 19, 2017.

¹²⁹ Fischer, Margie. Program Coordinator, Senior Citizen's Program. North Slope Borough Health and Social Services Department. Personal Communication. Jan. 12, 2017.

week of assignment, the officer works 12 hours per day. The NSB Police Department budgets for one local resident to serve as a Community Public Safety Specialist; however does not currently employ anyone. The Point Lay Police Department is a 1,200 square foot facility that includes a two cell jail, evidence room, office area, garage and living quarters for the police officer.¹³⁰

Emergency phone calls are handled through the Barrow Police Department Dispatcher and relayed to the local police officer and NSB Fire Department personnel. Point Lay village residents can also call a local phone number to report non-emergency incidents. Arraignments for bailable offenses are handled telephonically with the Barrow Superior Court. For more serious crimes, suspects are transported from Point Lay to Barrow by an Alaska State Troopers court services officer or a North Slope Borough police officer. In extreme public safety matters, reinforcement personnel are flown from Barrow to assist the village police officers.

Fire. The North Slope Borough Fire Department employs a staff of three people in Point Lay: one Village Fire Chief and two Emergency Responders. The Point Lay Volunteer Fire Department has five volunteer emergency responders. Some staff and volunteers have state-certified fire fighter and state-certified emergency medical treatment training. The village facility is approximately 4,900 square feet, supplied and maintained by the North Slope Borough. All paid staff and volunteers have basic fire training, adult and small child/infant cardiopulmonary resuscitation (CPR) certification, and are certified as emergency trauma technicians. The NSB Fire Department also provides emergency medical technician certification when instructors and funding are available. Fire Department personnel respond to all 911 phone calls, 24 hours per day, 365 days per year.¹³¹

The Fire Department equipment includes one tanker, one engine truck, one ambulance, one pick-up truck and one sport utility vehicle. The tanker vehicle holds approximately 2,000 gallons of waters with a pump capacity of 750 gallons per minute. The engine vehicle holds approximately 1,000 gallons of water and a pump capacity of 1,250 per minute. The village of Point Lay has a total of 12 fire hydrants.

Search and Rescue. Cooperative and coordinated efforts implement search and rescue functions in Point Lay. The NSB Search and Rescue Department visits Point Lay every quarter to discuss village needs. The Department lends personal locator beacons (PLB) to the Village Volunteer Search and Rescue Unit. Distribution of the PLBs are coordinated through the Point Lay Volunteer Search and Rescue Unit and the Kali Volunteer Fire Department. If a beacon is activated in an emergency, an alert is sent to the local search and rescue volunteers. If needed, the NSB Search and Rescue headquarters in Barrow dispatches a helicopter.

The NSB owns the facility that the Native Village of Point Lay uses for search and rescue. Emergency village evacuation efforts are coordinated through the Point Lay Volunteer Search and Rescue, Kali Volunteer Fire Department, Cully Corporation, Native Village of Point Lay, and Kali School. The Point Lay

¹³⁰ Smith, Stephen. North Slope Borough Police Department. Personal Communication. Sept. 7, 2016.

¹³¹ Kanayurak, Lloyd. North Slope Borough Fire Department. Personal Communication. Sept. 6, 2016.

Volunteer Search and Rescue and Kali Volunteer Fire Department work cooperatively to best serve the village in search and rescue efforts.¹³² The volunteer search and rescue facility does not meet the needs of the volunteers or the community. It is too small to store all of the equipment; some of it is stored in the next door fire station. It is also poorly insulated and lacks restroom facilities. Residents have sought funding to either renovate it or move to another location within the community.

6.3 Power Generation and Fuel Storage

Energy. Based on NSB records, each household uses an estimated average of 800 gallons of heating fuel.¹³³ Diesel fuel is used to heat homes and the school in Point Lay and fuel the generators in the power plant. The power plant uses approximately 257,000 gallons per year, with a monthly usage in winter of about 25,000 gal per month, dropping to a lower amount in summer months. The NSB distributes fuel to the village for heating homes and charges the residents the cost for delivery.

There are 20 light poles and 128 power/utility poles throughout the community, all of which use light-emitting diode (LED) lights. There are three poles on Qasigialik Street between Sisugvik Avenue and the Lagoon boat dock, none of which are illuminated. The community has sought boat dock lighting that would include three additional power poles and illumination of the road to the boat dock. The community has also expressed safety concerns about the use of LED lighting throughout the community, citing two issues: dark areas between light poles where polar bears are often unseen; and the lack of sufficient lighting to serve as a beacon to returning hunters. The North Slope Borough is in the preliminary stages of evaluating alternatives for replacing some of the LED lights with high pressure sodium (HPS) lights to alleviate residents' concerns by providing more continuous light cover.^{134, 135}

Point Lay is one of the 184 Alaskan communities that participated in the Alaska Energy Authority's (AEA) Power Cost Equalization (PCE) program in 2015. The goal of the program is to provide economic assistance to customers in rural areas of Alaska where the kilowatt-hour charge for electricity can be three to five times higher than the charge in more urban areas of the state. The PCE subsidizes 30 percent of each customer's electric utility cost. In Point Lay, electricity costs a flat rate of \$15 for up to 100 kilowatt hour (kWh), for 101 to 600 kWh the cost is an additional 15 cents per kWh, and 35 cents per kWh for use over 600 kWh. Elders and disabled residents pay \$0.35 per kilowatt (kW) when usage exceeds 600 kWh; below 600 kW, there is no charge. Additional costs are shown in Table 7.

¹³² Tracey, Bill Sr. Point Lay resident. Sept. 21, 2016. Personal communication.

¹³³ North Slope Borough. 2015. *Draft North Slope Borough Regional Energy Plan*. Prepared by WHPacific for the North Slope Borough. Feb. 2015. Accessed Sept. 12, 2016. www.north-slope.org/assets/images/uploads/Feb2015_draft_NSB_Energy_Plan_2.6.15.pdf.

¹³⁴ Shears, Robert. Community Planning and Real Estate Division Manager. North Slope Borough Department of Planning and Community Services. Personal Communication. Jan. 24, 2017.

¹³⁵ Native Village of Point Lay Tribal Council. October 21, 2016. *Tribal Council comments*.

Table 7: Point Lay 2015 Utility Costs

Utility	Cost
Fuel	
Residential Heating fuel delivery cost	\$1.45/gallon
Commercial Diesel cost	\$4.25/gallon
Propane Bottle (100 pounds)	\$365.00
Gasoline	\$3.52 gallon
Electricity (Residential)	
0-100 kWh	\$15 minimum
0-600 kWh	\$0.15
601 kWh plus	\$0.35
Aged or handicapped (Seniors over 60)	
0-600 kWh	No Charge
601 kWh plus	\$0.35
Electricity (Commercial)	
0-75 kWh	\$15 minimum
0-1000 kWh	\$0.20 per kWh
1,001-10,000 kWh	\$0.30 per kWh
Water/Sewer Piped or Delivered (commercial and residential)	
0-3000 gallons per month (residential)	\$69.00 flat rate
0-3000 gallons per month (Seniors)	\$14.00 flat rate
After 3000 gallons	\$0.02/gallon
Commercial Rate	\$0.08/gallon
Sewer	free

Fuel Storage. Fuel is delivered to the community by barge operated by fuel vendor, Crowley Marine, with use of a floating fuel line transferring fuel from barge to the shore. Point Lay has fuel storage capacity for 30,000 gallons of gasoline and 750,000 gallons of diesel in the bulk tank farm located in the southeast corner of the community. The community has two 250,000-gallon diesel tanks and two 125,000-gallon diesels tanks. In addition, there is a 30,000-gallon gasoline storage tank. There are also numerous smaller fuel storage tanks scattered throughout the village. A buried fuel line runs from the fuel tank farm to the power plant. The fuel is transferred by fuel line to a 400-gallon day tank located inside the power plant facility for fueling the generators.

Power. A retrofit of the original USDW building to convert the building to the new power plant began in 2011. In October of that year, the building was destroyed during construction by a fire. The current power plant, built in 2012, is on the same site and is located next to the Beluga Camp at the corner of Tuttunniagvik Street. The building is solely used for power generation and is owned and maintained by the North Slope Borough. The power plant currently houses four generators, all of which are 3508C

generators and they are all in good working condition. The power is distributed throughout the community as shown on Map 7.

The 2012 power plant was built with the addition of the new 3508C 330 kWh generators along with new switchgear, building controls, and fire suppression system. The work included new building additions of an office area, break room, lockers and shower room and storage space.

The Point Lay Power Plant operates four generator units, listed in Table 8.

Table 8: Power Generators

Unit	Make/Model	Capacity	Serial Number	Installed
1	Caterpillar 3508C	633 KW	9AZ00596 DSZTM	2013
2	Caterpillar 3508C	633 KW	9AZ00595 DSZTK	2013
3	Caterpillar 3508C	633 KW	9AZ00597 DSZTJ	2013
4	Caterpillar 3508C	633 KW	9AZ00598 DSZTL	2013

All four engines were purchased new in 2009, but were not installed until 2013 due to a fire at the Point Lay Power Plant construction site.¹³⁶ During construction of the new plant, a fire burned down the building that led to a delay in installing the new generators. The gen sets are in good working order without any known deficiencies. With the current demand loads, the power plant is able to supply and meet the village needs by running one of the larger Caterpillar 3508C generators most of the time. In the winter months, the monthly peak load is about 550-590 kWh and two generators can comfortably handle the load running in tandem. During summer months, this peak load drops to about 420-460 kWh and a single generator can handle the community needs. Peak demands are over 500 kWh two generators are run in tandem.¹³⁷

During summer months, the overall demand drops, with peak loads rarely exceeding 500 kWh. Records of the daily peak loads show the actual demand from the community by the hour. The peak demand usually occurs around 9 - 10am each morning.¹³⁸ Early evening is also when demand is high. After 1,000 hours of operation, the generators are rotated to allow those non-operating 3508 generator to be serviced. With regular and continuous maintenance and recommended intermittent major overhauls, the generator life of the 3508 is expected to be well over 100,000 hours of operation. Because 8,760 hours are in one year, and operation of each generator is over 11 years.¹³⁹

¹³⁶ Peterson, Jason. 2017. NSB Public Works, Deputy Director. Personal Communication. May 17, 2017

¹³⁷North Slope Borough. 2016. *Point Lay Summary Power Plant Operator Report*.

¹³⁸ Ibid

¹³⁹ Mueller, Kim. 2016. NSB Public Works, Power and Light Division. Personal Communication. May 2, 2016.

Because each generator is assumed to last 11 years, the total expected life of all four is 44 years combined. Thus the power plant is well equipped to meet the demand well past 2035. However, as the population grows, the peak demand will also grow, requiring that two generators are run in tandem to meet that demand. This would reduce the total life efficiency of combined generators to less than 44 years. To forecasting future peak use with future anticipated high population growth, a rate of 2.0 kW per person/per day is used. This rate of usage was calculated from the estimated peak usage in winter at 530 kW and a population count today of 269. For average winter load calculations, 480 kW per person is used with a population count of 269, for a rate of 1.8 kW per person/per day. Projected usage is shown in Table 9.

Table 9: Projected Power Usage for High Growth Rate

Forecast Year	Population Count	Daily Peak Usage (kilowatt/per day)	Average Winter Usage (kilowatt/per day)
2015	269	538	484
2020	283	566	822
2025	297	594	864
2035	328	656	955

With the generator bank available in Point Lay and an estimated one percent population growth, two generators will be required to meet the peak usage rates calculated after 2025. All the generators in use in Point Lay are de-rated to use the new low sulfur fuel. The use of the #2 low sulfur fuel is a federal requirement and the fuel itself is not the same consistency and not as heavy as the older regular diesel fuel. Low sulfur diesel use causes the generators to not produce the intended amount of horse power. The difference is minimal for calculating power loads.

Additional usage data includes:¹⁴⁰

- Average Total Monthly Loads – 340,180 kWh
- Average Daily Load – 10,068 kWh
- Average Monthly Fuel Used In Plant – 25,789 gallons
- Average Monthly Power Sold – 329,573 kWh
- Average Monthly Residential Usage (Including Senior) – 46,330 kWh
- Average Monthly Commercial Usage (Incl. State/Federal) – 279,741 kWh
- Average Monthly Community Facility Usage – 3,502 kWh

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

¹⁴⁰ North Slope Borough. 2016. *Point Lay Summary Power Plant Operator Report*.

Map 7: Power Distribution

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6.4 Alternative Energy

Wind Generation. Two wind power feasibility studies for Point Lay have been conducted in recent years.^{141, 142} Additionally, Cully Corporation installed a meteorological (met) tower to collect wind condition and air density data to determine wind power feasibility. Data was collected from the tower from 2006 to 2007 and again in 2011. Wind speed was measured at 6.63 meter/second and rated as a high 4 (good) to low 5 (excellent) on a scale where 1 is poor and 5 is excellent.

Point Lay has relatively high average wind speed, high wind power density, highly directional winds, and lack of extreme wind events, all of which make it an excellent location to pursue wind as an energy source.¹⁴³ In his 2011 feasibility study, Vaught recommended that the NSB pursue additional conceptual design tasks for a wind-diesel power system in Point Lay.¹⁴⁴ Two sites were considered in the feasibility study: Site A, located on a fairly low but well-exposed north-south trending hill immediately south of the Kokolik River mouth and Site B, located in an exposed site south of the village between village and airport. Based on the average and peak electrical flows used in Point Lay, the new wind turbines rated between 100 and 350kW were considered in the study.¹⁴⁵ This size would eliminate the smaller battery-charging turbines and small grid-connect home and farm scale turbines that are insufficient to meet village load requirements. This size also eliminates the larger utility-scale turbines that would overpower the village system.¹⁴⁶ In addition to sites A and B, the terrain east of the village is large enough for many wind turbines. However, the area is also characterized by very marshy and wet conditions, requiring considerable fill material for wind turbine construction. Additionally, with prevailing northeasterly to easterly winds, turbines east of the village would have to be located far enough away to avoid noise and downwind ice throw issues. Increased development costs due to the lack of electric power distribution also present a disadvantage.¹⁴⁷ However, some residents have indicated that this is the preferred location.

Wind development would require a large funding commitment and the long-term maintenance since expected life span of the wind equipment is typically twenty years.¹⁴⁸

¹⁴¹ North Slope Borough. 2011. *Point Lay Wind Diesel Hybrid Feasibility Study*. Prepared by Douglas Vaught, P.E. at V3 Energy LLC for the North Slope Borough. Dec. 22, 2011. Accessed Sept. 12, 2016. www.v3energy.com/wp-content/uploads/2010/09/v3-energy-point-lay-feasibility-study.pdf.

¹⁴² North Slope Borough. 2014. *Report of Site Visits to Wind Turbine Manufacturers for NSB Wind Development*. Prepared by Douglas Vaught, P.E. at V3 Energy LLC for the North Slope Borough and Hattenburg, Dilley and Linnell, LLC. March 31, 2014. Accessed Sept. 12, 2016. www.v3energy.com/wp-content/uploads/2015/11/Report-of-Site-Visits-to-Wind-Turbine-Manufacturers-for-NSB-Wind-Development.pdf.

¹⁴³ Ibid

¹⁴⁴ North Slope Borough. 2011. *Point Lay Wind Diesel Hybrid Feasibility Study*. Prepared by Douglas Vaught, P.E. at V3 Energy LLC for the North Slope Borough. Dec. 22, 2011. Accessed Sept. 12, 2016. www.v3energy.com/wp-content/uploads/2010/09/v3-energy-point-lay-feasibility-study.pdf.

¹⁴⁵ Ibid

¹⁴⁶ Ibid

¹⁴⁷ North Slope Borough. 2014. *Report of Site Visits to Wind Turbine Manufacturers for NSB Wind Development*. Prepared by Douglas Vaught, P.E. at V3 Energy LLC for the North Slope Borough and Hattenburg, Dilley and Linnell, LLC. March 31, 2014. Accessed Sept. 12, 2016. www.v3energy.com/wp-content/uploads/2015/11/Report-of-Site-Visits-to-Wind-Turbine-Manufacturers-for-NSB-Wind-Development.pdf.

¹⁴⁸ Ibid

Tentative costs for purchase, shipping, and installation of a 100kW single turbine is just over \$1,000,000 dollars (cost in 2011). This equals an installed cost/kW of \$10,475.¹⁴⁹ Permitting and environmental reviews would be required for installation of a wind tower and turbine. Threatened and endangered species might inhabit the Point Lay area. The Migratory Bird Treaty Act prohibits the taking of active bird nests, eggs and young which could affect installation of a wind turbine and tower. The USFWS has developed “bird windows” statewide that allow clearing activities outside the nesting periods of migratory birds. A wind turbine project would have to consider these bird windows.

Coal. There are large coal bituminous deposits located in and around the Point Lay area. Many coal beds are exposed but also are known to have overburden layers of depths up to 150 feet.¹⁵⁰ This region is known as the Northern Arctic Province which has been estimated to hold four trillion tons of coal.¹⁵¹ In 2006, the Western Arctic Coal Region Project was conducted by BHP Billiton. The company signed a Memorandum of Understanding with ASRC to conduct a five-year coal exploration program; one of the areas included was just south of Point Lay. However, the project is no longer active.¹⁵² There are currently no known active coal mines in the region.

Solar Generation. Solar energy is a feasibly source in Point Lay, and the benefits are considerable both in terms of energy savings and lessening impacts to the environment. During the summer months on the North Slope, there is a near 24-hour window of daylight, while in the winter months, the opposite is true. According to the NSB Regional Energy Plan,¹⁵³ solar power has been shown to defer energy costs. The Plan states that five solar panels installed in January 2013 at the Ambler power plant (8.4kW) has displaced approximately 700 gallons of diesel fuel, creating a savings of \$6,000 and a CO² offset of 13.08 tons.¹⁵⁴

While solar panels are a possible source of alternative energy for Point Lay, neither solar energy research nor conceptual design was available at the time of writing this comprehensive plan. Because of the success in other regions of Alaska, solar energy seems like a viable option that could help reduce the growing cost of conventional power generation. The North Slope Regional Energy Plan rated both wind and solar energy as high potential opportunities that should be pursued in Point Lay.

¹⁴⁹ North Slope Borough. 2014. *Report of Site Visits to Wind Turbine Manufacturers for NSB Wind Development*. Prepared by Douglas Vaught, P.E. at V3 Energy LLC for the North Slope Borough and Hattenburg, Dilley and Linnell, LLC. March 31, 2014. Accessed Sept. 12, 2016. www.v3energy.com/wp-content/uploads/2015/11/Report-of-Site-Visits-to-Wind-Turbine-Manufacturers-for-NSB-Wind-Development.pdf.

¹⁵⁰ North Slope Borough. 2015. *Draft North Slope Borough Regional Energy Plan*. Prepared by WHPacific for the North Slope Borough. Feb. 2015. Accessed Sept. 12, 2016. www.north-slope.org/assets/images/uploads/Feb2015_draft_NS_B_Energy_Plan_2.6.15.pdf.

¹⁵¹ Tizon, Tomas Alex. 2009. *The Great Alaska Coal Rush*. - Sierra Magazine. July/August 2009. Accessed May 21, 2017. <http://vault.sierraclub.org/sierra/200907/coal.aspx>.

¹⁵² Sourcewatch. 2010. *Western Arctic Coal Project*. Accessed May 21, 2017. www.sourcewatch.org/index.php/Western_Arctic_coal_project.

¹⁵³ North Slope Borough. 2015. *Draft North Slope Borough Regional Energy Plan*. Prepared by WHPacific for the North Slope Borough. Feb. 2015. Accessed Sept. 12, 2016. www.north-slope.org/assets/images/uploads/Feb2015_draft_NS_B_Energy_Plan_2.6.15.pdf.

¹⁵⁴ Ibid

Currently, there are no utility scale solar power plants in Alaska.¹⁵⁵ Solar development is driven by the high cost for electric power in rural Alaska. Only small residential and commercial systems exist in Alaska. According to Renewable Energy Alaska Project (REAP), the price for individual solar PV panels and arrays have gone down since the late 1970s. New technology in the field continues to improve the reliability and affordability even in remote Alaska sites, but shipping, construction and general installation costs are higher in Alaska than other locations. Systems installed in the Northwest Arctic Borough cost approximately \$55,000 for a 10kW system of the total price; \$22,000 covered travel expenses, freight, and labor.¹⁵⁶ Many villages have applied and received grants through the Coastal Impact Assistance Program that helped cover these costs. REAP indicates that the solar capacity of installed systems is approximately 88.45kW.

6.5 Water System

The North Slope Borough owns and maintains the water treatment plant in the community of Point Lay. The water system was commissioned in 2000 and includes 13,100 linear feet of 6-inch and 8-inch high-density polyethylene (HDPE) Arctic Pipe constructed in trenches throughout the community. There are 61 service connections with piped water and wastewater, 20 of which are using piped water coupled with wastewater holding tanks. The system is a pressure circulation distribution system. There are 12 fire hydrants throughout the community to provide water for fire protection. The system layout and associated appurtenances are illustrated in Map 8.

With the subsidence issues plaguing Point Lay, the water system began to suffer from underground leaks as early as 2004.¹⁵⁷ A large number of leaks have occurred every year since 2005. The water mains continue to have break and leak problems despite of system upgrades to combat the issues. New water mains were placed in a shallow bury trench at 3 to 5 foot depths in road embankment and the active layer. They were offset from the earlier compromised trench and included external insulation and trench support.¹⁵⁸ Many of the original service connections are scheduled to receive water holding tanks.

The water treatment plant has a capacity to treat 93,000 gallons per day. The plant operates 24 hours a day, seven days a week during the summer months while pumping from the community's water source. Water is pumped until the temperatures became too cold to continue. The raw water is first pumped through a microfilter into an intermediate tank inside the facility. It is then processed through a two stage nanofilter. There are three water tank reservoirs in Point Lay. Tank T-1 holds approximately 900,000 gallons, Tank T-2 has a 1,761,000 gallon capacity, and Tank T-3 has a two million gallon capacity. Total water storage space is 4,661,000 gallons.

¹⁵⁵ Renewable Energy Alaska Project. 2016. *Renewable Energy in Alaska*. Accessed Sept.12, 2016. www.alaskarenewableenergy.org/why-renewableenergy-is-important.

¹⁵⁶ Ibid

¹⁵⁷ UMIAQ Design & Municipal Services. 2016. *Point Lay Water/ Sewer Existing System and Performance Presentation*. May 13, 2016.

¹⁵⁸ Ibid

Table 10: Projected Water Generation/Treatment for High Growth Rate

Forecast Year	Population Count	Daily Flow Usage (gallons / per day)	Proposed Usage per Year (gallons / per year)
2015	269	9,684	3,534,660
2020	283	10,188	3,718,620
2025	297	10,692	3,902,580
2035	328	11,808	4,309,920

The water system, when originally commissioned, served 61 homes. Some have been switched to water holding tanks, and more are planned to switch due to system failures associated with buried water mains. Typical demand in Point Lay is 34 to 44 gallons per person per day (PP/PD), although recorded usage rates have been as high as 77 gallons per day. There have been problems with infiltration of water in pressure main lines due to breakage and water main leaking so the higher numbers are not considered for the analysis of normal day to day use. Thirty-six gallons per person per day (GPPPD) is used for this analysis. Table 10 summarizes the estimated usage rate utilizing the population forecast calculated in Chapter 6. As shown, the community of Point Lay will use just over 4,000,000 gallons of water per year, about 92 percent of the total tanks capacity available in the community. Even with the most aggressive growth rate of one percent, the demand for water can be easily met until 2035 when the usage rate would almost equal the storage capacity. The treatment plant has the capacity to treat the necessary amounts, especially if the water quality from the new water source has a low and acceptable conductivity level and the treatment plant is able to run at its best efficiency standard. The better the raw water quality is from the source, the more efficiently the plant can treat the water.

Water Source. Until summer 2016, Point Lay extracted its drinking water from a tundra pond called Fresh Water Lake, adjacent to the Kokolik River, about 1.5 miles due east of the community. The water was carried from the lake to town using 4-inch HDPE plastic pipe. The pipe lays on top of the tundra starting from the water treatment plant on Tuttunniagvik Street, running due east to the water intake site on the west end of the lake. Water was pumped during the summer months, treated in the treatment plant and stored in the three tanks located in the community. In August 2016, the lake eroded its bank overnight and discharged into the river channel, causing the Fresh Water Lake to drain.

As a temporary water source, the Kokolik River was used to complete the 2016 pumping season. A temporary water line (also 4-inch HDPE) was laid, teeing off of the Fresh Water Lake line, followed the gravel material site road to the river bank.¹⁵⁹ When the breach happened, approximately 1.6 million gallons was needed to fill community water tanks. Water sampling for turbidity and salinity were concerns but have been treated below regulatory levels, although the efficiency of the water treatment plant was compromised slightly.¹⁶⁰ The community was able to pump and store to 85 percent of the total capacity, about 3.8 million gallons for winter use.

¹⁵⁹ Yancey, Myron. 2016. NSB Utility Systems Coordinator. Personal Communication. Oct. 4, 2016.

¹⁶⁰ UMIAQ Design & Municipal Services. 2016. *Point Lay Water Lake Inspection and Recommendations Memorandum*. Aug. 19, 2016.

Because the Fresh Water Lake breached into the Kokolik River and drained during the summer of 2016, there is an ongoing investigation into potential alternative water sources. In 2017, the NSB began to incorporate a reverse osmosis (RO) system to replace the water treatment plant's nonfiltration system. Developing a non-lake water source is feasible, a RO system could desalinate water from the ocean if other sources do not prove viable.

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Map 8: Water System

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6.6 Wastewater System

Piping System. NSB owns and maintains the wastewater treatment plant and wastewater system in the community of Point Lay. The wastewater system was commissioned in 2000 and includes 9,550 linear feet (LF) of 6-inch and 8-inch HDPE arctic pipe constructed in trenches throughout the community, with 11 manholes, one lift station and 35 above grade service connections. Like the water system, there were originally 61 service connections completed. Twenty of the service connections are working with piped water and wastewater holding tanks rather than connected to the below grade sewer system. Eleven more homes are to receive sewage holding tanks in 2017, due to continued sewer line breakage. With the subsidence issues plaguing Point Lay, the sewer system began to suffer from underground leaks as early as 2004.¹⁶¹ A large number of leaks have occurred every year since 2005. The sewer mains continue to have break and leak problems regardless of system upgrades that have been completed to fight the issues.

A portion of the sewer line under Qasigialik Street north of Manhole (MH) 8 has been abandoned and will not be repaired again due to the severity of the breakage and the inability to reliably repair. The sewer line servicing homes on Siksrik Avenue and Sisagvik Avenue is to be abandoned because of a sewer line break in the sewer line between MH5 and MH6 underneath Tutunniagvik Street. Because of this break, sewage currently collects in MH6, which operators must pump out daily. Many of the homes scheduled for holding tanks are in this area of town where lines are being abandoned. A section of sewer lines west of Qasigialik Street on Tutunniagvik Street has also been abandoned.¹⁶² Map 9 illustrates the system layout and associated appurtenances and areas of proposed and actual abandonment.

Of the original 61 service connections, 16 are now on wastewater tanks, with 11 more services scheduled for tanks in 2017. There are 1,325 LF of sewer main abandoned, and 1,308 LF scheduled for abandonment. Some of the sewer issues are settlement driven. The primary settlement issues are: solids collecting in P-trap, pipe breaks with gravel blockage, and settlement concentration at over-excavations.¹⁶³ Some issues are also related to freeze-ups caused by either low flow or heat tape failures.¹⁶⁴ Some of this may have caused backups and property damage inside the homes. It was reported by water /sewer personnel that there are 8 homes on honey bucket because internal plumbing fixtures in the homes are not working.¹⁶⁵

Wastewater Treatment Plant. The Point Lay Waste Water Treatment Plant (WWTP) was commissioned for operation in 2001. The WWTP is an extended aeration activated sludge package plant housed in a prefabricated 3,700 square foot metal building. The design basis of the system, the treatment process, and physical components of the existing facility are described in this section.

¹⁶¹UMIAQ Design & Municipal Services. 2016. Point Lay Water/ Sewer Existing System and Performance Presentation. May 13, 2016.

¹⁶² Ibid

¹⁶³ Ibid

¹⁶⁴ Ibid

¹⁶⁵ Yancey, Myron. 2016. NSB Utility Systems Coordinator. Personal Communication. Oct. 4, 5, 11, 2016.

The plant utilizes an extended aeration wastewater treatment process with chlorine disinfection. The treatment works is comprised of two secondary activated sludge package plants (treatment trains). Each train has a flow capacity of 5,500 gallons per day (gpd), for a total plant capacity of 11,000 gpd. Treated effluent is discharged out an outfall that connects from the wastewater plant, buried in a 60 foot easement running beneath the airport, daylighting into Kasegaluk Lagoon. Waste sludge is dewatered and then transported to the local landfill for final disposal.¹⁶⁶

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

The estimated wastewater usage into the plant is approximately 6,000 gallons per day on a normal usage day.¹⁶⁷ There have been reported over exceedance flows into the plant but this is due to water infiltration that occurs because of broken sewer lines, with surrounding water inflows into the pipe at the broken sections. In addition, all of the homes that utilize a sewer holding tank or a honey bucket system will not be contributing to the overall flow into the wastewater treatment plant.

For the analysis completed with this plan, the per capita water usage for Point Lay is 30.3 gallons per person per day (GPPPD). This is based on the information collected through the water /sewer operation and communication with water/sewer personnel. There are 60 service barrels in use, servicing approximately 100 gallons per day. The 2015 NSB Census number have shown 3.3 people per house.¹⁶⁸ With this rationale, then each person generates 30.3 gallons per person per day. This is conservative, since the trend in Point Lay is to convert to above ground holding tanks which will increase use at the sewage lagoon as opposed to the wastewater treatment plant. Projected wastewater generation is shown in Table 11.

¹⁶⁶ Yancey, Myron. 2016. NSB Utility Systems Coordinator. Personal Communication. Oct. 4, 5, 11, 2016.

¹⁶⁷ Ibid

¹⁶⁸ North Slope Borough. 2015. *North Slope Borough 2015 Economic Profile and Census Report Volume XI*. Unpublished.

Prepared by Circumpolar Research Associates Shepro, C., Maas, C. and D. Gallaway and edited by Jason Bergerson for the North Slope Borough.

Table 11: Projected Wastewater Generation/Treatment for High Growth Rate

Forecast Year	Population Count	Average Daily Flow (gallons per day)	Treatment Plant Capacity (gallons per day)
2016	269	8,150	11,000
2020	283	8,574	11,000
2025	297	8,999	11,000
2035	328	9,938	11,000

Wastewater plant exceedances are more common during late spring and early summer where spring breakup causes more subsidence and settling, which increases the infiltration water amounts flowing into the sewer line. But the normal daily average flows are well below plant total capacity. By 2035, the average daily flow is projected to be 9,938 gpd, or about 90 percent of the existing WWTP capacity. At these usage and growth rates, average daily flow would not exceed plant capacity for many years, especially with increased use of wastewater holding tanks.

Sewage Lagoon. The current disposal site that is referred to as the honeybucket lagoon is permitted under the landfill as a disposal trench. The disposal trench is located adjacent to the spoils pile and buried metals at the community landfill, shown in Map 10. Septage bags are dumped here along with the sewage trucks that pump out the above ground holding tanks. Currently, the disposal trench is not ADEC compliant although a formal violation has not been issued. As described in Alaska Statute 18 AAC 60.365(e), the permit requires that the liquid depth stay under 4 feet, that lime be added periodically, that the soil can absorb fluid at a certain rate, among others. Due to these requirements, some have suggested that the North Slope Borough restrict use of the of the disposal trench to honeybucket disposal only or stop use altogether as soon as another option becomes available.¹⁶⁹ Plans are underway to design a new sewage lagoon in an undeveloped portion of the landfill site, in an area adjacent (south) of the old equipment and material storage area. The NSB-funded design will provide a divided lagoon.

With the increased use of holding tanks and septic tanks installed this year and an increased use of honey buckets, and more planned for 2017, the disposal trench discharges exceed general permit thresholds for pH, biological oxygen demand (BOD), total suspended solids (TSS) and/or fecal coliforms. The North Slope Borough [Capital] Project Recommendation Committee (PRC) recommended funding for the design and construction of an additional sewage lagoon this year. The PRC also recommended funding \$4.9 million, most of which will be spent to construct an additional cell to accommodate increased usage by holding tanks. The PRC also recommended \$2 million in capital funding to purchase and install 20 more holding tanks in Point Lay. The NSB is also funding a major upgrade to the WWTP to accept septage waste. This

¹⁶⁹ Robbins, David, P.E., WHPacific. 2016. Nov. 17, 2016. Personal Communication.

will allow a delay with the lagoon development project to see where the WWTP upgrade project is developed to establish a long term strategic plan.¹⁷⁰

¹⁷⁰ North Slope Borough. 2016. *Capital Improvement Program Project Request Form: Areawide Sewage Lagoon Upgrades, Phase II*. Apr. 1, 2016.

Map 9: Wastewater Collection System

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6.7 Solid Waste

Point Lay's landfill is a Class III Material Storage Waste Landfill (MSWLF) and is owned and operated by the NSB. A Class III Landfill is a landfill that accepts less than five tons of municipal waste, based on an annual average.¹⁷¹ The landfill and sewage lagoon in Point Lay was surveyed, recorded and constructed in 1986 and serves as the community disposal site for municipal wastes, septage, and dried sewage solids. Burnable wastes are incinerated on the south side of the trash landfill area and after incineration, they are disposed on the trash landfill active face. The landfill site is located 6,900 feet from the airport, complying with required FAA separation requirements, and is accessed on the Landfill Road which is constructed off of the Water Lake Road that provides access to the fresh water lake. The landfill, shown in Map 10, consists of an active honeybucket percolation pit, undeveloped sewage lagoon, and an active solid waste landfill that includes a spoils pile and buried materials area.

The existing North Slope Borough Areawide Permit Application to Alaska Department of Environmental Conservation (ADEC) dated June 2011 expired October 6, 2016. A general permit application is being formalized by ADEC that will allow the NSB to permit all of the NSB landfill under one general or master permit (GP), with standardized expiration dates, closure plans and reporting procedures at all NSB village landfills. In preparation for GP landfill application submittal, as-built surveys were completed in July 2016 at all NSB village landfills, including the Point Lay landfill. The ADEC has authorized a temporary extension to the Point Lay landfill permit to allow for the GP application to be submitted and the subsequent ADEC review and ultimate approval. The GP permit application is expected to be submitted before the end of October 2016, and will extend the landfill permit for another five years.¹⁷²

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

In Point Lay, the following municipal waste is permitted for disposal:

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

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

¹⁷¹ Alaska Statute. 18.AAC. 60.300 Purpose, Scope, and Applicability: Classes of Landfills. Accessed Aug. 25, 2016. www.touchngo.com/jglcntr/akstats/aac/title18/chapter060/section300.htm.

¹⁷² Ritz, Paul P.E, UMIAQ. General Permit Application. Personal Communication. Oct. 10, 2016.

The Point Lay landfill is estimated to receive less than 0.30 tons or 600 pounds per day of solid waste.¹⁷³ For the preparation of this plan we have used a more conservative number estimated at five pounds of refuse per person per day to include solid waste that will be generated through construction projects and refuse from additional businesses and public services. Using aerial and as-builts for comparison. At this rate, calculated using the high growth rate of one percent per year, Point Lay will generate about 535,000 pounds of garbage per year or about 0.73 tons per day. Table 12 extends the figures to amounts generated in tons per year.

The waste generation estimate was completed as part of the Areawide Class III Landfill permit Application to Alaska Department of Conservation Solid Waste Division in 2011. Revisions incorporated as part of the GP Permit that is currently underway also contributes to current estimates.¹⁷⁴ The square footage area of unused landfill space is based on the as-built survey completed in July 2016 and was measured at 141,141 square feet (SF). The GP Permit study also determined that the expansion rate per year is 2,902 SF/Year.¹⁷⁵ Solid waste projections are presented in Table 12.

Based on the expansion estimates from the GP Permit update and a maximum one percent growth rate in the village, the estimated remaining life in the landfill is 48.6 years, well beyond comprehensive plan window of 2035 and the forecast range of this plan.¹⁷⁶

Table 12: Projected Solid Waste for High Growth Rate

Forecast Year	Population Count	Pounds of Waste (per day)	Tons per Waste (per year)
2016	269	1,345	245
2020	283	1,415	258
2025	297	1,485	271
2035	328	1,640	300

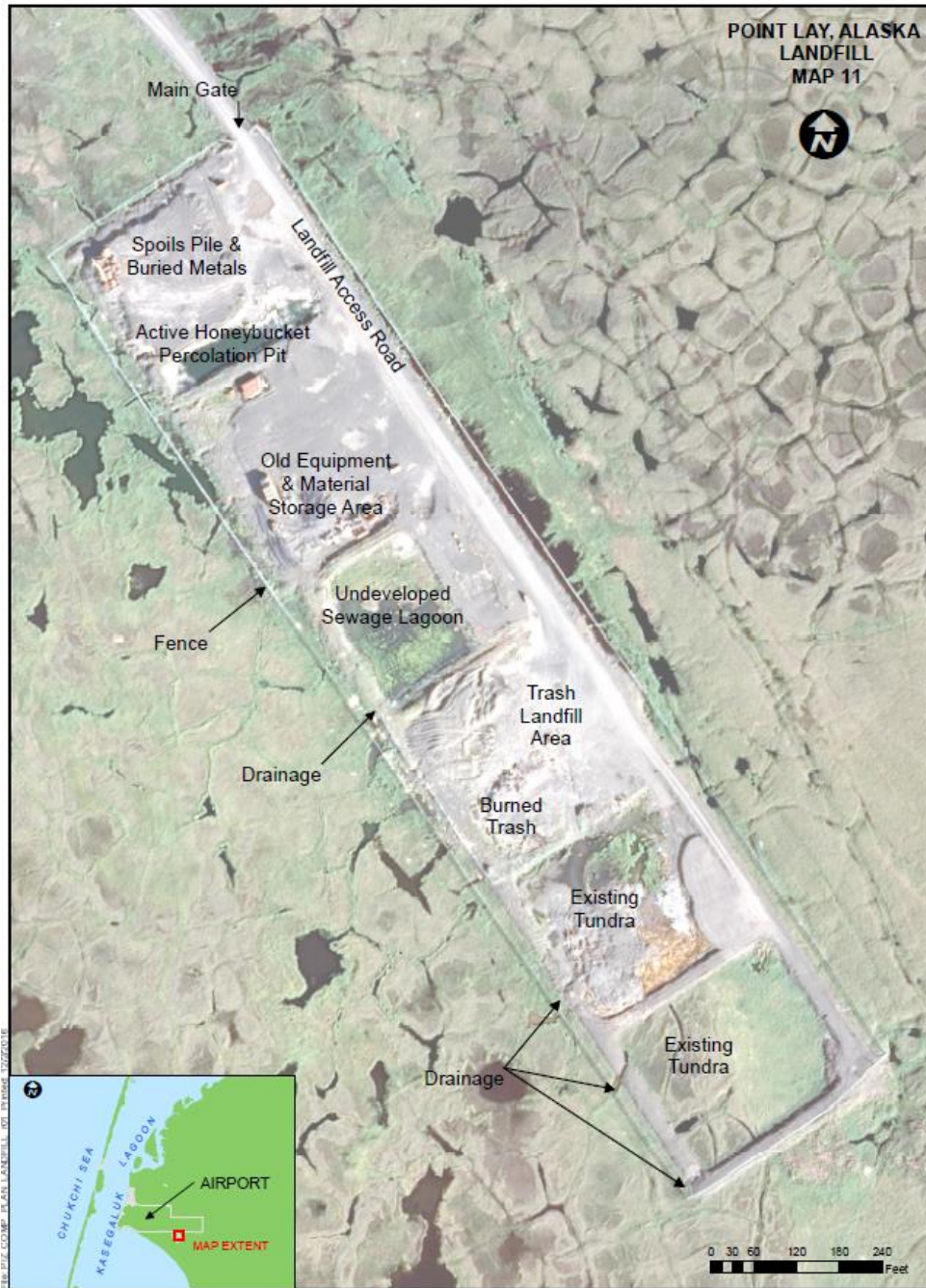
¹⁷³ North Slope Borough. 2011. *Areawide Class III Landfill Permit Application to Alaska Department of Conservation, Solid Waste Division*. June 14, 2011.

¹⁷⁴ North Slope Borough. 2016. *North Slope Borough General Permit Landfill Application*. Prepared by UMIAQ Design & Municipal Services for the North Slope Borough. Oct. 2016.

¹⁷⁵ Ibid

¹⁷⁶ Ibid

Map 10: Landfill



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6.8 Transportation

The primary modes of transportation in Point Lay are regional airline flights into and out of the community, vehicles and all-terrain vehicles (ATV)/snowmachines on local roads and trails, small skiffs on local rivers and ocean, and finally barge traffic during open ocean water. Typical of remote communities, the distance, climate and geography tend to keep Point Lay residents isolated, but visions for future transportations systems will broaden and diversify the region's network and create economic opportunities for the community.

Airport. The airport property is on 1,412 acres leased from the U.S. Department of Defense. The lease is a twenty-five year lease acquired in 2004 by the North Slope Borough. The U.S. Department of Defense is in the processing of transferring ownership of the airport property. Once the Air Force relinquishes its interest to Lot 1 of USS 5251, the land will be delegated to the Bureau of Land Management for reconveyance. The airport is entirely unpaved. The 100 foot x 4,500 foot airstrip is in fair condition with turnaround areas on both ends of the runway.¹⁷⁷ An existing 300 foot x 500 foot parking apron is located on the north side of the runway that provides an area for passenger and freight loading and unloading. At the west end of the runway is a second cargo apron, no longer used for incoming aircraft. On this apron is an old Air Force hangar. The non-precision instrumented runway is oriented on a geodetic bearing of 05-23 to align the runway with the prevailing wind and provide 90.9 percent wind coverage for 10.5 knot winds, and 97.9 percent of winds at 16 knots. The approach visibility minimum is one mile.¹⁷⁸

The navigational aids operating at the airport include a four light Precision Approach Path Indicator (PAPI), and Runway End Indicator Lights (REIL). There is a rotating beacon, non-directional beacon, lighted wind cone, and a segmented circle. The runway lights are medium intensity runway lights (MIRL), medium intensity taxiway lights (MITL) and floodlights for apron lighting. There is an Automated Weather Observation System (AWOS) positioned adjacent to the airport property.

In the 2016 Capital Improvement Project Plan submitted by the North Slope Borough Department of Public Works to the U.S. Department of Transportation Federal Aviation Administration (FAA), lists three priority upgrades for the Point Lay Airport. The first item listed is to construct a passenger shelter that is skid mounted, insulated, heated, lighted, and located on the airport apron. Currently passengers do not have any shelter for protection from the weather. The second improvement was to acquire snow removal equipment, specifically a new snow grader and snow blower for the airport. Both pieces of equipment have been purchased for airport use and delivered to the community.¹⁷⁹ The third improvement is to construct perimeter fencing around a portion of the airport to improve safety and security. All planned improvements are federal expenses and are planned on a long-term schedule. The CIP Plan is written to reflect a 20-year window, so long term items would be approximately 15-20 years in the future.¹⁸⁰ In

¹⁷⁷ AirNav. 2016. *Point Lay LRRS Airport*. Accessed Oct. 2, 2016. www.airnav.com/airport/PPIZ.

¹⁷⁸ North Slope Borough. 2014. *Point Lay Airport Layout Plan*. Apr. 24, 2014. Accessed Sept. 21, 2016. www.faa.gov/airports/alaskan/airports_resources/alp/media/ALP-Point-Lay.pdf.

¹⁷⁹ Green, Ken. North Slope Borough Project Administrator. Personal Communication. Oct. 2016.

¹⁸⁰ North Slope Borough. 2016. Department of Public Works. *2016 Capital Improvement Project Plan*. Prepared by Hattenburg, Dilley and Linnell for the North Slope Borough. Jan. 28, 2016.

addition to the three priority upgrades included in the 2016 Capital Improvement Project Plan, the Cully Corporation is also seeking to expand runway 2,000 linear feet to accommodate larger commercial aircraft.

The Point Lay airport is classified and designed to accommodate B-II aircraft, which is a classification based on wingspan and aircraft approach speeds. B-II aircraft falls into a wing span of 49 feet up through 78 feet and approach speeds between 91 knots through 120 knots.¹⁸¹ Airport operational statistics indicate that there are approximately 39 flights per week; 95 percent are commercial taxi flights, 3 percent are transient general aviation, and 3 percent are military (based on 12 month period ending December 31, 2010).¹⁸² Based on FAA statistics, there were 1,880 passenger enplanements for calendar year 2014, of which 1,875 were commuter or small certified air carrier enplanements. Of these, 1,559 were scheduled flights and 319 were unscheduled.¹⁸³ There were also two large certified Air carrier enplanements, both of which were unscheduled.¹⁸⁴

Roads. According to the U.S. Department of the Interior, Bureau of Indian Affairs (BIA) Indian Reservation Roads (IRR) Program Inventory Data for fiscal year (FY) 2009, Point Lay has approximately seven miles of developed roadways within the community, shown in Map 12. All seven miles of roadway are gravel. There are also roads that provide access to the NSB material site, the fresh water lake, the landfill, and to the airport. There is also a road around the west end of the runway that terminates at the old U.S. Air Force apron. The Native Village of Point Lay identified an additional road on the north end of town to meet the expansion of community and open new lots for future development. Community residents have also expressed a desire for an alternate road to the airport due to heavy snow drifts that would be located next to the NSB Public Works Shop and run adjacent to the outfall line. This alternate airport route would also provide maintenance access to the outfall line. Most roads are constructed from material mined from the Kokolik River. The gravel material is sandy gravels (SP). The roads are generally in fair condition with adequate drainage, although there are occasional problems with rutting and potholes. Trucks and ATVs are used year-round to the extent permitted by roads, and snowmachines primarily during the winter.

The NSB Public Works Department regularly waters village roads to suppress dust. Despite this, residents comment that it is difficult to control dust from road traffic in the summer months and that increased dust contributes to both respiratory conditions and contamination of drying meat and fish. Residents have expressed concern about Elders and youth, the most affected by outdoor dust.

The North Slope Borough provides senior van services for elders.

¹⁸¹ U.S. Department of Transportation. Federal Aviation Administration. 2014. *FAA Advisory Circular AC 150/5300-13A Airport Design Change 1*. Feb 26, 2014.

¹⁸² AirNav. 2016. *Point Lay LRRS Airport*. Accessed Oct. 2, 2016. www.airnav.com/airport/PPIZ.

¹⁸³ US Department of Transportation. Federal Aviation Administration. 2014. *Final Calendar Year 2014 Enplanement Data*. Assessed Sept. 12, 2016. www.faa.gov/airports/planning_capacity/passenger_allcargo_stats/passenger/?sect=collection.

¹⁸⁴ Ibid

Regional Transportation. Land transportation beyond the community of Point Lay is limited since there are not road connections to neighboring communities. About 250 miles of local trails provide access to subsistence hunting and fishing areas and remote cabins and Native allotments. Search & Rescue has attempted to mark common subsistence trails but have found that the markers have a tendency to fall over during periods of extreme weather. Regional trails also exist in the Point Lay area: one between Point Lay and Point Hope (120 miles), one to Wainwright (100 miles) and two that go inland along the Kukpowruk River and the Epizetka River. Some trails are depicted in the Regional Transportation map, Map 11. The NSB Planning & Community Services Department and ASRC are considering overland transportation corridors options to better connect communities *and reduce maritime traffic to better protect the marine environment.*

Marine Transportation. Because there are no year-round roads into Point Lay, residents are dependent on marine and air travel. Marine traffic has increased in recent years due to a relatively ice-free seas. Elevated air and water temperatures have caused permanent ice cover to diminish to low levels seasonally, and scientists predict this trend will continue.¹⁸⁵

Cargo barges deliver supplies including fuel and cargo during ice-free months in the summer. Barges leave from Seattle on or about July 1st of each year and carry about 3,000 to 5,000 tons, estimated to be 75 percent business usage and 25 percent individual goods. Unloading in Point Lay is complicated and difficult because of the offshore barrier islands that separate the Chukchi Sea and the Kasegaluk Lagoon, and ultimately the community. Fuel barge operators report that the off-loadings are weather dependent but that they usually gain access without too much trouble. A four-inch floating line was used in 2016 to deliver fuel across the lagoon, replacing the fuel shuttle barge more efficiently.

The Kasegaluk Lagoon is too shallow for the larger barges so the unloading is done on the Chukchi Sea side of the barrier Islands with the use of a small tug and barge operation. The U.S. Corps of Engineers reported that because the amount of unloaded fuel is relatively small, the associated unloading cost is manageable.¹⁸⁶ However residents have expressed concern about the time and cost to shuttle fuel from the barge, across the barrier islands, and to the community.

Freight offloading is handled using a line haul barge and lightering to a landing craft. From there the cargo is loaded onto smaller landing crafts that can navigate in shallower water. They land on the barrier island side, offload the cargo about one mile across the spit, and then load onto the smaller low draft barges. They ferry the cargo across the lagoon and beach on shore. The water depth in the lagoon varies with weather, and sea surges, which is why weather is critical during off-loading periods.¹⁸⁷

¹⁸⁵ U.S. Department of Homeland Security. 2013. *Arctic Strategy*. May 2013. Accessed Mar. 5, 2016. www.uscg.mil/seniorleadership/docs/cg_arctic_strategy.pdf.

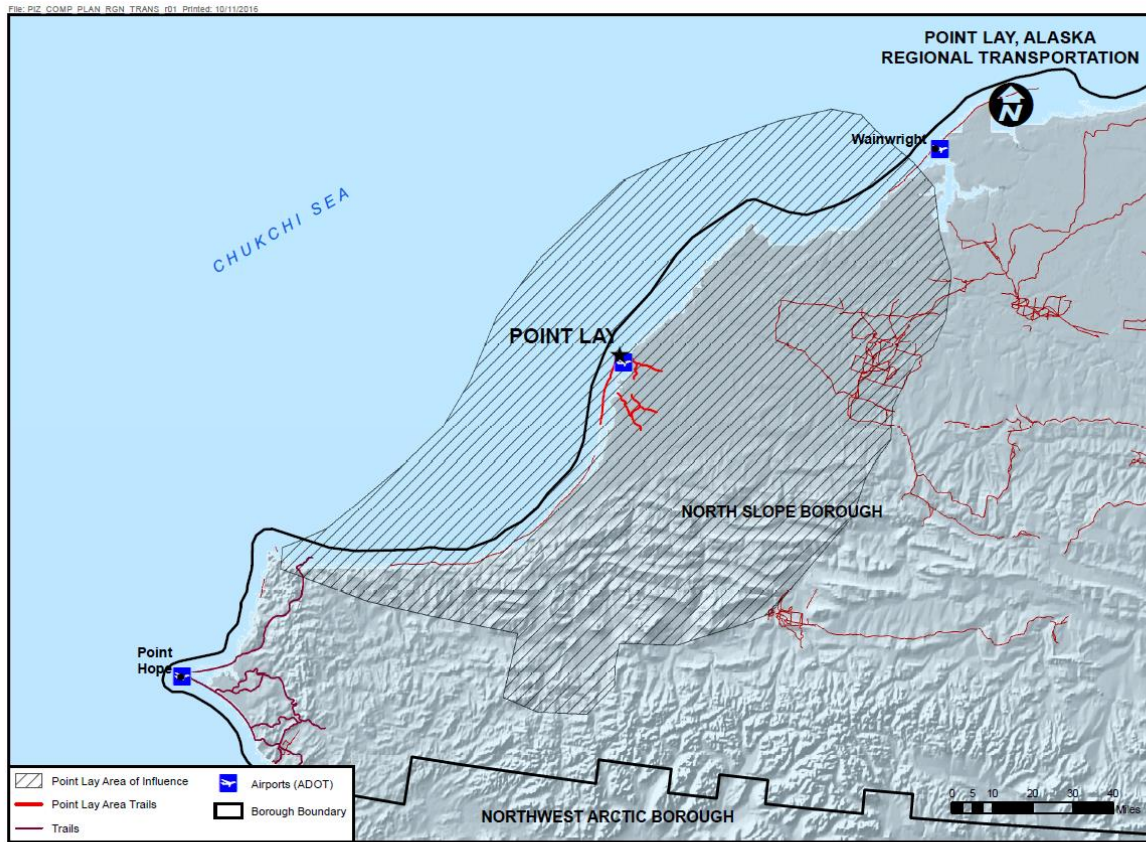
¹⁸⁶ U.S. Army Corps of Engineers. 2009. *Alaska Barge Landing System Design Final Report Design Statewide Phase 1. Final Report*. Accessed Mar, 27, 2016. www.poa.usace.army.mil/Portals/34/docs/civilworks/archive/alaskabargelandingsystemdesignstatewidephase1.pdf.

¹⁸⁷ Ibid

The former Cape Sabine DEW Line site is located approximately 93 miles southwest of Point Lay and was used by the United States Air Force and Navy for national defense. More recently, 740 acres have been transferred to Cully Corporation. Based solely on water depths of 40 feet or more past the three nautical mile line make Cape Sabine a feasible location for a deep water port.¹⁸⁸ Cape Sabine lies within the Ledyard Bay Critical Habitat.

¹⁸⁸ U.S. Department of Commerce. National Oceanic and Atmospheric Administration. 2015. *Provisional Chart United States Alaska – Arctic Coast CAPE SABINE*. Accessed Feb. 25, 2017. www.charts.noaa.gov/PDFs/16104.pdf.

Map 11: Regional Transportation



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Map 12: Roads



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6.9 Gravel

Gravel is needed to build roads, pads, and related civil projects and maintenance of the community existing infrastructure. Residents also need gravel for eroding or subsiding driveways. Point Lay's gravel source is located on the shore of the Kokolik River and has been mined from the river's sand bars during the summer. The stockpiling and mining of the existing material was primarily mined this way, and from multiple sites up the river. A quantity survey was completed in 2013 and the stockpile was measured to be just over 118,000 cubic yards in size.¹⁸⁹ The gravel stockpile is shown in Map 13.

In the recent past, there have been two major dredging programs deployed in Point Lay. They were both three year programs: one year to mobilize, one year to dredge, and one year to demobilize. The first was completed in the early 1990s and the second in 1999. For both programs, the dredging operations were upstream of the fresh water intake. If future dredging operations are considered, they would need to be downstream of the intake point to not impact water quality.

In an average year, the amount of gravel used for regular maintenance projects for roads, landfill cover, and water and sewer repair has been about 3,200 cubic yards.¹⁹⁰ Of course, the amount of material needed is dependent on whether there are larger capital projects planned, or if infrastructure and system maintenance and repairs require more than the anticipated quantity. Based on the average annual material needs, the existing stockpile will meet community needs for many years.

While there is sufficient gravel for regular maintenance, the gravel supply is limited, which can drive up the cost of the larger projects, making the very large ones cost prohibitive. Without a regional gravel source near the village, the cost to transport gravel to the community is very high because barging is the only alternative to mining locally. Another possible gravel source may be the sand bar, near where the existing stockpile is located. Deep drilling to depths of 30-40 feet could be completed to investigate whether there are additional sandy gravels on lower levels that would be suitable for construction.¹⁹¹ The Department of Natural Resources (DNR) would require a hydrology report be completed before approving a permit for this work.¹⁹²

Recent studies completed at the University of Fairbanks indicate that silt would be useful to mitigate subsidence when applied as a cap on ice rich soils.^{193, 194} There is silt in the area but a silt mining program has not been studied. It may be possible to mine silt from the Fresh Water Lake because it has drained.

¹⁸⁹ North Slope Borough. 2014. *Areawide Gravel Inventory Project Analysis Report*. Prepared by UMIAQ for the North Slope Borough. Feb. 14, 2014.

¹⁹⁰ Ibid

¹⁹¹ Ibid

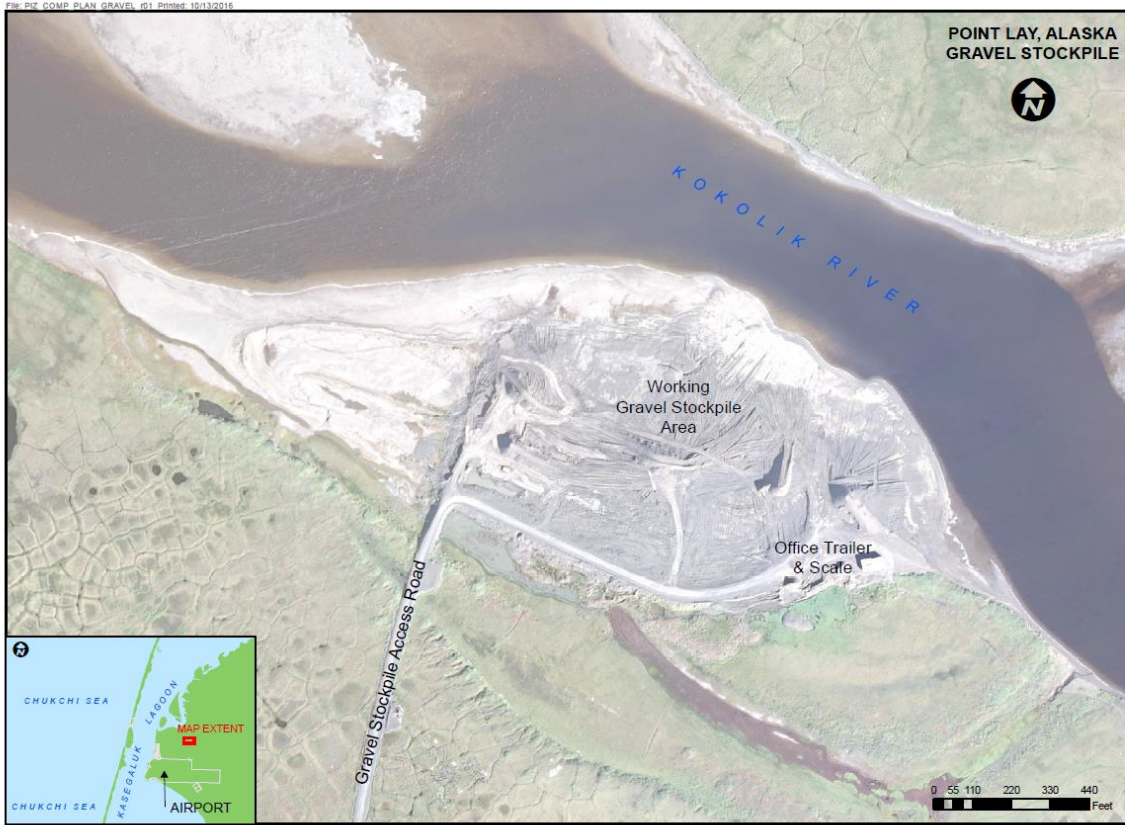
¹⁹² Ibid

¹⁹³ Reynolds, Douglas B., Anthony Nakazawa, and Billy Connor. 2015. *Point Lay, Kali, Utility, Water, and Sewage System and Permafrost Issues Initial Findings*. University of Alaska Fairbanks. Prepared for the North Slope Borough.

¹⁹⁴ University of Alaska Fairbanks. N.d. *Point Lay Permafrost Mitigation: Engineering results*.

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Map 13: Gravel Stockpile



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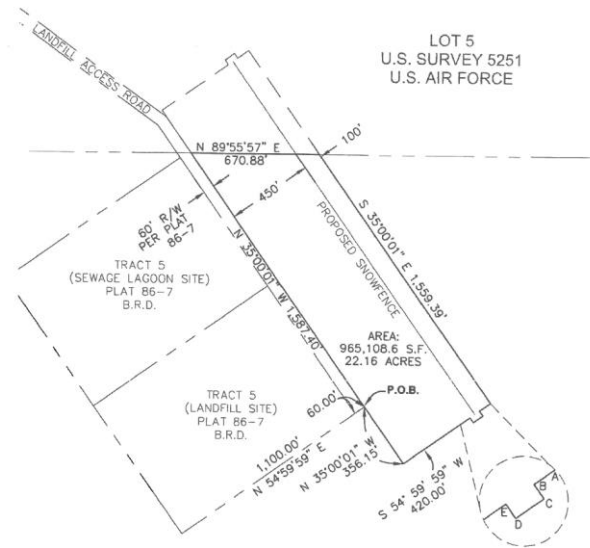
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6.10 Snow Fences

Three North Slope Borough-maintained snow fences in Point Lay provide snow coverage from prevailing winds. They are constructed on support piles 20 feet in depth. The height of the snow board portion of the fence is 12 feet. All three are located on the east side of the community and provide snow protection to the entire length of the community, from the southern end of the village to the north. On the southern half of the protection area, there are two fences constructed at different angles, providing a deeper protection zone for the more industrial south end of the village.

A new snow fence is under design to provide protection for the landfill and sewage lagoon. The design is nearing completion and construction is planned for late 2017 or early 2018. Although the new fence design only includes a new fence on one side of the landfill, some community members have been indicated that snow is affecting the landfill on both sides and fencing should be installed along the east side of the landfill cells as well. All of the fences are designed and constructed to protect an area of approximately 2,000 feet behind the fence from collecting blowing snow.¹⁹⁶ The proposed snow fence easement near the landfill is depicted in Figure 8.

Figure 8: Proposed Snow Fence Easement¹⁹⁵



6.11 Communications

Telecommunications services in Point Lay include a fully digital local exchange telephone service, local dial-up Internet, a widely-used very high frequency (VHF) radio, satellite dish television, and the community access public teleconferencing center. A public radio station, KBRW, is available in the community and is broadcast out of Barrow. Interconnection with the regional and global telecommunications network is via satellite circuits, which present a limitation to the residents needing access to higher bandwidth services, especially the internet. The Arctic Slope Telephone Association Cooperative (ASTAC) provides internet and local and long-distance telephone service. GCI provides cellular and local and long-distance telephone service. The Alaska Teleconferencing Network provides NSB teleconferencing services to the village.

¹⁹⁵ North Slope Borough. 2015. *Wainwright and Point Lay Snow Fence Upgrades*. Prepared by UMIAQ Design & Municipal Services for the North Slope Borough.

¹⁹⁶ North Slope Borough. 2011. *Areawide Snow Fence and Tundra Degradation*. Prepared by UMIAQ Design & Municipal Services for the North Slope Borough. Feb. 9, 2011.

High speed fiber optic telecommunication infrastructure is planned for some arctic communities. Quintillion, an Alaska-based company, is currently developing a subsea fiber optic communication network linking six remote Alaska communities with the existing terrestrial fiber optic network supplying Prudhoe Bay, Alaska. The Quintillion Fiber Optic Project will consist of a main trunk line offshore following the northern and western coast of Alaska between Prudhoe Bay and Nome with branch lines extending to the communities of Nome, Kotzebue, Point Hope, Wainwright, Barrow, and Oliktok Point (Prudhoe Bay). Fiber optic connects are not planned for Point Lay at this time.

Currently, the North Slope Borough is closely following the development of satellite-based broadband internet providers such as OneWeb and SpaceX as they race to be first in providing seamlessly integrated global data constellation of micro-satellites at DSL-comparable speeds that may provide improved connectivity for the entire North Slope community.¹⁹⁷

6.12 Childcare and Washeteria

The North Slope Borough Health and Human Services Department visited Point Lay in 2016 to gauge interest in developing a childcare facility. The community did not indicate that there was an immediate need for child care at that time. Department staff will be returning to Point Lay during the spring/summer of 2017 to again meet with village leadership, local stakeholders, and all residents to determine interest in establishing childcare facilities.¹⁹⁸

There is a washeteria facility in Point Lay that ran on waste heat from generator plant. However, due to a lack of glycol, the water and sewer services froze and have been shut-off for some time. The North Slope Borough has since fixed the plumbing issues but the facility remains closed. There has been discussion of Cully Corporation taking over this service.¹⁹⁹

¹⁹⁷ Shears, Robert. Community Planning and Real Estate Division Manager. North Slope Borough Department of Planning and Community Services. Personal Communication. Jan. 24, 2017.

¹⁹⁸ Brower, Jennifer. Deputy Director, North Slope Borough Health and Social Services Department. 2016. Personal Communication.

¹⁹⁹ Yancey, Myron. 2016. NSB Utility Systems Coordinator. Personal Communication. Oct. 11, 2016.



ASRC Energy Services. 2016. Photo Library.

Chapter 7: Health, Education, and Economy

7.1 Personal Health and Health Services

Personal health is influenced by many factors, and conventional health indicators can only tell one part of the story. In 2010, Point Lay residents generally consider themselves to be in very good or excellent health.²⁰⁰ This trend continued to 2015, when no one in the Point Lay NSB Census sample considered himself or herself to be in poor health, and nine out of ten Iñupiat individuals in the community considered themselves to be in very good/excellent health.²⁰¹ Specific health indicators from 2010 are provided below in Table 13.

Table 13: 2010 Self-Reported Health Indicators²⁰²

Characteristic	Point Lay Adults	NSB Adults	State of Alaska Adults
Very good or excellent general health	52%	46%	56%
Fair to poor general health	10%	16%	13%
Tobacco use	60%	49%	22%
Obese - heads of households	46%	39%	28%
Two or more soda/sugar sweetened beverage consumption/day - heads of households	53%	45%	30%

²⁰⁰ North Slope Borough. 2010. *North Slope Borough 2010 Economic Profile and Census Report Volume X*. Prepared by Circumpolar Research Associates Shepro, C., Maas, C. and D. Gallaway with J. McAnich for the North Slope Borough. www.north-slope.org/your-government/census-2010.

²⁰¹ North Slope Borough. 2015. *North Slope Borough 2015 Economic Profile and Census Report Volume XI*. Unpublished. Prepared by Circumpolar Research Associates Shepro, C., Maas, C. and D. Gallaway and edited by Jason Bergerson for the North Slope Borough.

²⁰² North Slope Borough. 2010. *Baseline Community Health Analysis Report Appendix A: Point Lay Health Profile*. Prepared for the North Slope Borough by Jana McAninch, MD, MPH. Accessed Oct. 18, 2016. www.north-slope.org/assets/images/uploads/ptLay_health_profile1.pdf.

There are additional indicators that Point Lay residents are generally healthy. The 2014 report, *Health Indicators in the North Slope Borough: Monitoring the Effects of Resource Development Projects*, indicates that the Point Lay community reported the second lowest overall impact of drug and/or alcohol use. Only 16 percent of Point Lay survey respondents answered in the affirmative when asked if “felt that a household member had been hurt by the effects of drugs/alcohol in the last year”. The community with the lowest reported effect of drug/alcohol use was in Wainwright, at 15 percent.²⁰³

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

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

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

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

Certainly local foods are more affordable than store bought foods. Many believe that wild foods provide a better protection against the cold weather, and that harvesting and processing local foods requires considerable exertion which sharpens the physical and mental well-being of individuals. The North Slope

²⁰³ North Slope Borough. 2014. *Health Indicators in the North Slope Borough: Monitoring the Effects of Resource Development Projects*. Prepared for the North Slope Borough by Habitat Health Impact Consulting. Accessed Oct. 18, 2016. www.north-slope.org/assets/images/uploads/NSB_Indicators_Report_August_4_printable_FINAL.pdf.

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.

Physical activity is essential to good health. Regular exercise helps maintain healthy weight and reduces the risk of high blood pressure, type 2 diabetes, heart attack, and stroke. Planning efforts that promote physical activity might include pedestrian safety initiatives, access to a park and playground, a swimming pool or other recreational facilities could facilitate increased physical activity. Kali School has both a playground and pool for students. The community has expressed a desire to replace the school's older outdoor play equipment.

Point Lay 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 (ICAS). The services provided by each organization are listed below.²⁰⁴

North Slope Borough Health and Social Services Department provides the following services:

- Village health clinic facility and staffing the community health aide
- Eye clinic
- Arctic Women In Crisis (AWIC) assistance
- Women, Infant & Children Program
- Children & Youth Services
- Public Health Nursing
- Senior Services
- Public Health Office/Veterinary Clinic Services
- Behavioral health services
- Counseling and suicide prevention

Arctic Slope Native Association provides the following services:

- Primary health care services
- Dental services
- Medical travel^{205, 206}
- Screening For Life Services:
 - Office visits
 - Mammograms and clinical breast exams
 - Pap tests
 - Prostate cancer screening tests

²⁰⁴ Brower, Jennifer. Deputy Director, North Slope Borough Health and Social Services Department. 2016. Personal Communication.

²⁰⁵ The medical travel program is intended for all NSB residents, regardless of which or if a person is a shareholder of an Alaska regional corporation.

²⁰⁶ Aga, August. Arctic Slope Native Corporation. Personal Communication. Apr. 20, 2017.

- Colorectal cancer screening tests
- Lung cancer screening tests
- Health education

Arctic Slope Native Association services (continued)

- Help with coordinating associated care
- Behavioral health services
- Medical housing
- Funeral assistance
- Funeral travel
- Child Care Development Fund

Iñupiat Community of the Arctic Slope

- Stephanie Tubbs Jones Child Welfare Services
- Promoting Safe and Stable Families
- Indian Child Welfare Act

7.2 Education

Kali School provides education for students from pre-school through 12th grade. The current school year has an enrollment of 100 students, with 10 teachers, one counselor, one principal, and 12 support staff. The school bus transportation system runs six times a day, making 90 total stops. Extracurricular activities available to students include basketball, volleyball, Native Youth Olympics, and cross country running along with school clubs in robotics, science, art, and student council. The school also sponsors evening recreation six days per week that also includes swimming. Through a grant from ASRC, Kali School also offers open shop and a pottery class.²⁰⁷

In 2013, the interior of Kali School was repainted, countertops were replaced, new flooring was installed, and the roof was replaced. The school's siding was repaired in 2015. There are no projected capital projects for the school planned for the near future; however, the need for a separate cafeteria and gymnasium was included in the NSBSD Six Year Plan.²⁰⁸

School enrollment has been steady over the last seventeen school years, as shown in Table 14. Enrollment dipped in the early to mid-2000s to a low of 60 students, but increased to 90 during the 2014-2015 School Year (SY). In 2015, there were 38 kids under the age of five in Point Lay. These children are or will be entering pre-kindergarten or kindergarten over the next couple years, and school enrollment should rise. This is especially true given that there were 17 residents between the ages of 15 - 19 in 2015; the new, younger students will more than offset the graduating students.

²⁰⁷ Cole, Glenn. Kali School District Principal. Personal Communication. Sept. 14, 2016.

²⁰⁸ Ibid

The 2015 NSB Census reports that 23 percent of survey respondents indicated they are dissatisfied with both school classes and the quality of instruction at Kali School, both at 23 percent and higher than most of the other North Slope communities. Forty percent of Point Lay survey respondents reported that the school is not adequately preparing students for life after high school, the second highest reporting of this indicator on the North Slope.²⁰⁹

**Table 14: Kali School Enrollment, 1999-2000
School Year (SY) to 2014-2015 SY²¹⁰**

School Year	Number of Students
1999-2000	80
2000-2001	85
2001 -2002	91
2002-2003	89
2003-2004	67
2004-2005	60
2005-2006	62
2006-2007	61
2007-2008	85
2008-2009	76
2009-2010	74
2010-2011	87
2011-2012	92
2012-2013	83
2013-2014	88
2014-2015	90
2015-2016	89

The North Slope Borough has recently undertaken efforts to design and construct a Residential Learning Center in Utqiagvik that would provide boarding opportunities for village youth. The program will be designed to expand the educational offerings to North Slope students, especially those who live in villages outside of Utqiagvik featuring focused educational courses based on their areas of interest.²¹¹ This project, however, is awaiting additional direction and funding to move forward.

²⁰⁹ North Slope Borough. 2015. *North Slope Borough 2015 Economic Profile and Census Report Volume XI*. Unpublished.

Prepared by Circumpolar Research Associates Shepro, C., Maas, C. and D. Gallaway and edited by Jason Bergerson for the North Slope Borough.

²¹⁰ Alaska Department of Education and Early Development. 2015. *Report Card to the Public*.

https://education.alaska.gov/Alaskan_Schools. Accessed Sept. 8, 2016.

²¹¹ North Slope Borough School District. 2015. *Approved Minutes Regular School Board Meeting May 5, 2015*. Accessed May 19, 2017. www.nsbdsd.org/cms/lib01/AK01001879/Centricity/Domain/245/May14%20Approved%20Min.pdf.

Iļisaġvik College, located in Utqiagvik, and the North Slope Borough School District have partnered to support students advancing academically by offering high school students the opportunity to take courses for both high school and college credit. Iļisaġvik also offers online courses via the Point Lay teleconference center. The North Slope Borough Teleconference Center staff serve as a vital part of the village educational distance learning experience by assisting students with financial aid documents, summer camp applications, registering for academic and workforce classes, ordering textbooks, and troubleshoot basic computer issues.²¹²

The percent of Point Lay residents that have sought additional education beyond high school has remained fairly constant, as shown in Table 15. In 2003, 17.3 percent of residents had some training or formal education beyond high school; in 2010, the percent had increased slightly to 17.9 percent; and in 2015, it the percent only decreased slightly to 17.5. The percent of residents that earned a high school diploma as the highest level of educational attainment has risen dramatically. In 2003, 12.9 percent of residents had a high school diploma as the highest level of educational attainment, which more than doubled to 26.2 percent in 2015. The community has expressed the desire for the Point Lay youth in to attend college.

Table 15: Individual Highest Educational Attainment for 2003, 2010, and 2015²¹³

Individual Level Of Education	2003		2010		2015	
	Number	Percent	Number	Percent	Number	Percent
Has not started school	31	13.8	23	12.6	29	12.7
Elementary School	43	19.2	31	16.9	45	19.7
Middle School	14	6.2	12	6.6	13	5.7
High School	29	12.9	19	10.4	11	4.8
Did not finish high school	30	13.3	13	7.1	25	10.9
High School diploma	29	12.9	43	23.5	60	26.2
GED	10	4.4	9	4.9	6	2.6
Vocational/Tech graduate	6	2.7	2	1.1	6	2.6
Some College	19	8.4	22	12.0	21	9.2
B.A. Degree	10	4.4	5	2.7	7	3.1
M.A. Degree	4	1.8	2	1.1	6	2.6
Professional Degree	0	0	1	.5	0	0
Other	0	0	1	.5	0	0
Total	225	100%	183	100%	229	100%

²¹² Carrillo, Rob. Iļisaġvik College Lead Distance Education Coordinator. Personal Communication. April 21, 2017.

²¹³ North Slope Borough. 2015. *North Slope Borough 2015 Economic Profile and Census Report Volume XI*. Unpublished. Prepared by Circumpolar Research Associates Shepro, C., Maas, C. and D. Gallaway and edited by Jason Bergerson for the North Slope Borough.

7.3 Economy

As in other North Slope villages, both subsistence activities and cash contribute to the local economy. The subsistence portion of the local economy includes harvesting plants and animals, trade of subsistence resources within and outside of the village, bartering food and services, and sharing food with Elders and others who cannot participate in harvest activities. The cash economy involves earned income, dividends, and government payments. This chapter includes an overview of the contribution subsistence to the local economy followed by a discussion of employment income and other income.

Subsistence Contribution to the Economy. While no methods exist to quantify the economic value of subsistence, it undoubtedly contributes a significant amount 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 to its economic contribution, subsistence provides cultural identity and spiritual sustenance. This brief section on the economic benefits of subsistence supplements the information provided in Chapter 4 on subsistence.

Some financial aspects of subsistence have been quantified. For example, the 2015 NSB Census includes data about subsistence-related expenses.²¹⁴ Subsistence users incur significant expenses for fuel and equipment, including snow machines, ATVs, boats, motors, nets, and camping equipment. In 2010, the average Point Lay household expenditure for subsistence was \$8,042, decreasing in 2015 to an average of \$5,333 per household. Generally, the most active harvesters and whaling captains spend the most on subsistence. Also, the Alaska Department of Fish and Game (ADFG) has found that households with high incomes harvest more subsistence resources than lower income households.²¹⁵

Employment and Income. The average annual household income in 2015 of Point Lay NSB Census survey respondents was \$34,650 with a per capita income of \$10,410. The average annual income for Iñupiat households was \$44,928 with a per capita of \$12,468. In 2015, the NSB as a whole reported average annual household income of \$62,367 and per capita income of \$16,782. Income has decreased since the 2010 NSB Census, with Point Lay respondents reporting average annual household incomes of \$53,135 and per capita income of \$14,320; Iñupiat households reported an income of \$48,543. Between 2010 and 2015, both Point Lay and Wainwright have experience the greatest decrease in purchasing power deficits of over a quarter of annual income.²¹⁶ Table 16 provides both source of income and types of employment in Point Lay.

²¹⁴ North Slope Borough. 2015. *North Slope Borough 2015 Economic Profile and Census Report Volume XI*. Unpublished. Prepared by Circumpolar Research Associates Shepro, C., Maas, C. and D. Gallaway and edited by Jason Bergerson for the North Slope Borough.

²¹⁵ Alaska Department of Fish and Game. Division of Subsistence. *Alaska's Economies and Subsistence*. Accessed November 16, 2016. www.adfg.alaska.gov/static/home/library/pdfs/subsistence/ak_economies_subsistence.pdf.

²¹⁶ North Slope Borough. 2015. *North Slope Borough 2015 Economic Profile and Census Report Volume XI*. Unpublished. Prepared by Circumpolar Research Associates Shepro, C., Maas, C. and D. Gallaway and edited by Jason Bergerson for the North Slope Borough.

Table 16: Source of Income and Type of Employment, 2010 and 2015²¹⁷

All Point Lay Households	2010	2015
Households receiving social security payments	18.4%	8.7%
Households receiving a pension or retirement monies	6.0%	4.3%
Households receiving food stamp monies	18.0%	8.7%
Households receiving child support monies	6.0%	7.2%
Permanent full-time employment	43.8%	60.3%
Temporary seasonal employment	22.9%	8.8%
Part-time employment	14.6%	2.9%
Unemployed	14.6%	23.5%
Retired	4.2%	4.4%

Wage work is by far the greatest source of income for Point Lay households, following by Other²¹⁸ [sources of income] and permanent fund dividends from the State of Alaska, as shown in Figure 9.²¹⁹ Wages account for 70 percent of all income within Point Lay, while income in the Other category makes up 13 percent and the Alaska Permanent Fund is 8 percent. On average about one in five NSB households receive Social Security; Point Lay has the lowest proportion of households receiving Social Security, at 8.7 percent. Additionally, the communities of Point Lay (9 percent) and Kaktovik (5 percent) have households with the lowest proportion of food stamp recipients. Nearly a quarter of Point Lay households are unemployed, along with Kaktovik, Point Hope, and Wainwright.²²⁰

According to the Alaska Department of Commerce, Community, and Economic Development, there are two active business licenses in Point Lay, and 17 licenses that are either expired or inactive. The two active licenses are:²²¹

- Point Lay Native Store
- Beluga Construction Company, LLC

²¹⁷ North Slope Borough. 2015. *North Slope Borough 2015 Economic Profile and Census Report Volume XI*. Unpublished. Prepared by Circumpolar Research Associates Shepro, C., Maas, C. and D. Gallaway and edited by Jason Bergerson for the North Slope Borough.

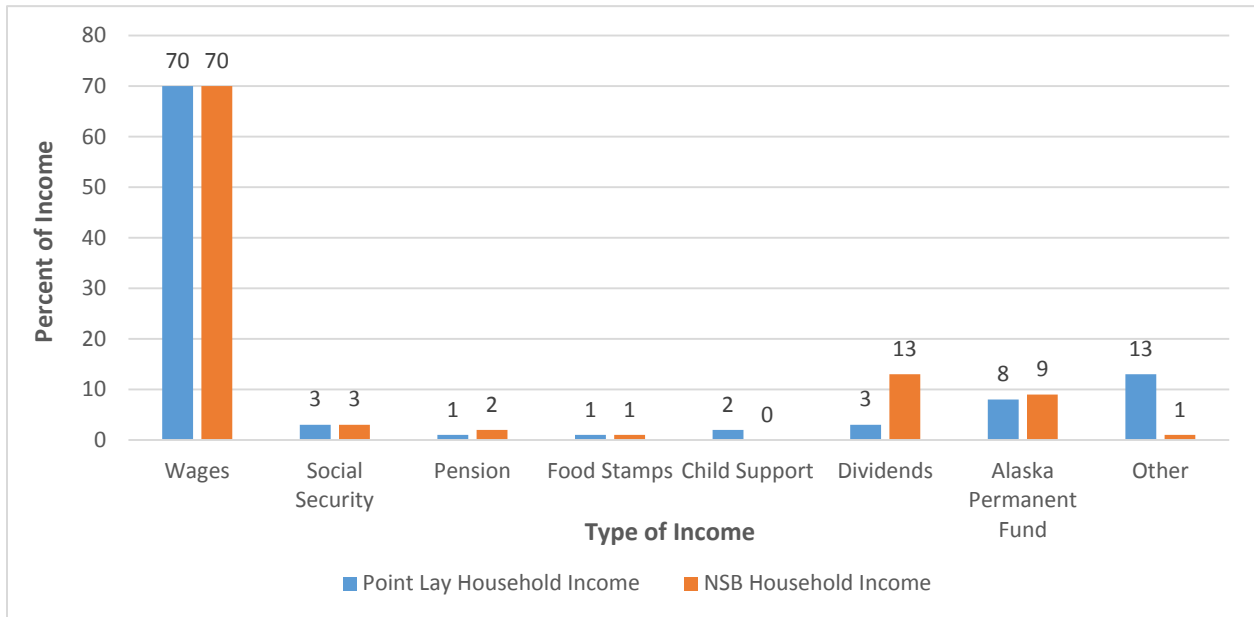
²¹⁸ *Other* is an income category in the 2015 NSB Census. Additional information was not provided.

²¹⁹ North Slope Borough. 2015. *North Slope Borough 2015 Economic Profile and Census Report Volume XI*. Unpublished. Prepared by Circumpolar Research Associates Shepro, C., Maas, C. and D. Gallaway and edited by Jason Bergerson for the North Slope Borough.

²²⁰ *Ibid*

²²¹ Alaska Department of Commerce, Community and Economic Development. 2016. *Community Database Online – Point Lay*. Accessed Oct. 18, 2016. <http://commerce.state.ak.us/cra/DCRAExternal>.

Figure 9: Sources of Income, Point Lay and NSB²²²



The Native Village of Point Lay owns and operates the Point Lay Native Store that sells groceries, clothing, first-aid supplies, hardware, and sporting goods. Point Lay Native Store is the only general store in the community. The Native Store has a membership with Alaska Native Industries Cooperative Association (ANICA), a wholesale purchasing and service cooperative serving rural Alaska. Residents have expressed a desire to expand the Native Store or build a new or additional one at another location. The store is currently located on an irregularly shaped parcel making expansion behind the volunteer Search and Rescue building the most likely.

Cully Corporation owns and operates the Beluga Camp. The Camp is in a deteriorated state and should be replaced. Cully Corporation has indicated that their desired location for a new camp is existing power, water, and sewer facilities. The North Slope Borough and North Slope Borough School District also maintain temporary living quarters for those visiting Point Lay.

Jobs remain scarce, and unemployment, high. As in many of Alaska's rural communities, residents in Point Lay with full-time work are employed by the School, Borough, or Native Village. Although there is considerable effort to hire locally, and to educate, train, and develop local capability, there remains a need to recruit from outside the region for some positions.²²³

The increase in the school age population both in Point Lay and the North Slope Borough as a whole is a positive sign of growth. It also has a less than positive affect on the economy for the region. In 2015, the 0-15 age cohort grew by three percent. At the same time, the 16-64 age cohort, the projected labor force,

²²² North Slope Borough. 2015. *North Slope Borough 2015 Economic Profile and Census Report Volume XI*. Unpublished. Prepared by Circumpolar Research Associates Shepro, C., Maas, C. and D. Gallaway and edited by Jason Bergerson for the North Slope Borough.

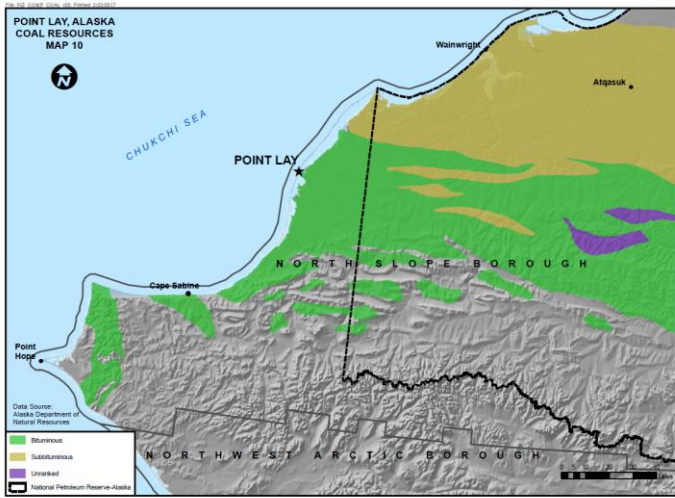
²²³ Szymoniak, Glen. North Slope Borough School District Superintendent. Personal Communication. Apr. 4, 2016.

declined by 3.8 percent, and to complicate things the segment of the population 65 years of age and over grew by 0.6 percent. The result of these shifts is a change in the dependency ratios in the Borough. Thus, more financial resources will need to go toward both education and senior services at the same time that the labor force and the economy appear to be shrinking.²²⁴

Cully Corporation has identified four economic development initiatives to benefit the community and corporation shareholders. These include: constructing a new camp, ideally located close to the airport on Tuttunniagvik Street; creating a deep water port at the barrier islands near Point Lay with Kasegaluk Lagoon serving as a harbor; expanding the airport runway to accommodate larger commercial aircraft; and developing the Western Arctic Coal Mine for export via Cape Sabine. The Point Lay and Cape Sabine region with coal deposits is shown in Map 14.

²²⁴ North Slope Borough. 2015. *North Slope Borough 2015 Economic Profile and Census Report Volume XI*. Unpublished. Prepared by Circumpolar Research Associates Shepro, C., Maas, C. and D. Gallaway and edited by Jason Bergerson for the North Slope Borough.

Map 14: Coal Resources



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ASRC Energy Services. 2016.

Chapter 8: Housing

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

8.1 Existing Conditions

According to the NSB census, the number of housing units in Point Lay did not change significantly between 2010 and 2015 although there was a notable change in the type of housing over the same period. The 2015 NSB Census indicated that there were 77 housing units in Point Lay, an increase of four since the 2010 NSB Census was conducted. The NSB Census further indicated that of the 73 housing units in 2010 consisted of 14 mobile homes/trailers; 24 single family homes; four buildings for two families each; six buildings for three to four families each; and one characterized as other. Residents, knowledgeable about the housing make-up of the community, indicate that there are not 14 mobile homes/trailers; there are three trailers and three homes on timber runners with a piling foundation. The 73 housing units represents an increase of six total housing units since 2003.²²⁵

The 2010 U.S. Decennial Census reported 70 housing units in Point Lay, of which 60 were reportedly occupied and 10 were vacant. Of the 10 vacancies, four were vacant and available for rent; four were sold but not occupied; the remaining one was vacant for other reasons.²²⁶ The 2010-2014 American

²²⁵ North Slope Borough. 2015. *North Slope Borough 2015 Economic Profile and Census Report Volume XI*. Unpublished. Prepared by Circumpolar Research Associates Shepro, C., Maas, C. and D. Gallaway and edited by Jason Bergerson for the North Slope Borough.

²²⁶ North Slope Borough. 2010. *North Slope Borough 2010 Economic Profile and Census Report Volume X*. Prepared by Circumpolar Research Associates Shepro, C., Maas, C. and D. Gallaway with J. McAnich for the North Slope Borough. www.north-slope.org/your-government/census-2010.

Community Survey (ACS) 5-Year Estimates indicated that approximately 76 percent of existing homes were constructed 1970 and 1989 with 17 percent built between 1990 and 1999. Only one new house was reportedly built between 2000 and 2010, and none since 2010.²²⁷ The ACS reported disparate findings from the NSB Census, reporting that 80 percent of homes are single family detached, 9 percent are mobile homes, and the remaining 11 percent are multi-unit buildings. Thirteen percent of Point Lay homes have one bedroom, and nearly four percent have two bedrooms while three and four bedroom homes account for 29 percent each and homes with five or more bedrooms makeup 25 percent of all homes.²²⁸ Select housing characteristics are shown in Table 17.

Table 17: 2000, 2010, and 2015 Housing Characteristics²²⁹

Housing Characteristic	2003	2010	2015
Total number of housing units ²³⁰	67	73	77
Occupied housing units – number and percent ²³¹	Not available	73 (100%)	74 (96.1%)
Vacant housing units ²³²	Not available	2 (2.7%)	3 (3.9%)
Average number of people per household ²³³	3.88	3.7	3.3
Average number of people per household, Iñupiat ²³⁴	4.6	4.1	3
Average number of people per household, non-Iñupiaq ²³⁵	2.7	2.5	1.8
Overcrowding*		10 (14.7%)	
Severe overcrowding*		16 (23.5%)	

Overcrowding. The U.S. Department of Housing and Urban Development (HUD) defines an overcrowded home 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.²³⁶ The 2014 Alaska Housing Finance Corporation Housing Assessment estimated that 21.4 percent of the population in the seven remote North Slope villages reside in overcrowded conditions.²³⁷ The 2010-2014 ACS 5-Year

²²⁷ U.S. Department of Commerce. U.S. Census Bureau. *2010 – 2014 American Community Survey 5-Year Estimates – Point Lay CDP, North Slope Borough, Alaska State.* <http://factfinder.census.gov>. Accessed Oct. 6, 2016.

²²⁸ Ibid

²²⁹ * denotes date source is ACS 2010-2014 American Community Survey 5-Year Estimates

²³⁰ North Slope Borough. 2015. *North Slope Borough 2015 Economic Profile and Census Report Volume XI.* Unpublished.

Prepared by Circumpolar Research Associates Shepro, C., Maas, C. and D. Gallaway and edited by Jason Bergerson for the North Slope Borough.

²³¹ Ibid

²³² Ibid

²³³ Ibid

²³⁴ Ibid

²³⁵ Ibid

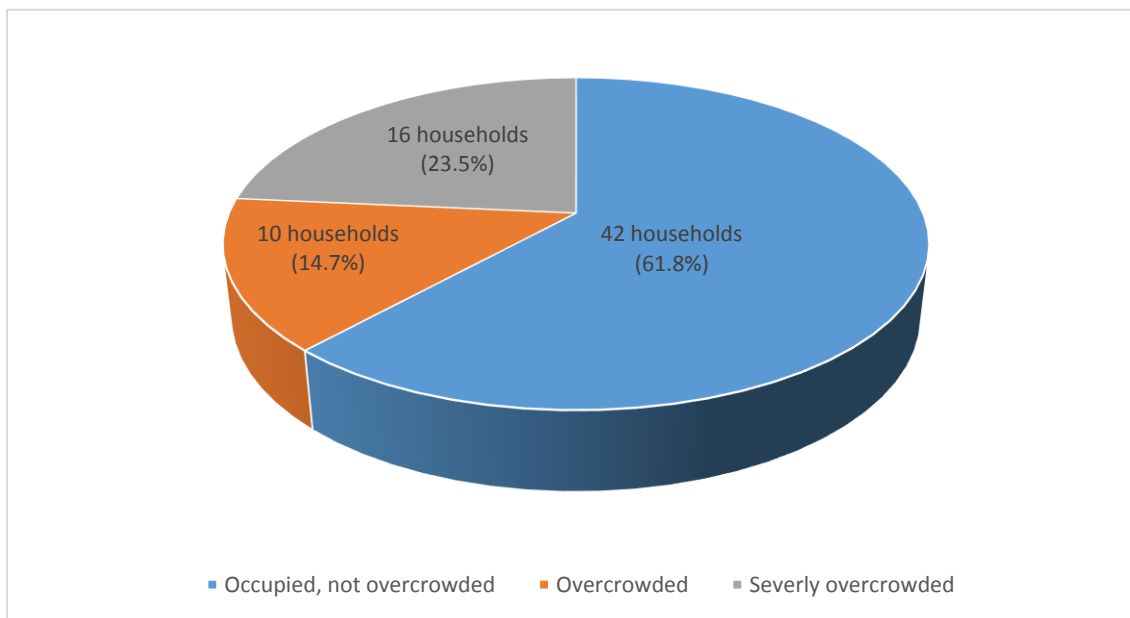
²³⁶ Habitable rooms per housing unit include the bedrooms, living room, kitchen and dining room, and excludes the bathroom.

²³⁷ Wiltse, N., Madden, D., Valentine, B., Stevens, V. 2014. *2013 Alaska Housing Assessment.* Cold Climate Housing Research Center. Prepared for the Alaska Housing Finance Corporation. www.ahfc.us/efficiency/research-information-center/housingassessment.

Estimates indicated that in 2014, 38.2 percent of Point Lay households were either overcrowded or severely overcrowded, nearly twice the average overcrowding rate for Alaska (6.4 percent) and over 11 times the national average (3.3 percent).²³⁸ Additionally, the average home size in Point Lay is the smallest of all the North Slope villages, at 1,013 square feet.²³⁹ In a 2014 unpublished white paper prepared by Tagiugmiullu Nunamiullu Housing Authority (TNHA), major housing issues facing North Slope communities are identified and potential solutions are analyzed. The report indicated that there is dramatic housing need in Point Lay; 90 families are living in overcrowded conditions with a shortage of 29 homes.²⁴⁰ This housing shortage results in multiple generations living under one roof in overcrowded conditions. The TNHA report substantiates the extent of overcrowding in Point Lay reported by both the 2010 U.S. Census and 2010-2014 ACS 5-Year Estimates. While the 2015 NSB Census does not provide overcrowding data on Point Lay specifically, the accompanying analysis indicates that the number persons per household fell from 2.5 to 1.8 between 2010 and 2015.²⁴¹

The 2014 ACS percentages of overcrowded and severely overcrowded households is depicted in Figure 10.

Figure 10: Incidence of Housing Overcrowding^{242, 243}



²³⁸ U.S. Department of Commerce. U.S. Census Bureau. 2010 – 2014 American Community Survey 5-Year Estimates – Point Lay CDP, North Slope Borough, Alaska State. <http://factfinder.census.gov>. Accessed Oct. 6, 2016.

²³⁹ Wiltse, N., Madden, D., Valentine, B., Stevens, V. 2014. 2013 Alaska Housing Assessment. Cold Climate Housing Research Center. Prepared for the Alaska Housing Finance Corporation. www.ahfc.us/efficiency/research-information-center/housingassessment.

²⁴⁰ Tagiugmiullu Nunamiullu Housing Authority. 2014. *North Slope Borough Housing: A Brief Analysis of Issues and Options with Budgetary Quotes*. Unpublished white paper.

²⁴¹ North Slope Borough. 2015. *North Slope Borough 2015 Economic Profile and Census Report Volume XI*. Unpublished. Prepared by Circumpolar Research Associates Shepro, C., Maas, C. and D. Gallaway and edited by Jason Bergerson for the North Slope Borough.

²⁴² U.S. Department of Commerce. U.S. Census Bureau. 2010 – 2014 American Community Survey 5-Year Estimates – Point Lay CDP, North Slope Borough, Alaska State. <http://factfinder.census.gov>. Accessed Oct. 6, 2016.

²⁴³ Total dwelling units estimated in the 2010 – 2014 ACS 5-Year Estimates was 68.

Housing Condition. Residents are concerned about the condition of the community's aging housing stock. Approximately 34 percent of Point Lay homes were constructed between 1970 and 1979 and 42 percent between 1980 and 1989. More than three-quarters of all homes in Point Lay are 25 years old or older and require the maintenance, repairs, and upgrades common for older homes. Many of the homes that were constructed during the 1970s were moved from the old village site on the barrier island just across the Kasegaluk Lagoon or the second location of the community, along the delta of the Kokolik River. Some homes were damaged when moved and repairs were made to siding, skirting, joists, and other structural components and finishes. However, the lasting effects of moving the homes is evident today, forty years later. Doors and windows do not close or seal adequately, windows have cracked, and some homes are structurally unsafe. In addition to the lasting damage on homes and the harsh arctic climate, many homes were constructed with poor materials by inexperienced carpenters.

While some homes in Point Lay were constructed on skids, the majority of homes in Point Lay rest on wood pilings driven into the ground. The pilings accelerate permafrost thaw by conducting heat from the home into the frozen ground. As the permafrost thaws, the ground around the pilings settles. As a result, homes may require releveling or more gravel to provide additional piling support.

Homes also have lead paint, asbestos, air quality issues and are in need of renovations, including exterior paint, air quality assessments and ventilation improvements, and energy efficiency upgrades. Poor indoor air quality and ventilation is a significant issue for many Alaska homes. Older homes, like those in Point Lay built during the 1970s and 1980s, often have a higher risk of moisture and air quality issues than newer homes. Homes constructed during the 1990s and 2000s have a low risk for these issues.²⁴⁴

Housing Affordability. HUD defines affordable housing as that which costs no more than 30 percent of a household's monthly income. Households paying more than this for mortgages, rents, fees, utilities, taxes, and insurance are considered cost-burdened.²⁴⁵

The 2010-2014 ACS 5-Year Estimates noted that the median household income in 2014 in Point Lay was \$60,000.^{246, 247} Thirty percent of the median household income is \$18,000 indicating that per the HUD definition, affordable housing would need to be less than \$18,000 annually or approximately \$1,500 monthly for the average household. The median owner costs for those with a mortgage payment was \$600; for those homeowners without a mortgage it was \$367; and for renters it was \$1,050. These figures indicate that the majority of homeowners and renters in Point Lay are not cost-burdened. Although the

²⁴⁴ Wiltse, N., Madden, D., Valentine, B., Stevens, V. 2014. *2013 Alaska Housing Assessment*. Cold Climate Housing Research Center. Prepared for the Alaska Housing Finance Corporation. www.ahfc.us/efficiency/research-information-center/housingassessment.

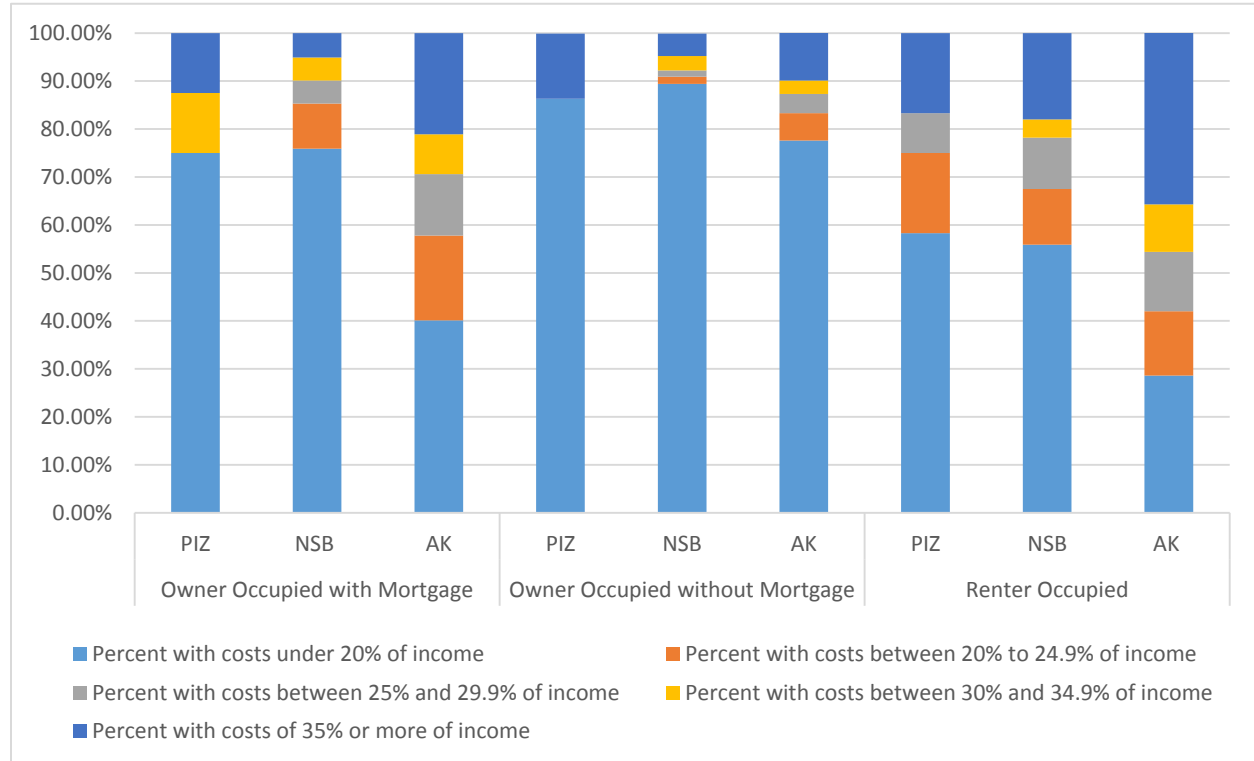
²⁴⁵ U.S. Department of Housing and Urban Development. 2016. *Affordable Housing*. Accessed Feb. 2, 2016. http://portal.hud.gov/hudportal/HUD?src=/program_offices/comm_planning/affordablehousing.

²⁴⁶ North Slope Borough. 2015. *North Slope Borough 2015 Economic Profile and Census Report Volume XI*. Unpublished. Prepared by Circumpolar Research Associates Shepro, C., Maas, C. and D. Gallaway and edited by Jason Bergerson for the North Slope Borough.

²⁴⁷The 2015 NSB Census reported an average income of \$34,650. The ACS figure is used here for consistency with the affordability figures from the same data source.

U.S. Census figures indicate there are few cost-burdened households in Point Lay, the Census does not consider the great expense required to maintain older homes in the Arctic, including the expense of shipping materials and hiring qualified tradespeople to provide repairs. Additionally, overcrowded households may report a higher income because there are more workers under the same roof. Eliminating overcrowding may reveal that households in Point Lay are significantly more cost burdened than the U.S. Census figures illustrate. Housing costs, as a percent of household income, are shown in Figure 11 for Point Lay, the NSB, and the State of Alaska.

Figure 11: Housing Costs as Percent of Income²⁴⁸



Tagiumiullu Nunamiullu Housing Authority. The housing authority for the North Slope, Tagiumiullu Nunamiullu Housing Authority (TNHA), offers housing assistance in Point Lay. There may be limited participating in the programs, depending on need and funding. Housing programs through TNHA in Point Lay are:

- Mutual Help Homes Program provides home-ownership opportunities for qualified lower income Alaska Native/Indian families;
- Market-Based Public Housing rental Program offers rental properties to the general public;
- a Lease-Purchase Homeownership Program; and
- Conditional Installment Loan Program provides homes for sale at a substantially reduced cost.²⁴⁹

²⁴⁸ U.S. Department of Commerce. U.S. Census Bureau. 2010 – 2014 American Community Survey 5-Year Estimates – Point Lay CDP, North Slope Borough, Alaska State. <http://factfinder.census.gov>. Accessed Oct. 6, 2016.

²⁴⁹ Tagiumiullu Nunamiullu Housing Authority. 2017. *TNHA Housing Programs*. Accessed May 17, 2017. www.tnha.info/TNHA_Housing_Programs.html.

TNHA has recently constructed homes in Point Lay with a post-on-pad foundation that rests on the ground that isolates the house from the soil to prevent heat from accelerating permafrost thaw. These TNHA homes have also been designed to be easily relocated if needed, such in the case of flood or subsidence. The foundation has sliding steel posts attached to pads that can be adjusted up to eight feet in height to accommodate tundra movement. Beams that act as skids enable the home to be towed to a new location if needed. The home's design also includes adequate ventilation to ensure healthy indoor air quality, which is often a challenge in very cold climates because humid indoor air tries to escape through the building envelope and condenses on cold surfaces inside the wall, potentially leading to mold and rot.²⁵⁰

8.2 Current and Future Housing Needs

Perhaps many of the housing issues in Point Lay are exemplified by the former BIA school and teacher housing located behind Kali School. The three structures have been condemned. For some time after the structures were condemned, they remained vacant. However, families have moved in recently. The buildings do not have water or sewer service; residents rely on water delivery and honeybuckets. These buildings are not safe for habitation, yet there are few other options.

Like all North Slope villages, there is a housing shortage in Point Lay. This shortage often results in multiple generations, and families, residing in the same household and in overcrowded conditions.

Point Lay's anticipated population growth will result in more households and an increased demand for housing. This analysis of the need and demand for housing, both present and in the future, relies on population projects presented in Chapter 5. Current and future housing need and demand has been determined based on housing vacancy and overcrowding rates and is shown in Table 18.

TNHA estimated that in 2015, there is currently an estimated shortage of 29 homes in Point Lay.²⁵¹ If the high population growth scenario of one percent occurs, and the current shortfall of approximately 29 housing units were developed, Point Lay would need an additional five homes by 2020, an additional five homes by 2025, and another 11 homes by 2035. A total increase of 51 habitable dwellings would be needed by 2035. If the no growth scenario of a 0.5 percent decline in population occurs, additional homes will still be needed to accommodate the current population even though some overcrowding would be relieved due to smaller size households. The moderate growth scenario of half of a percent growth would result in the need for an additional 10 homes over the next 20 years beyond the current need of 29 homes.

A linear trend population projection assumes that the population will increase or decrease by the same number of people in each future decade as the average per decade increase or decrease observed during

²⁵⁰ Cold Climate Housing Research Center. N.d. *TNHA Resilient Housing for the North Slope of Alaska*. Accessed May 17, 2017. www.cchrc.org/sites/default/files/docs/TNHA_ResilientHousing.pdf.

²⁵¹ Tagiugmiullu Nunamiullu Housing Authority. 2014. *North Slope Borough Housing: A Brief Analysis of Issues and Options with Budgetary Quotes*. Unpublished white paper.

the interval between 1980 and 2010. Using the linear trend population projection to consider the housing needs for the future population of Point Lay reveals the need for a total of 37 homes over the next twenty years, in line with the moderate growth scenario.

Table 18: Current and Future Housing Needs²⁵²

Growth Rate	Base Year 2015		5 Year Forecast 2020		10 Year Forecast 2025		20 Year Forecast 2035	
	Population	Current Homes Needed	Population	Cumulative Homes Needed	Population	Cumulative Homes Needed	Population	Cumulative Homes Needed
High Growth (+1%)	269	29	283	34	297	39	328	51
Moderate Growth (.5%)			276	32	283	34	297	39
No Growth (-.5%)			262	26	256	24	243	19
Linear trend based on 1980 and 2010 U.S Decennial Census	N/A		229	14	250	22	290	37

²⁵²The number of 29 homes is used as the current number of homes needed to address overcrowding. Other NSB comprehensive plans use the 2010-2014 ACS estimates provided by the U.S. Census Bureau as a foundation for determining need over the next twenty years. In the case of Point Lay, anecdotal evidence, coupled with TNHA research and AHFC assessments, indicates a higher need. Consequently, the TNHA estimate is used for the current homes needed rather the ACS estimate.

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ASRC Energy Services. 2016. Photo Library.

Chapter 9: Land Use and Zoning

9.1 Land Ownership

The Alaska Native Claims Settlement Act (ANCSA), enacted into law on December 18, 1971, was intended to settle outstanding land claims and establish clear title to Alaska's land and resources. The Act established regional and village corporations. The village corporations received title to the surface estate in and around the village. Section 14(c)(3) provides that the village corporation shall convey to a municipal corporation (city), or the state in trust (where an incorporated city does not exist), lands identified for present and future community needs.^{253, 254} Land ownership is depicted in Map 15.

The village Native Corporation established under ANCSA, Cully Corporation, is the primary landowner in the Point Lay area. Cully Corporation had 89 original shareholders and today has over 110 shareholders. The Corporation has selected and received 90,000 acres of surface lands under ANCSA in and around the community.²⁵⁵ As long as land and interests in land conveyed under ANCSA by the federal government to a Native individual or Native Corporation are not developed, leased, or sold to third parties, they are exempt from 1) adverse possession and similar claims based upon estoppel; 2) real property taxes by any governmental entity; 3) judgments resulting from a claim based upon bankruptcy, insolvency, or other

²⁵³ Alaska Department of Commerce, Community and Economic Development. 2016. Division of Community and Regional Affairs. *Planning and Land Management*. Accessed Sept. 6, 2016.

www.commerce.alaska.gov/web/dkra/PlanningLandManagement/ResourcesforANCSA14c3.aspx.

²⁵⁴ 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.

²⁵⁵ Arctic Slope Regional Corporation. 2016. *Point Lay*. Accessed Oct. 10, 2016.
www.asrc.com/Communities/Pages/Pointlay.aspx.

laws generally affecting creditors' rights. Essentially, undeveloped ANCSA lands cannot be taxed or taken in satisfaction of a debt or in bankruptcy proceedings.²⁵⁶

The NSB owns property in Point Lay that is used to provide services to the community. NSB land ownership includes the school tract and teacher housing, utility tracts for public utilities (fuel tank farm, storage, sewage lagoon, power plant, water treatment plant, wastewater treatment plant, etc.). The Borough also has easements throughout the community for access to water and sewer infrastructure. The U.S. Air Force owns the airport property, which is the former DEW Line site.

There are two types of protected (restricted) land for Native Alaskans: Native allotments and restricted land. Restricted land is inalienable; the property owner cannot lease, sell or convey the land, or any inherited interest in the land, without first obtaining approval from the Bureau of Indian Affairs (BIA). Generally speaking, restricted land is also not subject to state or local laws, including taxation and land use regulations, such as zoning. Native restricted land will remain tax-exempt unless changed by the United States Congress or the restrictions are removed with expressed approval by the BIA.^{257, 258}

Restricted lots were originally distributed via two federal statutes: the Alaska Native Allotment Act of 1906 and the 1926 Alaska Native Townsite Act. The Alaska Native Allotment Act of 1906 authorized the Secretary of the Interior to grant individual Alaska Natives ownership of up to 160 acres of vacant, non-mineral and unappropriated land. The majority of Native allotments are near villages and along rivers, streams, lakes, and coastal waters. There are 46 Native allotments within Point Lay Area of Influence,²⁵⁹ as shown in Map 16. In 1971, one of the provisions in the Alaska Native Claims Settlement Act (ANCSA) repealed the authority to grant Native allotments, with the expectation of those applications that had already been submitted. Native allotment land is still being conveyed by the Bureau of Land Management (BLM).^{260, 261}

The 1926 Alaska Native Townsite Act was passed by the United States Congress for the purpose of conveying public lands to Native Alaskans for homes within villages. All townsite acts were repealed by the passage of the Federal Land Use Policy and Management Act (FLPMA) in 1976 but lots that were already designed as 'Native restricted' under the Townsite Act did not lose their status. While Native restricted land parcels are common in many rural Alaskan communities, there are not any within the community of Point Lay.²⁶²

²⁵⁶ U.S. Code. 43 U.S.C. §1636. *Alaska Land Bank*. Accessed May 2, 2017. www.gpo.gov/fdsys/granule/USCODE-2011-title43/USCODE-2011-title43-chap33A-sec1636.

²⁵⁷ Kawerak Land Management Services. 2014. *Restricted Native Land*. Accessed July 17, 2014. www.kawerak.org/forms/nr/informational%20sheet.pdf.

²⁵⁸ Case, David, Hudson, Roger, Landreth, Natalie, Kindall-Miller, Heather, Resseguie, Linda and Schutt, Aaron M. 2007. *Native American Land Base*. Alaska Bar Association, June 2007. Accessed July 17, 2014. www.alaskabar.org/servlet/clecatalog?id=333.

²⁵⁹ U.S. Department of the Interior. Bureau of Land Management. 2016. *Spatial Data Management System (SDMS)*. Accessed Mar. 13, 2016. <http://sdms.ak.blm.gov/isdms/imf.jsp?site=sdms>.

²⁶⁰ Kawerak Land Management Services. 2014. *Restricted Native Land*. Accessed July 17, 2014. www.kawerak.org/forms/nr/informational%20sheet.pdf.

²⁶¹ U.S. Department of the Interior. Bureau of Land Management. 2013. *Land Transfer*. Accessed July 17, 2014. www.blm.gov/ak/st/en/prog/ak_land_transfer.html.

²⁶² North Slope Borough. 2016. *Assessor's Division GIS data*.

In January 2015, a provision in the 1934 Indian Reorganization Act (IRA) that excluded Native Alaskan lands²⁶³ from being placed into federal trust status was deleted. Alaska Natives can submit applications to the U.S. Department of the Interior for land to be put into trust. The Department retains discretion to grant or deny land-into-trust applications and makes its decisions on a case-by-case basis in accordance with the requirements of 25 CFR 151 and the IRA.²⁶⁴

²⁶³ With the exception of Metlakatla Indian Community of the Annette Island Reserve or its members.

²⁶⁴ Federal Register: The Daily Journal of the United States Government. 2014. *Land Acquisitions in the State of Alaska: A Rule by the Indian Affairs Journal on 12/23/14*. Accessed Apr. 21, 2017. www.federalregister.gov/documents/2014/12/23/2014-30099/land-acquisitions-in-the-state-of-alaska.

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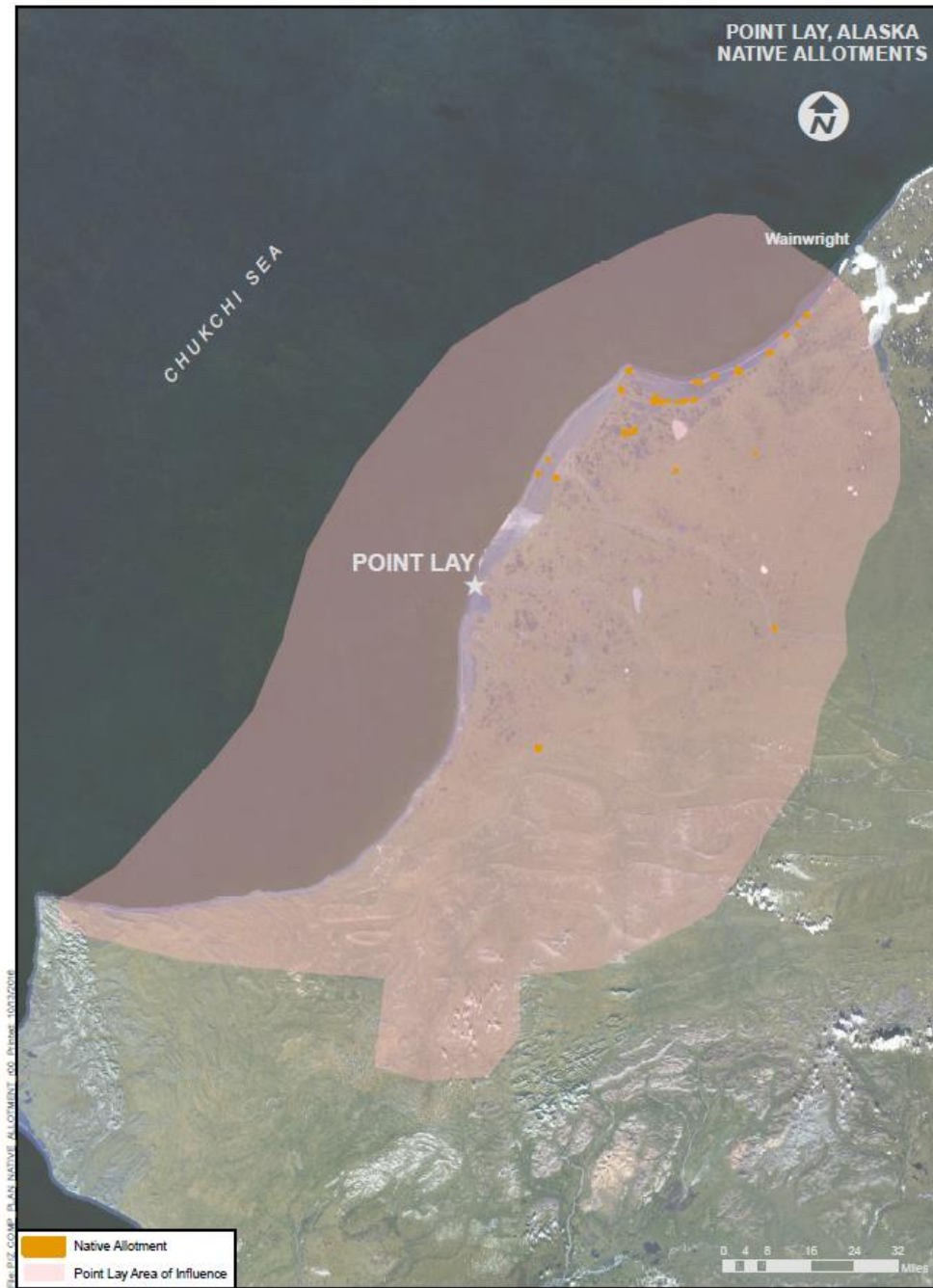
Map 15: Land Ownership

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Map 16: Native Allotments



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9.2 Zoning and Land Use Regulation

A major component of local planning is zoning, the division of areas into land use districts and the regulation of lands within those districts. Zones are designed to accommodate current and potential uses. Detailed regulations guide how each district can be used. The NSB is charged with administering platting and zoning on behalf of residents. The entirety of the village of Point Lay is contained within the Village District with the exception of the airport, landfill, and the leased ASKW Construction site on Tuttunniagvik Street. The surrounding area outside of the zoning boundary is within the Conservation District, as shown in Map 17.

The NSB has created zoning districts for all land within its jurisdiction, public and private. The Village District is described in the NSBMC Title 19 (§ 19.40.060). The intent of the Village District is to accommodate uses which:

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

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

For Administrative Approval. The following one activity can be administratively approved by the Borough's Land Administrator²⁶⁵ without public notice: 1) placement of fill in a wetland in accordance with the Army Corps of Engineers general permit.

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

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

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

- 1) Resource extraction; and
- 2) Any use "elevated" by the Land Administrator for Commission review by the NSB Land Administrator, pursuant to § 19.50.020.²⁶⁶

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:

²⁶⁵ The Land Administrator for the Borough is the Director of the NSB Planning and Community Services Department.

²⁶⁶ 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 Point Lay 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.

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

The Conservation District is described in Title 19 (§ 19.40.070) and generally encompasses the undeveloped areas of the Borough. This District is intended to conserve the natural ecosystem for all the plants and animals upon which Borough residents depend for subsistence. The Conservation District accommodates limited resource exploration and development.²⁶⁷ Land uses permitted within a Conservation District include:

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

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

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

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

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

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

In addition to North Slope Borough, Cully Corporation has its own permitting requirement. Permits must be obtained from Cully Corporation to enter or use Cully Corporation-owned lands.

²⁶⁷ North Slope Borough. 1990. *North Slope Borough Municipal Code Of Ordinances. Title 19: Zoning. Chapter 19.40: Zoning Districts.* Accessed April 12, 2016. www.municode.com/library/ak/north_slope_borough/codes/code_of_ordinances.

Map 17: Zoning



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9.3 Current and Future Land Use

The majority of the people in Point Lay live in an area of less than one-half square mile. The center of town, located between Ugruk Avenue to the north and Tuttunniagvik Street to the south and east contains commercial businesses, government facilities, the school, and some industrial uses. Residential uses are located both north and west of the community center. The Current and Future Community Land Use map, Map 18, includes a variety of uses, including mixed use, residential, government, and education.

Point Lay is zoned as a Village District by the NSB but residents could request the establishment of more specific zoning districts and regulations through Title 19 text and zoning map amendments. The future land use map can act as a guide to identify appropriate zoning boundaries. Additionally, community members have expressed the desire for a local zoning board, which would require a revision to Title 19 to authorize a zoning board within the village.

Industrial Districts. Land that is currently used for industrial purposes could be rezoned as Industrial District(s), facilitating future expansion of public facilities or new industrial activities to take place within those districts.

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

Residential Districts. Areas of the village wholly suitable for residential use could be rezoned specifically for that purpose. Additionally, some areas within the community may be more suitable for multi-unit residential development (duplex, tri-plex or apartment buildings), a zoning district that distinguishes between single-family residential and multi-family residential could be created to further regulate those uses. Certain home occupations should be allowed in residential districts, including small daycare home occupations and other small-scale businesses that offer needed services to the community and that do not generate noise, trash, or traffic that is out of scale with a residential neighborhood.

There is not ample land within the village for future expansion. The community supports increasing the zoning district boundary for future development. The Current and Future Community Land Use map, Map 18, presents mixed density residential use along the northern portion of Tuttunniagvik Street to the east, north of Kali Avenue, and west of Kavuqtualuk Street. The suitability of these sites should be considered for land ownership, drainage, soils, connectivity, and expansion of infrastructure, such as water and sewer.

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Map 18: Current and Future Community Land Use



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ASRC Energy Services. 2016.

Chapter 10: Goals, Objectives & Strategies

The following goals and objectives are intended to reflect the values of the community and respond specifically to the Strengths, Weaknesses, Opportunities and Threats (SWOT) expressed by the community in meetings hosted by the North Slope Borough Planning and Community Services Department during development of this plan as well as issues raised during research and discussions with residents. The seven goals presented in this chapter are not listed in priority order.

Each goal is accompanied by one or more objective that suggests how the community might achieve the intent and substance of the goal. Each objective is followed by an Implementing Strategy that describes how the action would be implemented. Implementing Strategies may establish how a specific course of action could be accomplished by village residents, village leadership, NSB Administration and staff, NSB legislators, various development permitting and funding agencies, and/or other entities. For purpose of this Comprehensive Plan, Point Lay Village Leadership is defined as Cully Corporation and Native Village of Point Lay.

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

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

Implementing Strategies describe specific steps to reach an objective.

Comprehensive Plan Goals

Goal 1: Seek additional housing while supporting housing quality, variety, and affordability

Goal 2: Preserve the Iñupiaq culture and subsistence resources and activities

Goal 3: Maintain and expand community services to provide improved care for residents

Goal 4: Maintain, protect and expand community facilities, infrastructure, and services

Goal 5: Facilitate economic development

Goal 6: Provide educational resources that prepare students for entering the workforce while also inspiring community participation and leadership.

Goal 7: Foster meaningful community and intergovernmental cooperation

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10.1 Goal 1 – Seek additional housing while supporting housing quality, variety, and affordability

Table 19: Goal 1 – Seek additional housing while supporting housing quality, variety, and affordability	
Objectives	Implementing Strategies
1.1. Seek comprehensive understanding of housing issues.	a) Develop a standard methodology for projecting future population growth with housing needs to evaluate current and future need. Review projections regularly and consider when prioritizing community needs and funding.
	b) Undertake a lot-by-lot infill study coupled with developable lots serviced by utilities and roads; determine ownership status and viability of property to be used for housing development.
	c) Track housing prices and rents with increases / decreases in household income to understand the need and availability of affordable housing.
	d) Create a program that provides assistance in resolving probate issues for vacant residential lots.
1.2. Coordinate housing-related activities.	a) Establish a mechanism to advocate for ongoing state, federal and private funding support for housing using partnerships at the local and regional level.
	b) Analyze existing housing programs and efforts within different entities to determine gaps and duplicative efforts. Set up a housing coordination committee comprised of, for example, village leadership, homeowners, Cold Climate Housing Research Center, TNHA, NSB Housing Solutions Group, and others to coordinate housing activities.
	c) Promote financial literacy programs offered by lenders and non-profits that help prepare residents for future homeownership.
1.3. Review and revise zoning and subdivision ordinances and consider the need for additional village zoning districts as needed to facilitate housing development.	a) Explicitly allow for accessory structures, including homes, on a single lot in the NSB municipal code.
	b) Develop strategies for development / redevelopment that incorporate an integrated mix of residential dwelling types to address affordability, such as higher density housing (apartments, townhomes, duplexes).
	c) Evaluate the NSB subdivision and zoning regulations and recommend changes where necessary to ensure that a sufficient amount of land is appropriately zoned and available for a variety of housing types and densities, including mixed-use development, for current and future housing needs.
	d) Develop zoning regulations for Assembly adoption that facilitate redevelopment of unusable and underutilized structures to housing in areas served by water, sewer and other utilities.
	e) Encourage a range of housing types through regulations and programs that accommodate special population groups such as the elderly, physically challenged, large families, and single room occupants.

Table 19: Goal 1 – Seek additional housing while supporting housing quality, variety, and affordability	
Objectives	Implementing Strategies
1.4. Seek ways to reduce costs of constructing housing to facilitate greater affordability.	a) Work with Cold Climate Housing Research Center (CCHRC) or other organizations with arctic construction expertise to continue build affordable and energy efficient homes.
	b) Research the feasibility of ordering, delivering and preassembled kit houses.
	c) Explore funding opportunities for tribal housing authorities, elder housing and low-income housing, such as federal and state grants.
1.5. Seek quality housing through renovations or demolishing unsafe homes.	a) Implement a program that facilitates demolishing homes or structures that are not suitable for occupancy, such as the old NSB school buildings and relocate the families living there.
	b) Seek grant funds to support retrofit weatherization efforts like the former RELI (Residential and Employment Living Improvement) program, passive ventilation systems, and other alternative building techniques to reduce energy consumption in existing houses and reduce costs for homeowners.
	c) Provide information to residents on easy and inexpensive ways to make homes more energy efficient.
	d) Identify homes that may be vulnerable to damage from thawing permafrost, fire, bluff erosion, and/or flooding and consider appropriate mitigating action(s).
	e) Review the condition of existing homes, especially those that were constructed in the 1970s and 1980s, and formulate recommendations for improvements, renovation, or replacement.

10.2 Goal 2 – Preserve the Iñupiaq culture and subsistence resources and activities

Table 20: Goal 2 – Preserve the Iñupiaq culture and subsistence resources and activities	
Objectives	Implementing Strategies
2.1. Promote Native culture and a traditional lifestyle	a) Include younger children in activities so that they learn about cultural living, camping, boating, berry picking, hunting, and outdoor survival.
	c) Pass down stories of the Iñupiaq people, perhaps holding story hour and invite Elders to share their knowledge and wisdom.
	d) Establish/expand youth camps focused on subsistence and traditional activities, such as fish camp.
2.2. Facilitate preservation of the Iñupiaq language through improving Native language fluency.	a) Establish a daycare center that includes an Iñupiat language immersion program
	b) Encourage native speakers to speak Iñupiaq at home, especially to children.
	c) Expand the NSBSD Iñupiaq Immersion Program.
	d) Continue and expand the use of the Rosetta Stone program for language preservation and develop Native language education programs for adults.
	e) Develop a program to pair young children with elders to speak only in Iñupiaq.
2.3. Provide stewardship for the land and subsistence resources.	a) Village leadership will work with North Slope Science Initiative (NSSI) member organizations ²⁶⁸ to enhance communication and coordination to identify best available technologies and management practices to sustain healthy subsistence wildlife resources.
	b) Village leadership and NSB staff will seek effective documentation of local and traditional knowledge of wildlife habitat, migratory patterns, weather, currents, ice conditions, etc., and will communicate that knowledge to state and federal resource management agencies and to staff of public and private science projects and programs when appropriate.
	c) When changing conditions warrant, village leadership will work with the NSB staff to formulate adaptive land and resource management practices, measures and permit stipulations to ensure adequate stewardship of land, water, and wildlife resources, such as protecting migration routes.
	d) Cully Corporation is supportive of and considering placing protections of the walrus on Cully lands.

²⁶⁸ Member organizations include: Bureau of Land Management, U.S. Fish and Wildlife Service, National Park Service, National Marine Fisheries Service, Bureau of Ocean Energy, Management, and Enforcement, Alaska Department of Natural Resources, Alaska Department of Fish and Game, Arctic Slope Regional Corporation, North Slope Borough, and the Bureau of Safety and Environmental Enforcement. Advisory organizations include: United States Geological Survey, Arctic Research Commission, Department of Energy, National Weather Service, and the United States Coast Guard.

Table 20: Goal 2 – Preserve the Iñupiaq culture and subsistence resources and activities	
Objectives	Implementing Strategies
2.4. Ensure trapping, hunting, and fishing rights are available for Point Lay residents.	a) Village leadership will work with NSB Wildlife Management Department staff to ensure that NSB and local hunters’ voices are present at federal and state agency meetings to support the continued hunting of subsistence wildlife within the Point Lay Area of Influence.
	b) Village leadership will work with state and federal agencies to monitor, and when necessary, contribute to proposed state and federal government agency changes to hunting regulations that may be applied to residents (e.g. number and length of permits, changes in bag limits, access limits, and other new restrictions or lessening of restrictions that may occur as a result of changes to wildlife population numbers or behaviors). They will seek to ensure that regulations are consistent with both scientific principles and local and traditional knowledge.
	c) Village leadership will coordinate with NSB Wildlife Management Department staff to provide current information on wildlife populations to federal and state agencies to support the continued hunting of subsistence wildlife within the Point Lay Area of Influence.
2.5. Protect and enhance food drying, storage ice cellars, and other tools and facilities needed for subsistence activities.	a) Village leadership will seek local or regional grant-writing expertise to for funding for rehabilitating or repairing damaged or failing ice cellars or creating new ice cellars for individual or village cooperative use.
	b) Village leadership will work with NSB staff to develop building setback standards or permit stipulations to protect existing ice cellars from damage related to new construction in close proximity to the cellars.
	c) Village leadership will seek funding and alternative methods to minimize dust on roadways that can contaminate drying fish and meat.

10.3 Goal 3 – Maintain and expand community services to provide improved care for residents

Table 21: Goal 3 – Maintain, protect, and expand community services and resources	
Objectives	Implementing Strategies
3.1. Facilitate the development or use of facilities that provide opportunities for sustaining culture and improving health.	a) Village leadership, with assistance from NSB, will seek funding for ball fields and other facilities to provide residents with additional opportunities for exercise and recreation. Residents have explicitly expressed the desire for new playground equipment, a baseball diamond next to the playground and having more open gym time during the winter.
	b) Village leadership, with assistance from NSB, will seeking funding to provide places for residents for traditional gatherings that may include an open field, outdoor recreation area or traditional trading center.
	c) Repurpose the DEW Line Station warehouse into an evacuation center which could also be utilized as a multipurpose building, teen center, movie hall, etc.
3.2. Plan for current and future health and social service needs	a) NSB, ASNA, and village leadership will collaborate on improved medical services to ensure the health and wellbeing of Point Lay residents.
	b) Village leadership with the NSB will develop a program for ensuring certification and training for local medical staff.
	c) Village leadership with the NSB will schedule regular evaluation and assessment of clinic facility and equipment with NSB CIPM.
	d) NSB, ASNA, and village leadership will collaborate on offering community wellness resources and education for residents, to include the benefits of smoking cessation, and the dangers of alcohol and drug abuse.
3.3. Ensure effective community emergency preparedness.	a) Village leadership with the NSB will coordinate hazard vulnerability assessments.
	b) Village leadership with the NSB will map the location and track the stability of ice cellars.
	c) Village leadership with the NSB will seek facility space as needed to store materials and equipment intended for response to community emergencies.
	d) Village leadership with the NSB will disseminate information, such as family disaster supply kit contents, to residents and business about disaster preparedness to protect both people and assets.

Table 21: Goal 3 – Maintain, protect, and expand community services and resources	
Objectives	Implementing Strategies
3.4. Consider additional facilities and services as opportunities to develop them arise.	a) Collaborate with the NSB on funding and programmatic assistance to open a childcare facility; seek funding for a youth center; an Iḷisaḡvik College accredited learning center; and a facility to repair boats, vehicles, snowmachines, and ATVs.
	b) Prioritize and seek collaboration and funding for new community facilities, including community center, heritage store, building for the Native Village and Corporation, etc.
	c) Develop a snow machine, sled, and vehicle repair shop with tools for whaling crews and other community members to work on personal property.
	d) Expand the Native store or develop a new or additional store elsewhere in the community.

10.4 Goal 4 – Maintain, protect and expand community facilities, infrastructure, and services

Table 22: Goal 4 – Maintain, protect and expand community facilities, infrastructure, and services

Objectives	Implementing Strategies
<p>4.1. Continue to maintain water, sewer, electric power, and facilities infrastructure in good operating condition while seeking to increase their energy efficiency over time.</p>	a) Identify new water source and solicit funding to extend infrastructure to the new location.
	b) Seek a replacement to the direct bury water and sewer system.
	c) The NSB will identify utilities and community facilities that may be vulnerable to damage caused by climate-related impacts including melting permafrost, fire, erosion, and/or flooding and consider appropriate action(s).
	d) NSB and village leadership will form and maintain an active Local Emergency Planning Committee (LEPC) to manage hazard mitigation planning and preparedness. The Committee will update and implement the Hazard Mitigation Plan to prepare for, and respond to, flooding, fires, pests, and other hazards.
	e) The NSB will restrict development on erosion-prone vulnerable areas and those areas known to have significant subsidence and will designate those areas as hazard zoning districts or overlay zoning districts within which appropriate restrictions will apply.
	f) As practicable, the NSB will locate, design, and construct needed community facilities, such as snow fences or landfill sites, in such a way as to avoid conflicts with wildlife habitats and migration periods and patterns.
	g) Identify infrastructure and facilities that may be vulnerable to damage caused by climate-related impacts including subsidence from melting permafrost, fire, erosion, and/or flooding and consider appropriate mitigating action(s).
	h) Seek funding to repair or relocate the volunteer Search and Rescue facility.
	i) Ensure continued maintenance of the community’s snow fences
<p>4.2. Maintain and improve the transportation network.</p>	a) The NSB will work with village leadership to seek a long lasting, cost-effective road hardener system to mitigate dusty roads during summer months.
	b) The NSB will examine road areas where safety could be improved through signage and will install signs where needed.
	c) Investigate additional funding opportunities for additional road and utility development from Bureau of Indian Affairs, State of Alaska, Denali Commission, Housing and Urban Development, and federal transportation funds.

Table 22: Goal 4 – Maintain, protect and expand community facilities, infrastructure, and services

Objectives	Implementing Strategies
4.3. Maintain and upgrade communication services.	a) Seek the extension of fiber optics into Point Lay and coordinate land use planning and permitting.
	b) Village leadership will seek ways to improve telecommunication services, including cell phone and internet service.
4.4. Facilitate research in the feasibility, design and operation of local renewable energy sources such as wind and solar power and protect the location of those sites.	a) Village leadership and NSB will identify land suitable for alternative energy systems and will pursue funding for design and development.
4.5. Facilitate appropriate and compatible land uses within the village and for future growth areas.	a) Expand zoning district boundary to accommodate future growth
	b) Develop zoning regulations for the village that will encourage and facilitate compatible development.
	c) Seek an amendment to NSBMC Title 19 to allow for local zoning boards.

10.5 Goal 5 – Facilitate economic development

Table 23: Goal 5 – Facilitate economic development	
Objectives	Implementing Strategies
5.1. Designate land and provide adequate infrastructure in appropriate locations for community business activities.	a) The village leadership will work with the NSB Planning Department to determine if amendments to Title 19 zoning and land use code is needed to encourage economic opportunities related to new local businesses and alternative energy systems.
	b) Village leadership will seek funds from government entities, corporations, and private foundations to study the feasibility of establishing new businesses related to energy conservation, renewable energy sources, and greenhouse agriculture.
	c) Village and borough leadership will collaborate with Cully Corporation regarding land use for future gravel mining that may facilitate community and economic development within the community.
5.2. Facilitate the establishment of businesses and services and employment opportunities.	a) Village leadership will work with the NSB to determine if amendments to Title 19 zoning land use code is needed to provide flexible zoning and development standards to facilitate the following community-serving uses: greenhouses, sale of locally grown or hunted foods, and an appliance and small vehicle repair shop.
	b) Village leadership will work with the North Slope Borough School District and Iḷisaḡvik College to provide education, training, and certification program to residents who seek to learn construction trades, vehicle repair, and maintenance skills, and other vocational skills.
	c) Establish childcare services to facilitate greater participation in the local workforce.
	d) Cully Corporation seeks to further economic development for the community by expanding the runway by 2,000 linear feet to accommodate larger aircraft. The Corporation intends to convey the airstrip and sufficient lands for airstrip expansion to the NSB if the site is conveyed to Cully from the BLM.
	e) Village and NSB leadership will coordinate on a variety of economic development initiatives that may include those identified as priorities identified by Cully Corporation in Chapter 7.
	f) The Beluga Camp is in a deteriorated state and should be replaced. Cully Corporation has indicated that their desired location for a new camp is near existing power, water, and sewer facilities.

Table 23: Goal 5 – Facilitate economic development	
Objectives	Implementing Strategies
5.3. To the extent practical, avoid economic development activities or non-subsistence activities that could alter or disturb wildlife habitat or migratory patterns.	a) Village leadership, with assistance from NSB grant-writing staff, will seek funds to develop an economic development plan and program to identify new business, job and career opportunities for residents based on local resources that can be sustained without subsidies.
	b) Village leadership will seek Arctic Slope Regional Corporation (ASRC), State, and grant funds for training, apprentice programs and funds to support viable start-up businesses.
	c) Village leadership and NSB collaborate to develop an Alaska Regional Development Organization (ARDOR) to facilitate greater regional economic development potential.
5.4. Support regional economic development opportunities.	a) Cully Corporation supports economic development efforts for responsible oil and gas development offshore.

10.6 Goal 6 – Provide educational resources that prepare students for entering the workforce while also inspiring community participation and leadership

Table 24: Goal 6 – Provide educational resources that prepare students for entering the workforce while also inspiring community participation and leadership	
Objectives	Implementing Strategies
6.1 Prepare students to be community leaders.	a) Encourage student programs that foster leadership skills, such as student council and peer-mentoring activities.
	b) Develop a sense of citizenship and ownership in the community through student participation in community projects, such implementing this comprehensive plan.
6.2 Prepare students to enter the workforce	a) Develop a “how to” employment library, focusing on job skills, financial aid, and other topics.
	b) Promote existing scholarship opportunities and continue to develop and expand scholarships to meet the needs of students and employers.
	c) Evaluate the availability and needs of technical services within the community.
	d) Develop an apprenticeship program, which would provide training to create new skills in villages, supported by a regional network for technical assistance.
	e) Create a job-shadowing program that matches students with local professionals to share existing traditional and technical knowledge and to model responsible work practices and ethics.
	f) Evaluate the existing vocational education programs within the community and how it address the needs.
	g) Encourage youth to attend college by providing guidance and resources to learn about the application process, what to expect and how to succeed in college, and the types of degrees most needed for employment within the community.
	h) Make existing resources at the school more available to students during and after school, such as the wood shop.
	i) Village leadership, Iḷisaḡvik college, Kali School, and residents work together to offer additional and a great variety of summer activities for youth.

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10.7 Goal 7 – Foster meaningful community and intergovernmental cooperation

Table 25: Goal 7 – Foster meaningful community and intergovernmental cooperation	
Objectives	Implementing Strategies
7.1. Promote formal and informal intergovernmental cooperation and agreements between the Native Village of Point Lay, Cully Corporation, ASRC, NSB, the State and Federal governments for accomplishing common goals, providing a service or solving mutual problems.	a) Village leadership will work together with NSB staff to provide training and support to local meaningful engagement. These trainings should include, but not be limited to, making sure representatives from Point Lay leadership understand the land development review process.
	b) Village leadership will work together with NSB staff, permittees and funding agencies and appropriate health professionals to conduct baseline studies documenting current health conditions and characteristics of village residents. Such studies will measure and analyze both outdoor and indoor air quality.
7.2. Encourage a better understanding of land use planning and related public processes in order to facilitate community and intergovernmental cooperation.	a) The NSB and village leadership will encourage youth and other residents to attend meetings where governance, land use planning, and land use permitting is discussed and should facilitate outreach and training components for village youth to learn and practice leadership skills. Community planning could be included in the Kali School curriculum as one way to bridge the communication gap between the younger generation and elders.
	b) The NSB School District and NSB Planning and Community Services Department should collaborate to develop curricula for middle and high school students to understand land use, planning, and the relationship of federal, state, and local regulatory agencies to their community’s current and future health and well-being.
	c) Implementation of this plan needs to include elders, youth, and all segments of the population to ensure effective plan implementation over the long-term.

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ASSRC Energy Services. 2016. Photo library.

Chapter 11: Implementation and Plan Revision

The Point Lay Comprehensive Plan is intended to be a living document. Because situations change, the objectives tables in Chapter 10 have been designed to be updated to reflect current priorities and opportunities. The community leadership and the NSB may wish to update the tables each year as part of the joint process to develop an annual work plan and priorities for capital projects.

This plan is a guide that provides direction for the village leadership when collaborating with NSB, state, and federal agencies, and other organizations. For example, individual land use proposals can be evaluated against the future land use maps. Such proposals may include a residential subdivision, transportation projects, recreational facilities, sanitation facilities, or other infrastructure. The designations in the future land use maps can also be reviewed when Title 19 is updated to determine if amendments are warranted to the types of zoning districts and the actual designations on the official zoning map. Generally, community comprehensive plans have a 20-year planning horizon, and ideally, they are reviewed every two years for potential updates and updated as a matter of procedure every five years. Regular review and updates to the objectives tables in Chapter 10 will make it easier to complete the next update of the entire plan.

11.1 Capital Project Planning

Point Lay has had several capital projects over the last five years. Both a major renovation of Kali School and the new teaching housing units are complete. Additional capital projects include a replacement water tank and upgrades the fire alarm systems at the Police Station and the Health Clinic.

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

increasingly important that Point Lay and all North Slope communities seek alternative funding for capital projects when possible.

Table 26 provides a list of potential capital projects that may be needed or desired in Point Lay over the next 5-, 10-, or 20-year period. It is assumed that current NSB facilities, such as buildings and large vehicles or equipment, will continue to receive normal maintenance and upgrades by NSB to ensure safe and efficient operations for their remaining useful life. While the projects are not prioritized and will require greater detail including cost estimates, the requesting or sponsoring entity will facilitate development of additional project information when necessary. This list does not include vehicles or rolling stock such as graders, water trucks, or buses. Some of the facilities and assets identified in the table would likely be sponsored and funded by NSB general obligation bonds, while others could be sponsored and funded wholly or in part by other entities. Funding for research and capital projects identified in this plan would likely come from state and federal funding sources, the Regional Native Corporation, the NSB Capital Improvement Program (CIP), and other grant sources.

Annually, the NSB meets with each village's city council or, for Point Lay, the Native Village, to provide updates on capitolly-funded projects. Staff also request a priority listing of projects from each community for potential inclusion and consideration in the annual capital funding cycle. In 2017, the Native Village of Point Lay prioritized the following capital projects by resolution for funding by the North Slope Borough Capital Improvement Program:

- Water/Sewer System Replacement. Install sewage holding tanks now until new system is installed.
- Permanent Water Source
- Washeteria. #1 Priority project but water/sewer issues plague the community.
- Floating Fuel Line PAR [project analysis report]. This would replace the Crowley fuel shuttle barge and allow the Point Lay fuel to be delivered in days rather than weeks.
- Replace the LED [light-emitting diode] street lighting. Add another light to the poles so that there are two LED lights if cannot replace.
- The placement of 4 more power poles/street lights, the road to the beach/boat dock is dark; bears are often seen at the boat area and the 900 BLOCK.
- Road to airport (emergency road).
- Housing.
- Senior housing.
- Weatherization.
- Gravel haul: dredging for gravel
- Waste heat, NSB facilities.
- Child care.
- Warm storage for airport.
- Electrical upgrades for all homes.
- Evacuation Building.
- Renewable Resources.

Although population growth is expected to be moderate over the next 20 years, there are a number of capital projects that the community currently desires or will need over this period. Those projects are identified in general categories in Table 26 with actions listed under a 5-, 10-, and 20-year timeline. These projects are not prioritized, and costs of completion have, in some cases, not been estimated. Prioritizing and estimating costs can be done through collaboration between local leadership and the North Slope Borough.

Table 26: Potential Capital Projects over a 5, 10, and 20-Year Period

Type of Facility	1 to 5 Year Period	6 to 10 Year Period	11 to 20 Year Period
Water	Investigate and transition to an alternative water system	Investigate and transition to an alternative water system	
	Locate and develop alternative water source(s)	Locate and develop alternative water source(s)	
		Evaluate long-term drinking water supply capacity, water quality, treatment and distribution needs	
		Upgrade SCADA system at the water plant	
Wastewater	Abandon wastewater system as needed and install individual holding tanks	Install WWTP expansion using the same new technology as used for the Kaktovik WWTP	
	Investigate and transition to an alternative wastewater system	Entire system is replaced and in use	
	Sewage lagoon upgrades following wastewater treatment plant improvements		
	Implement effluent outfall upgrades		
Power	Research feasible alternative energy systems	Wind turbine design and permitting	
		Upgrade electrical system	Evaluate diesel generators for potential replacement and upgrade needs
	Street lighting to the boat ramp/dock		
	Replace LED street lighting with high pressure sodium (HPS) lighting		

Type of Facility	1 to 5 Year Period	6 to 10 Year Period	11 to 20 Year Period
Roads / Trails	Trail marking and hardening		
	Fix and maintain areas of subsidence that have affected roadway		
	Research and implement dust control measures		
Housing	Assess extent of overcrowding and housing need		
	Home weatherization improvements and safety renovations to older homes	Home weatherization improvements and safety renovations to older homes	
Airport		Install perimeter fencing	Major maintenance of runway surface
		Install new medium-intensity Approach Lighting System with Runway Alignment Indicator Lights (MALSR)	
		Alternate road to the airport	
Gravel	Assess gravel stockpile		
	Further investigate use of silt for protecting ice rich soils to prevent subsidence	Investigate river dredging	
Health Clinic	Assess health clinic facility needs		
Recreational Facilities	Develop an outdoor ball field to accommodate sports such as football, softball, and soccer	New outdoor playground equipment at Kali School; indoor playground for younger kids	
		Develop a teen center	
Community Buildings	Reopen washeteria		
	Develop a childcare facility		
		Develop senior housing	Develop senior housing
		Repurpose the Dew Line Station warehouse into an evacuation center and multipurpose building	
	Develop an Iļisaġvik College accredited learning center		
Fuel		Develop permanent fuel offloading infrastructure	
Solid Waste	Install snow fencing		

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Appendices

- Appendix A: State of Alaska Community Profile Maps
- Appendix B: Adaptation Strategies for Climate Change Impacts
- Appendix C: Response to Public Review Comments
- Appendix D: Resolutions of Plan Support

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Appendix A: State of Alaska Community Profile Maps
Map 19: State of Alaska Community Profile Map – Point Lay Area



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Appendix B: Adaptation Strategies for Climate Change Impacts

Table 27: Adaptation Strategies for Climate Change Impacts

Weather-related physical change	Potential impacts to the village	Adaptive Response Options
<p>Warmer weather causes thinner lake, river and sea ice.</p> <p>Thawing permafrost. Permafrost soils throughout the Arctic contain almost twice as much carbon as the atmosphere. Warming and thawing of these soils increases the release of carbon dioxide and methane through increased decomposition.</p> <p>Thawing permafrost delivers organic-rich soils to lake bottoms where decomposition in the absence of oxygen releases additional methane in these water bodies.²⁶⁹</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 personal locator beacon (PLB) 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>

²⁶⁹ 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.²⁷⁰</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>

²⁷⁰ 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.²⁷¹</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. For Point Lay, dredging the Lagoon is an option for sand and silt to slow subsidence and would also create a deep channel that would be beneficial for boating and for barge deliveries.</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>

²⁷¹ Hassol, Susan Joy. *Alaska Climate Impact Assessment. Impacts of a Warming Arctic*. University of Alaska, Fairbanks, 2004. www.amap.no/documents/download/1058.

Weather-related physical change	Potential impacts to the village	Adaptive Response Options
Early snow melt.	<p>Early snow melt on land exposes the mushy/marshy tundra and reduces the hunting season and tundra travel is too difficult. Early snow melt may alter subsistence species' migratory schedule and routes, causing hunters to travel greater distances to find the resource.</p>	
	<p>Early snowmelt results in reduced days for oil & gas industry to traverse frozen ground for exploration, development or transporting the resource to market. Limited season for ice roads.</p>	
Increased inland rain.	<p>Increased rain on snow events during winter cause a layer of ice to form over tundra vegetation preventing grazing by animals like caribou and muskoxen; this causes die-offs of these animals</p>	
<p>Warmer temperatures on the tundra. Caribou herds will face a variety of climate-related impacts resulting in changes in their migration routes, calving grounds, forage availability and drinking water sources as snow and river ice conditions change, permafrost thawing results in tundra subsidence and methane gas release into fresh water lakes, and warmer weather dries the tundra making it susceptible to wildfires.</p>	<p>Warmer weather inland causes drying of tundra which makes the land susceptible to lightning-caused fires which can spread for many miles. Warmer weather also causes lakes to dry up from evaporation, along with the thawing permafrost and resulting draining.</p>	<p>Increase fire-fighting capabilities for both wild fires and structures.</p> <p>Protect drinking water lakes or develop new reservoirs with lining that protects against leaks and methane releases from underlying permafrost.</p>

Weather-related physical change	Potential impacts to the village	Adaptive Response Options
<p>(continued) Warmer temperatures on the tundra. Caribou herds will face a variety of climate-related impacts resulting in changes in their migration routes, calving grounds, forage availability and drinking water sources as snow and river ice conditions change, permafrost thawing results in tundra subsidence and methane gas release into fresh water lakes, and warmer weather dries the tundra making it susceptible to wildfires.</p>	<p>Drier tundra soil cause berries to ripen early and spoil faster. Warmer weather increase insect harassment for berry harvesters. Intrusion of non-native species that may cause environmental harm; some species such as salmon species and cold-tolerant crab may increase in abundance in arctic waters. This may attract commercial fishing industries to the arctic seas which could diminish subsistence resources.</p>	
	<p>Tundra ecosystems could change to spruce/aspen forests and grasses could be incorporated into the tundra. Shrubs entering the tundra could attract moose while decreasing the lichen for caribou.</p>	
	<p>New plant species could attract new species of pests which could annoy caribou.</p>	
	<p>Declining or shifting wetlands could affect migratory or resident bird species.</p>	
	<p>Industrial development relying on ice roads for access to development sites could be stymied by a reduced supply of water to create the roads.</p>	

Weather-related physical change	Potential impacts to the village	Adaptive Response Options
<p>(continued) Warmer temperatures on the tundra. Caribou herds will face a variety of climate-related impacts resulting in changes in their migration routes, calving grounds, forage availability and drinking water sources as snow and river ice conditions change, permafrost thawing results in tundra subsidence and methane gas release into fresh water lakes, and warmer weather dries the tundra making it susceptible to wildfires.</p>	<p>A drier tundra: Although rain will increase, evapotranspiration and water drainage from cracks in the permafrost will cause a drier tundra that will be susceptible to more numerous and intense tundra fires releasing carbon and contaminants like mercury into the atmosphere.</p>	
	<p>Villages do not have the trained staff or equipment to extinguish wildfires which threaten homes, traditional foods, food sources for wildlife and creates smoke which causes or exacerbates respiratory illness in humans and animals. Wildlife change their migratory routes in subsequent years due to the damage to their foodstuff and nesting/calving lands.</p>	
	<p>Slow recovery of vegetation or vegetative shifts after fires can profoundly affect wildlife. Lichens, a critical winter food for caribou, recover extremely slowly. Loss of food for caribou cause the herd to change routes which may be a greater distance from the village causing economic hardships (gas, equipment repair, time) and hazards (thinning ice) for subsistence hunters.</p>	

Weather-related physical change	Potential impacts to the village	Adaptive Response Options
<p>Acid Rain. 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. 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. (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.²⁷⁵ 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>

²⁷⁵ 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. ^{272 273 274}</p>		

²⁷² Hild, C. 2002. *Contaminants In Alaska: Is America’s Arctic At Risk?* In *The Status of Alaska’s Oceans & Watersheds*. Pp. 97-110

²⁷³ Alaska Adaptation Advisory Group to the Alaska Climate Change Sub-Cabinet. 2010. *Alaska’s Climate Change Strategy: Addressing Impacts in Alaska*.

²⁷⁴ Kraemer et al. 2005. *The Potential Impact of Climate on Human Exposure to Contaminants in the Arctic*. *International Journal of Circumpolar Health* Vol. 64, Section 5.

Weather-related physical change	Potential impacts to the village	Adaptive Response Options
<p>Higher levels of ultraviolet (UV) radiation. Due to greenhouse gas effects of the stratospheric ozone temperatures, UB radiation in the Arctic is projected to remain elevated.²⁷⁶</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>

²⁷⁶ Hassol, Susan Joy. *Alaska Climate Impact Assessment. Impacts of a Warming Arctic*. University of Alaska, Fairbanks, 2004. www.amap.no/documents/download/1058.

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Appendix C: Response to Public Review Comments

No.	Public Meeting Comments	Draft Page	Final Page	<p style="text-align: center;">Action</p> <p style="text-align: center;"><i>italics</i> are additions; strikethroughs are deletions</p> <p style="text-align: center;">Additional sources here are presented as in-text citations but are footnotes within the plan</p>
1	The meaning of the name Kali is not consistent.	ES-1 1 25	ES-1, ES-5 1 25	<p>Third paragraph in the Executive Summary: Kali, the Iñupiaq name for the village, means something being dragged or towed. Residents tell a story of a woman seeking high ground for safe refuge by pulling a mound to its current location, which became known as Kali mound. <i>Kali also means “mound” and refers to the elevated mound on which the community stands.</i></p> <p>First paragraph in Chapter 1: Kali, the Iñupiaq name for the village, means something being dragged or towed. Residents tell a story of a woman seeking high ground for safe refuge by pulling a mound to its current location, which became known as Kali mound. <i>Kali also means “mound” and refers to the elevated mound on which the community stands.</i></p> <p>Last sentence in first paragraph of Chapter 3: Kali, the Iñupiaq name for the village, means “mound” and refers to the elevated mound on which the community stands</p>
2	Culture should be included in the Vision Statement.	ES-2 and 12	ES-2, ES-7, and 12	<p>We, the residents of Point Lay, envision a healthy community – economically, socially, <i>culturally</i>, and environmentally. We practice Tribal self-determination <i>and honor our cultural heritage by to grow our village sustainably</i>, prioritizing a traditional subsistence lifestyle <i>and Iñupiaq values while emphasizing sustainable growth through quality affordable housing</i>, workforce development, and community cooperation, cohesion, and respect.</p> <p>Our community cultivates future leaders that actively participate in public policy and decision-making for the betterment of all village residents. We support quality education and training opportunities so that residents are prepared for careers and job advancement. We foster recreational opportunities to promote healthy and active lifestyles. We strive for safe and affordable housing, quality infrastructure, and community facilities and services that meet the needs of our community residents.</p>
3	Redundant information	3	3	<p>The deleted language below is nearly identical to the first two sentences of the second paragraph on the same page. Private landowners, developers, and Native corporations may use this plan to help guide development decisions and investment choices. Community data, maps, and policies will help these entities design projects compatible with community values and needs to meet local expectations.</p>
4	Inadvertently left off request by Cully Corporation to be identified as primary landowner.	6	6	<p>Collaboratively, Point Lay residents, village leadership, North Slope Borough Planning and Community Services Department staff, and other NSB employees that provide services in the village developed this plan. Local village leadership primarily includes the Native Village of Point Lay Tribal Council President and Council members, Cully Corporation (<i>as the primary landowner</i>) board members, and the NSB Planning Commissioner and Alternate Commissioner representing Point Lay.</p>
5	Initial home building in Point Lay is erroneously attributed to ICAS	21	21	<p>Last sentence in the second paragraph: Utilizing grants from the Bureau of Indian Affairs (BIA), ICAS ASRC also built homes in the new location, allowing Kali shareholders to relocate back to Point Lay.</p>

No.	Public Meeting Comments	Draft Page	Final Page	<p style="text-align: center;">Action</p> <p style="text-align: center;"><i>italics are additions; strikethroughs are deletions</i></p> <p style="text-align: center;">Additional sources here are presented as in-text citations but are footnotes within the plan</p>
6	Include a discussion of cultural heritage	N/A	22	<p>Text additions in Section 2.2, final section paragraph: <i>Because the Iñupiat have lived in the Point Lay area and across the North Slope for thousands of years, cultural heritage sites are scattered across the region. Tools, household items, artwork, and dwellings are just some of the artifacts found on the North Slope. There are 210 NSB Traditional Land Use Inventory (TLUI) cultural resource sites within the Point Lay Area of Influence (Map 5) and 481 Alaska Heritage Resource Survey (AHRs) sites. However, a complete survey of the area’s cultural resources has not been conducted. Projects that utilize federal funding or involves federal authorization requires a cultural resources survey and clearance. Projects in areas with known cultural resources also require clearance. The North Slope Borough Planning and Community Resources Department also often requires cultural resource clearance from the NSB Iñupiat History, Language, and Culture Department before issuing some permits. The potential need for a cultural resources survey should be considered during the early stages of project development.</i></p> <p>The section title has also been updated from History of Point Lay to <i>History and Cultural Resources</i>.</p>
7	Correct misspelling of Kuutchiuq Creek (misspelled in plan as Kuchiak)	25	25	<p>Second sentence in first paragraph of Chapter 3: The Kasegaluk Lagoon is a shallow stretch of water extending approximately 125 miles parallel to the coast from Icy Cape to Kuchiak <i>Kuutchiuq</i> Creek and is separated from the ocean by a narrow strip of barrier reef islands.</p>
8	Add Geology Section.	N/A	29	<p>New section is 3.3. <i>The US Geological Survey and Division of Oil and Gas at the Alaska Department of Natural Resources have compiled the geology of the Point Lay region. The Arctic Coastal Plain spans most of the North Slope of Alaska including the Point Lay Region, and is characterized by extensive areas of tundra cover, shallow tundra lakes, and a few meandering streams with few bedrock exposures. Soils on the Arctic Coastal Plain include fine-grained, organic-rich silt and some sand which has been deposited by rivers. The Kokolik River deposits sand and gravel in the braided and meandering stream floodplain. South of Point Lay towards Cape Beaufort are upland areas that are underlain dominantly by sandstone deposited from eroding mountains about 100 million years ago. This rock type is called the Nanushuk formation, and often has qualities for oil and gas in Alaska. The Nanushuk formation is visible south of Point Lay where the Kukpowruk River and its tributaries cut downward through their riverbeds, exposing the bedrock. These rock outcroppings can be followed long distances along the Kukpowruk River to the foothills of the northern Brooks Range, where underlying rock is often deformed or altered by the stress and force. The altered rocks of the Brooks Range foothills are in contrast to the bedrock underlying the Arctic Coastal Plain, which is generally intact and undeformed by stress.</i></p>
9	The length of Kasegaluk Lagoon varies throughout.	25, 50	25, 50	<p>The text is corrected in two places to reflect that Kasegaluk Lagoon is 125 miles long. Chapter 3, list paragraph; Section 4.3 Subsistence Harvest, paragraph 3.</p>

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10	Clarification on Migratory Bird Treaty Act relating to take and subsistence.	33	33	<p>Starting at the last sentence of the second paragraph under section 3.6 Wildlife: All native birds in Alaska except grouse and ptarmigan (<i>protected by the State of Alaska</i>) are federally protected under the Migratory Bird Treaty Act (MBTA) (1918) which prohibits the “take” of migratory birds, their feathers, or their nests. Grouse and ptarmigan are managed by the State of Alaska.</p> <p><i>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.</i></p>
11	Highlight that the walrus is not an endangered species	34	34	The title of the section has been changed from 3.6 Endangered Species to 3.6 <i>Candidates and Endangered Species</i>
12	Include additional rivers in the area that are included in the ADF&G Catalog of Waters Important for Spawning, Rearing, or Migration of Anadromous Fishes for the State of Alaska.	34	34	Text has been added to the last paragraph of Section 3.6: The Alaska Department of Fish and Game (ADF&G) maintains the Catalog of Waters Important for the Spawning, Rearing or Migration of Anadromous Fishes for the State of Alaska (the Catalog). The Kokolik River, which drains into the Kasegaluk Lagoon, is listed in the Catalog for its importance to chum salmon, pink salmon, and Dolly Varden trout. <i>Both the Utukok River, located approximately 30 miles to the northeast of Point Lay and the Kukpowruk River, located approximately ten miles to the south, are also included in the Catalog for their importance to chum salmon, pink salmon, and Dolly Varden trout.</i>
13	The location in Table 2 and Map 4 regarding contaminated sites may be incorrect for Eagle Creek Airstrip Pad.	41-43	42-43	The spatial data from the State of Alaska indicates that the Eagle Creek Airstrip Pad is in the correct location. However, the table erroneously lists the site as being located to the southeast of the village when it is actually located to the northeast. This change has been made to Table 2.
14	A federal definition of subsistence is missing from the introduction to the Subsistence chapter.	45	45	The following definition is included: <i>Subsistence uses in Section 803 of the federal law Alaska National Interest Lands Conservation Act (ANILCA) is defined as “the customary and traditional uses by rural Alaska residents of wild, renewable resources for direct personal or family consumption as food, shelter, fuel, clothing, tools or transportation; for the making and selling of handicraft articles out of nonedible by-products of fish and wildlife resources taken for personal or family consumption; and for the customary trade, barter or sharing for personal or family consumption.”</i>
15	Some Fire Department staff and volunteers have state certified training (Fire and EMT).	64	64	The following text has been added to the Fire subsection under Section 6.2 Public Safety: <i>Some staff and volunteers have state-certified fire fighter and state-certified emergency medical treatment training.</i>

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16	There is not a current lease between the NSB and Native Village of Point Lay for the Search & Rescue facility.	65	64	First sentence of last paragraph of Section 6.2 Public Safety has been changed: The NSB leases the search and rescue facility to the Native Village of Point Lay. <i>The NSB owns the facility that the Native Village of Point Lay uses for search and rescue.</i>
17	Add information about the fuel floating line to the Fuel Storage subsection in Section 6.3.	66	66	The following has been added as the first sentence under subsection Fuel Storage: <i>Fuel is delivered to the community by barge operated by fuel vendor, Crowley Marine, with use of a floating fuel line transferring fuel from barge to the shore.</i>
18	The capacity of the generators listed in Table 8 may be incorrect.	67	67	The capacity of all four generators has been updated to 633 KW. The installation date for all the generators has also been updated to 2013. The text has been updated to reflect these changes: All four engines were purchased new in 2012-2009 , <i>but were not installed until 2013 due to a fire at the Point Lay Power Plant construction site. During construction of the new plant, a fire burned down the building that led to a delay in installing the new generators.</i> The gen sets are in good working order without any known deficiencies. With the current demand loads, the power plant is able to supply and meet the village needs by running one of the larger Caterpillar 3508C generators most of the time. In the winter months, the monthly peak load is about 550-590 kWh <i>and two generators can comfortably handle the load running in tandem.</i> During summer months, this peak load drops to about 420-460 kWh <i>and a single generator can handle the community needs even during most winter days.</i> Peak demands are over 500 KWh two generators are run in tandem.
19	Provide more detail on coal as an alternative energy source.	72	72	Text changes in Section 6.4, Subsection Coal: <i>Coal. There are large coal bituminous deposits located in and around the Point Lay area. Coal underlies Atkasuk and Point Lay. Many coal beds are exposed but also are known to have overburden layers of depths up to 150 feet. The type of coal in the Point Lay area is bituminous. This region is known as the Northern Arctic Province which has been estimated to hold four trillion tons of coal. In 2006, the Western Arctic Coal Region Project was conducted by BHP Billiton. The company signed a Memorandum of Understanding with ASRC to conduct a five-year coal exploration program; one of the areas included was just south of Point Lay. However, the project is no longer active. At the time of this report, There are currently no known active coal mines in the region.</i>

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20	Update the status of the sewage lagoon.	79	81	<p>Beginning at the last sentence of first paragraph of subsection Sewage Lagoon in Section 6.6: <i>Plans are underway to design a new sewage lagoon in an undeveloped portion of the landfill site, in an area adjacent (south) of the old equipment and material storage area. The NSB-funded design will provide a divided lagoon.</i></p> <p>With the increased use of holding tanks and septic tanks installed this year and an increased use of honey buckets, <i>and more planned for 2017</i>, the disposal trench discharges exceed general permit thresholds for pH, biological oxygen demand (BOD), total suspended solids (TSS) and/or fecal coliforms. The North Slope Borough [Capital] Project Recommendation Committee (PRC) considered funding recommended funding for the design and construction of <i>an additional sewage lagoon this year. but decided to wait another year for the upgrades because the</i> <i>The PRC also recommended funding \$4.9 million through a Letter of Intent (LOI) to allow the design to begin immediately. The PRC also recommended \$2 million in capital funding to purchase and install 20 more holding tanks in Point Lay. The NSB is also studying funding a major upgrade to the WWTP to accept septage waste. This will allow a delay with the lagoon development project to see where the WWTP upgrade project is developed to establish a long term strategic plan.</i></p>
21	Add information about trails and overland transportation.	88	91	<p>A new subsection following the Roads subsection in 6.8 is added: <i>Regional Transportation.</i> Land transportation beyond the community of Point Lay is limited since there are not road connections to neighboring communities. About 250 miles of local trails provide access to subsistence hunting and fishing areas and remote cabins and Native allotments. <i>Search & Rescue has attempted to mark common subsistence trails but have found that the markers have a tendency to fall over during periods of extreme weather.</i> Regional trails also exist in the Point Lay area: one between Point Lay and Point Hope (120 miles), one to Wainwright (100 miles) and two that go inland along the Kukpowruk River and the Epizetka River. Some trails are depicted in the Regional Transportation map, Map 11. <i>The NSB Planning & Community Services Department and ASRC are considering overland transportation corridors options to better connect communities and reduce maritime traffic to better protect the marine environment.</i></p>
22	Provide clarification on the difference between Cape Sabine and Cape Sabine DEW Line station.	89	92	<p>Cape Sabine is located 93 miles southwest of Point Lay. This <i>The former Cape Sabine DEW Line site is located approximately 93 miles southwest of Point Lay and was used by the United States Air Force and Navy for national defense.</i></p>

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23	Provide more background information on past gravel dredging efforts.	95	97	<p>New second paragraph under Section 6.9 Gravel: <i>In the recent past, there have been two major dredging programs deployed in Point Lay. They were both three year programs: one year to mobilize, one year to dredge, and one year to demobilize. The first was completed in the early 1990s and the second in 1999. For both programs, the dredging operations were upstream of the fresh water intake. If future dredging operations are considered, they would need to be downstream of the intake point to not impact water quality.</i></p> <p>New fifth paragraph under the same section: <i>Recent studies completed at the University of Fairbanks indicate that silt would be useful to mitigate subsidence when applied as a cap on ice rich soils. There is silt in the area but a silt mining program has not been studied. It may be possible to mine silt from the Fresh Water Lake because it has drained.</i></p>
24	Snow fences are needed on both sides of the landfill.	99	101	<p>Second paragraph of Section 6.10 Snow Fences: A new snow fence is under design to provide protection for the landfill and sewage lagoon. The design is nearing completion and construction is planned for late 2017 or early 2018. <i>Although the new fence design only includes a new fence on one side of the landfill, some community members have been indicated that snow is affecting the landfill on both sides and fencing should be installed along the east side of the landfill cells as well.</i></p>
25	Some residents indicated that many NANA Regional Corporation shareholders reside in Point Lay and do not receive the benefits through ASNA, such as health and funeral travel assistance.	103	105	<p>We contacted ASNA and learned that the travel benefits are funded by both the NSB and ASRC. The funds are administered by ASNA. The Medical Travel Assistance program does not distinguish which regional corporation recipients belong to; the program is intended for all NSB residents. Additionally NANA shareholders are part of the Indian Health Service system and can receive benefits at any IHS clinic, including the one in Point Lay. A footnote has been inserted Medical Travel under the bulleted list of ASNA services: <i>“The medical travel program is intended for all NSB residents, regardless of which or if a person is a shareholder of an Alaska regional corporation.”</i></p>
26	Add Suicide Prevention to the list of NSB Health Department services.	103	105	<p><i>Counseling and suicide prevention</i> has been added to the bulleted list.</p>
27	Siding was repaired at the school in 2015.	104	106	<p>The italicized text has been added: In 2013, the interior of Kali School was repainted, countertops were replaced, new flooring was installed, and the roof was replaced. <i>The school’s siding was repaired in 2015.</i></p>
28	Provide additional information on Iñisaġvik College services and higher education.	105	107-108	<p>The following text has been added in Section 7.2 Education: <i>The North Slope Borough has recently undertaken efforts to design and construct a Residential Learning Center in Utqiaġvik that would provide boarding opportunities for village youth. The program will be designed to expand the educational offerings to North Slope students, especially those who live in villages outside of Utqiaġvik featuring focused educational courses based on their areas of interest. This project, however, is awaiting additional direction and funding to move forward.</i></p>

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[cont] 28	[continued] Provide additional information on Iḷisaḡvik College services and higher education.	105	107-108	<p>[continued]</p> <p><i>Iḷisaḡvik College, located in Utqiaḡvik, and the North Slope Borough School District have partnered to support students advancing academically by offering high school students the opportunity to take courses for both high school and college credit. Iḷisaḡvik College also offers online courses via the North Slope Borough Teleconference Center in Point Lay. The NSB Teleconference Center staff serve as a vital part of the village educational distance learning experience by assisting students with financial aid documents, summer camp applications, registering for academic and workforce classes, ordering textbooks, and troubleshoot basic computer issues.</i></p> <p><i>The percent of Point Lay residents that have sought additional education beyond high school has remained fairly constant. In 2003, 17.3 percent of residents had some training or formal education beyond high school; in 2010, the percent had increased slightly to 17.9 percent; and in 2015, it the percent only decreased slightly to 17.5. The percent of residents that earned a high school diploma as the highest level of educational attainment has risen dramatically. In 2003, 12.9 percent of residents had a high school diploma as the highest level of educational attainment, which more than doubled to 26.2 percent in 2015. The community has expressed the desire for the Point Lay youth in to attend college.</i></p> <p>Table 15: Individual Highest Educational Attainment for 2003, 2010, and 2015</p> <table border="1"> <thead> <tr> <th rowspan="2">Individual Level Of Education</th> <th colspan="2">2003</th> <th colspan="2">2010</th> <th colspan="2">2015</th> </tr> <tr> <th>Number</th> <th>Percent</th> <th>Number</th> <th>Percent</th> <th>Number</th> <th>Percent</th> </tr> </thead> <tbody> <tr> <td><i>Has not started school</i></td> <td>31</td> <td>13.8</td> <td>23</td> <td>12.6</td> <td>29</td> <td>12.7</td> </tr> <tr> <td><i>Elementary School</i></td> <td>43</td> <td>19.2</td> <td>31</td> <td>16.9</td> <td>45</td> <td>19.7</td> </tr> <tr> <td><i>Middle School</i></td> <td>14</td> <td>6.2</td> <td>12</td> <td>6.6</td> <td>13</td> <td>5.7</td> </tr> <tr> <td><i>High School</i></td> <td>29</td> <td>12.9</td> <td>19</td> <td>10.4</td> <td>11</td> <td>4.8</td> </tr> <tr> <td><i>Did not finish high school</i></td> <td>30</td> <td>13.3</td> <td>13</td> <td>7.1</td> <td>25</td> <td>10.9</td> </tr> <tr> <td><i>High School diploma</i></td> <td>29</td> <td>12.9</td> <td>43</td> <td>23.5</td> <td>60</td> <td>26.2</td> </tr> <tr> <td><i>GED</i></td> <td>10</td> <td>4.4</td> <td>9</td> <td>4.9</td> <td>6</td> <td>2.6</td> </tr> <tr> <td><i>Vocational/Tech graduate</i></td> <td>6</td> <td>2.7</td> <td>2</td> <td>1.1</td> <td>6</td> <td>2.6</td> </tr> <tr> <td><i>Some College</i></td> <td>19</td> <td>8.4</td> <td>22</td> <td>12.0</td> <td>21</td> <td>9.2</td> </tr> <tr> <td><i>B.A. Degree</i></td> <td>10</td> <td>4.4</td> <td>5</td> <td>2.7</td> <td>7</td> <td>3.1</td> </tr> <tr> <td><i>M.A. Degree</i></td> <td>4</td> <td>1.8</td> <td>2</td> <td>1.1</td> <td>6</td> <td>2.6</td> </tr> <tr> <td><i>Professional Degree</i></td> <td>0</td> <td>0</td> <td>1</td> <td>.5</td> <td>0</td> <td>0</td> </tr> <tr> <td><i>Other</i></td> <td>0</td> <td>0</td> <td>1</td> <td>.5</td> <td>0</td> <td>0</td> </tr> <tr> <td><i>Total</i></td> <td>225</td> <td>100%</td> <td>183</td> <td>100%</td> <td>229</td> <td>100%</td> </tr> </tbody> </table>	Individual Level Of Education	2003		2010		2015		Number	Percent	Number	Percent	Number	Percent	<i>Has not started school</i>	31	13.8	23	12.6	29	12.7	<i>Elementary School</i>	43	19.2	31	16.9	45	19.7	<i>Middle School</i>	14	6.2	12	6.6	13	5.7	<i>High School</i>	29	12.9	19	10.4	11	4.8	<i>Did not finish high school</i>	30	13.3	13	7.1	25	10.9	<i>High School diploma</i>	29	12.9	43	23.5	60	26.2	<i>GED</i>	10	4.4	9	4.9	6	2.6	<i>Vocational/Tech graduate</i>	6	2.7	2	1.1	6	2.6	<i>Some College</i>	19	8.4	22	12.0	21	9.2	<i>B.A. Degree</i>	10	4.4	5	2.7	7	3.1	<i>M.A. Degree</i>	4	1.8	2	1.1	6	2.6	<i>Professional Degree</i>	0	0	1	.5	0	0	<i>Other</i>	0	0	1	.5	0	0	<i>Total</i>	225	100%	183	100%	229	100%
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[cont]	[continued] More details/clarifications on housing history and issues.	Chapter 8	119	<p>[continued]</p> <p>those in Point Lay built during the 1970s and 1980s, often have a higher risk of moisture and air quality issues than newer homes. Homes constructed during the 1990s and 2000s have a low risk for these issues.</p> <p><i>Tagiumiullu Nunamiullu Housing Authority. The housing authority for the North Slope, Tagiumiullu Nunamiullu Housing Authority (TNHA), offers housing assistance in Point Lay. There may be limited participating in the programs, depending on need and funding. Housing programs through TNHA in Point Lay are:</i></p> <ul style="list-style-type: none"> • <i>Mutual Help Homes Program provides home-ownership opportunities for qualified lower income Alaska Native/Indian families;</i> • <i>Market-Based Public Housing rental Program offers rental properties to the general public;</i> • <i>a Lease-Purchase Homeownership Program; and</i> • <i>Conditional Installment Loan Program provides homes for sale at a substantially reduced cost.</i> <p><i>TNHA has recently constructed homes in Point Lay with a post-on-pad foundation that rests on the ground that isolates the house from the soil to prevent heat from accelerating permafrost thaw. These TNHA homes have also been designed to be easily relocated if needed, such in the case of flood or subsidence The foundation has sliding steel posts attached to pads that can be adjusted up to eight feet in height to accommodate tundra movement. Beams that act as skids enable the home to be towed to a new location if needed. The home’s design also includes adequate ventilation to ensure healthy indoor air quality, which is often a challenge in very cold climates because humid indoor air tries to escape through the building envelope and condenses on cold surfaces inside the wall, potentially leading to mold and rot.</i></p>
30	Clarification needed on placing land in a federal trust.	122	125	<p>The following text has been added: <i>In January 2015, a provision in the 1934 Indian Reorganization Act (IRA) that excluded Native Alaskan lands from being placed into federal trust status was deleted. Alaska Natives can submit applications to the U.S. Department of the Interior for land to be placed into trust. The Department retains discretion to grant or deny land-into-trust applications and makes its decisions on a case-by-case basis in accordance with the requirements of 25 CFR 151 and the IRA.</i></p>
31	Indicate the community’s desire for a local zoning board.	N/A	135 148	<p>End of the second paragraph in Section 9.3: <i>Additionally, community members have expressed the desire for a local zoning board, which would require a revision to Title 19 to authorize a zoning board within the village.</i></p> <p>Goal 4, Objective 4.5 <i>Facilitate appropriate and compatible land uses within the village and for future growth areas, Implementing Strategy c) Seek an amendment to NSBMC Title 19 to allow for local zoning boards.</i></p>

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[cont] 35	[continued] The Native Village of Point Lay’s 2015 resolution outlining their Capital Improvement Program priorities were included in the public draft. The final draft need to include the updated 2017 priorities.	154	156	<p>[continued]</p> <ul style="list-style-type: none"> • Waste heat, NSB facilities. • Child care. • <i>Warm storage for airport.</i> • <i>Electrical upgrades for all homes.</i> • <i>Evacuation Building.</i> • <i>Renewable Resources.</i> 										
36	Clarify the need to track housing prices in Goal 1, Objective 1.2, Implementing Strategy C.	139	141	c) Track housing prices and rents with increases / decreases in household income <i>to understand affordability</i> the need and availability of affordable housing.										
37	Add Implementing Strategies to Goal 1: Seek additional housing while supporting housing quality, variety, and affordability.	140	142	The following Implementation Strategy has been added to Goal 1, Objective 1.5: <i>e) Review the condition of existing homes, especially those that were constructed in the 1970s and 1980s, and formulate recommendations for improvements, renovation, or replacement.</i>										
38	Include ways to preserve the Native language in the Goals, Objectives, and Strategies chapter.	N/A	142	<p>The following has been added to Chapter 10, Goal 2, Objective 2.2:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%; padding: 5px; vertical-align: top;"> <p><i>2.2. Facilitate preservation of the Iñupiaq language through improving Native language fluency.</i></p> </td> <td style="padding: 5px;"> <p><i>a) Establish a daycare center that includes an Iñupiat language immersion program</i></p> </td> </tr> <tr> <td style="padding: 5px;"></td> <td style="padding: 5px;"> <p><i>b) Encourage native speakers to speak Iñupiaq at home, especially to children.</i></p> </td> </tr> <tr> <td style="padding: 5px;"></td> <td style="padding: 5px;"> <p><i>c) Expand the NSBSD Iñupiaq Immersion Program.</i></p> </td> </tr> <tr> <td style="padding: 5px;"></td> <td style="padding: 5px;"> <p><i>d) Continue and expand the use of the Rosetta Stone program for language preservation and develop Native language education programs for adults.</i></p> </td> </tr> <tr> <td style="padding: 5px;"></td> <td style="padding: 5px;"> <p><i>e) Develop a program to pair young children with elders to speak only in Iñupiaq.</i></p> </td> </tr> </table>	<p><i>2.2. Facilitate preservation of the Iñupiaq language through improving Native language fluency.</i></p>	<p><i>a) Establish a daycare center that includes an Iñupiat language immersion program</i></p>		<p><i>b) Encourage native speakers to speak Iñupiaq at home, especially to children.</i></p>		<p><i>c) Expand the NSBSD Iñupiaq Immersion Program.</i></p>		<p><i>d) Continue and expand the use of the Rosetta Stone program for language preservation and develop Native language education programs for adults.</i></p>		<p><i>e) Develop a program to pair young children with elders to speak only in Iñupiaq.</i></p>
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39	There are redundant Implementing Strategies under Goal 6, Objective 6.2.	149	151	Implementing Strategies f and g are identical: Evaluate the existing vocational educations programs within the community and how it addresses the needs. One of the implementing strategies has been deleted.										

Appendix D: NSB Assembly Ordinance and Resolutions of Plan Support

North Slope Borough Assembly Ordinance #75-06-70

North Slope Borough Planning Commission Resolution #2017-10

Native Village of Point Lay #2017-07

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Appendix D : North Slope Borough Assembly Ordinance #75-06-70

**NORTH SLOPE BOROUGH
ORDINANCE SERIAL NO. 75-06-70**

**A ORDINANCE ADOPTING THE POINT LAY
COMPREHENSIVE PLAN**

WHEREAS, the Planning Commission is charged under North Slope Borough Municipal Code of Ordinances (NSBMC) §2.12.160(A)(1) with the responsibility to prepare and recommend to the Assembly a Comprehensive Plan (Plan) for the systematic development of the Borough; and

WHEREAS, the Planning Commission is further charged under NSBMC §18.20.020 to establish one or more districts using approved Village Comprehensive Plans as a guideline; and

WHEREAS, the Planning Commission is further charged under NSBMC §19.40.060(A)(2) to ensure that the incorporated villages accommodate uses in accordance with both the Borough Comprehensive Plan and Comprehensive Plan for the community; and

WHEREAS, the Planning Commission is further charged under NSBMC §19.70.020 to follow policies intended to guide the approval of development and uses in the village districts consistently with the relevant adopted Village Comprehensive Plan; and

WHEREAS, under NSBMC §2.12.160(A)(2), the Planning Commission is charged with preparing and recommending to the Assembly a zoning ordinance to implement the Comprehensive Plans; and

WHEREAS, the common goals of local control and self-determination, the protection of the land, water and subsistence resources, mitigation of the impacts which may occur as a result of oil and gas development and other developments, the maximization of economic benefits and employment opportunities for Point Lay today and into the future are fully shared by all of the organizations working together on this project; and

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

WHEREAS, the Native Village of Point Lay adopted Resolution 2017-07 on June 14, 2017, recommending adoption of the Plan as developed by the North Slope Borough; and

WHEREAS, the Planning Commission adopted Resolution 2017-10 on August 30, 2017, recommending the Assembly approve of the Plan; and

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

NOW, THEREFORE, BE IT ENACTED:

SECTION 1. Classification. This ordinance is a non-code ordinance.

SECTION 2. Severability. If any provision of this ordinance or any application thereof to any person or circumstance is held invalid, the remainder of this ordinance and the application to other persons and circumstances shall not be affected thereby.


SECTION 3. Effectiveness. This code ordinance shall become effective upon adoption.

SECTION 4. Adoption of Comprehensive Plan. The North Slope Borough Assembly hereby adopts the Point Lay Comprehensive Plan, attached as Exhibit B, as recommended by the Native Village of Point Lay and the North Slope Borough Planning Commission.

SECTION 5. Attachments Incorporated by Reference. Planning Commission Resolution 2017-10, attached as Exhibit A, and the Point Lay Comprehensive Plan, attached as Exhibit B, are hereby incorporated by reference.


INTRODUCED: September 12, 2017

ADOPTED: October 10, 2017




John Hopson, Jr. President
Date: 10/10/17

ATTEST:



Sheila Burke, Borough Clerk
Date: 10/10/17



Harry K. Brower Jr., Mayor
Date: 10/10/2017

Appendix D: North Slope Borough Planning Commission Resolution Recommending Adoption #2017-10

**NORTH SLOPE BOROUGH PLANNING COMMISSION
RESOLUTION 2017-10**

**A RESOLUTION RECOMMENDING TO THE
ASSEMBLY APPROVAL OF THE POINT LAY
COMPREHENSIVE PLAN**

WHEREAS, the Planning Commission is charged under North Slope Borough Code of Ordinances (NSBMC) § 2.12.160(A)(1) with the responsibility to prepare and recommend to the Assembly a comprehensive plan (Plan) for the systematic development of the Borough; and

WHEREAS, the Planning Commission is further charged under NSBMC § 18.20.020 to establish one or more districts using approved Village Comprehensive Plans as a guideline; and

WHEREAS, the Planning Commission is further charged under NSBMC § 19.040.060 (A)(2) to ensure that the incorporated villages accommodate uses in accordance with both the Borough Comprehensive Plan and Comprehensive Plan for the community; and

WHEREAS, the Planning Commission is further charged under NSBMC § 19.70.020 to follow policies intended to guide the approval of development and uses in the village districts consistently with the relevant adopted Village Comprehensive Plan, and

WHEREAS, the common goals of local control and self-determination, the protection of the land, water and subsistence resources, mitigation of the impacts which may occur as a result of development, the maximization of economic benefits and employment opportunities for Point Lay today and into the future are fully shared by all of the organizations working together on this project; and

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

WHEREAS, the Native Village of Point Lay, adopted Resolution 2017-07 on June 14, 2017, recommending adoption of the Plan as developed by the North Slope Borough; and

WHEREAS, the Point Lay Comprehensive Plan is found to be a sufficient guide to future development in Point Lay for the next 20 years; and

NSB Planning Commission Resolution 2017-10
Page 2 of 2

NOW, THEREFORE, BE IT RESOLVED THAT:

The North Slope Borough Planning Commission recommends to the North Slope Borough Mayor and the North Slope Borough Assembly the approval of the Point Lay Comprehensive Plan.

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

INTRODUCED: 08-30-17
ADOPTED: 08-30-17

Caroline P. Cannon
Caroline Cannon, Clerk
Date: 8-30-2017

Paul Bodfish Sr.
Paul Bodfish Sr., Chairman
Date: 8-30-2017

Appendix D: Native Village of Point Lay Resolution of Support #2017-04

Native Village of Pt. Lay

IRA Council

P.O. Box 59031

Point Lay, Alaska 99759

Ph # 833-5052 Fax# 833-8868

nvpl.ira@gmail.com



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

Resolution No. 2017-07

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

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

WHEREAS, the process to develop the Plan involved a collaborative effort of the Native Village of Point Lay Tribal Council, and the Cully Corporation; and

WHEREAS, the Plan furthers the common goals of local control and self-determination, the protection of the land, water and subsistence resources, and seeks to mitigate the negative impacts of development; and

WHEREAS, the Plan provides a vision for the future, identifies current and projected future land uses, and addresses issues important to the community; and

WHEREAS, the Plan establishes goals, objectives and strategies to achieve the community's vision for the future and to improve its quality of life; and

WHEREAS, the Native Village of Point Lay Tribal Council has reviewed the Point Lay Comprehensive Plan and the North Slope Borough and its consultants ASRC-AES and UMIAQ have incorporated the Council's comments into the Final Draft dated June 2017.

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

PASSED AND APPROVED BY THE NATIVE VILLAGE OF POINT LAY TRIBAL COUNCIL THIS 14 TH DAY OF June 2017.

President

ATTEST:

Secretary