APPENDIX J—PRUDHOE BAY

Service Area 10 (Prudhoe Bay) is shown in Figure J-1. For the 2023 MJHMP, hazard impact assessments were prepared for land area and critical facilities for Prudhoe Bay. The land area of Prudhoe Bay is 290,913.31 acres, and the population center is 106,357.31 acres (Table J-1). For the 2023 MJHMP, five public and private critical facilities were collected from the NSB in Prudhoe Bay (Figure J-2). This does not include facilities included in the analysis for the greater NSB. The overall results of the hazard assessments for Prudhoe Bay are provided below for land area (Table J-2), population center (Table J-3), and critical facilities (Table J-4). Due to a combination of a lack of adequate information and methodology, a semi-quantitative hazard impact assessment has been prepared for earthquake, permafrost degradation, and wildfire. Slight discrepancies may appear as a result of GIS data limitation. A qualitative analysis has been prepared for climate change, erosion, flooding, severe weather, and space weather. Earthquake, permafrost distribution, and wildfire figures for all communities in the NSB are provided in Appendix A.

Table J-1: Prudhoe Bay Total Land Area, Population Center, and Critical Facilities

Category	Number
Land Area	290,913.31 acres
Population Center	106,357.31 acres
Critical Facilities	5 facilities

Table J-2: Prudhoe Bay Total Acres of Land in a Hazard Area

Hazard Area	Acres	Percent of Total Acres
Climate Change	290,913.31	100
Earthquake		
Weak-Light	52.06	<0.01
Moderate	283,678.79	98
Strong-Severe	7,182.45	2
Erosion	No mapping data are available for flooding. Based on existing reports and the community planning team, approximately 1% of the total land area is susceptible to erosion.	
Flooding	No mapping data are available for flooding. Based on existing reports and the community planning team, approximately 1% of the total land area is susceptible to flooding.	
Permafrost Degradation		
Continuous (>90%)	277,754.25	95
Glacier	0	0
Large Waterbodies (Unfrozen Below)	0	0
Severe Weather	290,913.31	100
Space Weather	290,913.31	100
Wildfire		
Very Low/Low Exposure	287,275.87	99

Table J-2: Prudhoe Bay Total Acres of Land in a Hazard Area

Hazard Area	Acres	Percent of Total Acres
Moderate Exposure	0	0
Significant Exposure	0	0
Considerable Exposure	0	0

Table J-3: Prudhoe Bay Total Acres of Population Center in a Hazard Area

Hazard Area	Acres	Percent of Total Acres
Climate Change	106,357.31	100
Earthquake		
Weak-Light	0	0
Moderate	106,357.31	100
Strong-Severe	0	0
Erosion	No mapping data are available for flooding. Based on existing reports and the community planning team, approximately 2% of the total population center is susceptible to erosion.	
Flooding	No mapping data are available for flooding. Based on existing reports and the community planning team, approximately 1% of the total population center is susceptible to flooding.	
Permafrost Degradation		
Continuous (>90%)	104,438.70	98
Glacier	0	0
Large Waterbodies (Unfrozen Below)	0	0
Severe Weather	106,357.31	100
Space Weather	106,357.31	100
Wildfire		
Very Low/Low Exposure	106,277.40	100
Moderate Exposure	0	0
Significant Exposure	0	0
Considerable Exposure	0	0

Table J-4: Prudhoe Bay Total Number of Critical Facilities in a Hazard Area

Hazard Area	Number	Percent of Total Facilities
Climate Change	5	100

Table J-4: Prudhoe Bay Total Number of Critical Facilities in a Hazard Area

Hazard Area	Number	Percent of Total Facilities
Earthquake (Moderate)	5	100
Permafrost Degradation (Continuous >90%)	5	100
Severe Weather	5	100
Space Weather	5	100
Wildfire (Very Low/Low Exposure)	5	100

The planning team determined the hazards and threats of immediate concern based on the 2023 MJHMP's hazard profiles, risk assessment, and capability assessment for Prudhoe Bay are erosion, flooding, and permafrost degradation. The results of the prioritization process are provided in Table J-5. For each mitigation action listed, potential funding sources, responsible departments or agencies, and implementation timelines have been identified.

Table J-5: Prudhoe Bay Prioritized Action Plan

No.	Project Name	Priority	Potential Funding Source	Responsibility	Estimated Timing
8	Erosion Control Revetments/ Seawall	High (for reservoir)	FEMA BRIC/HMGP	NSB/USACE	2 to 15 years
16	Potable Water Protection	High	FEMA BRIC/HMGP	NSB/City/Tribe	5 to 10 years

Information about how the 2023 MJHMP will be integrated into the NSB's relevant plans and programs moving forward is provided in Table J-6.

Table J-6: Prudhoe Bay Integration of 2023 MJHMP

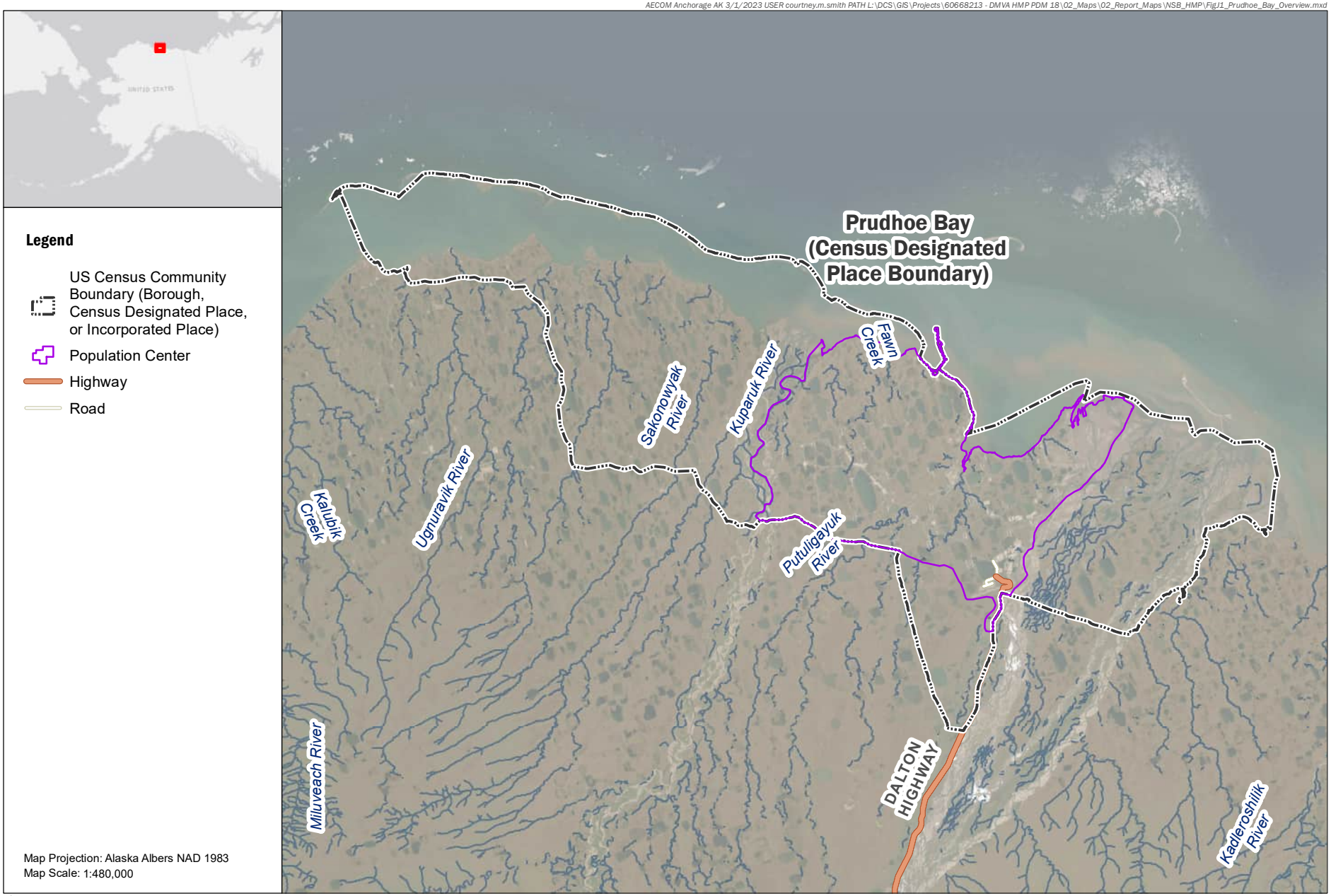
MJHMP Section	Existing Plan/Policy/Program	Process / Timeframe
Section 3—Hazard Identification	North Slope Borough Comprehensive Plan	Update of the NSB Comprehensive Plan to address hazards in the MJHMP that are not currently included. Consider creating a hazard profiles section in the Comprehensive Plan.
Section 4—Risk Assessment	North Slope Borough Emergency Response Plan	Incorporate risk assessment findings into the North Slope Borough Emergency Response Plan to help identify and ensure critical resources to maintain operations internally and externally.
Section 5—Mitigation Strategy	2020 – 2025 Six Year Capital Plan	Incorporate the mitigation actions provided in Table J-5 into the Six Year Capital Plan by studying and evaluating the underlying problems or if studies exist that outline potential solutions. Begin the design stage to develop a plan for each identified project, the actions to be taken, engineering and construction required, schedule, and estimated costs.

The NSB reviewed the 2015 MJHMP's mitigation strategies for Prudhoe Bay and documented progress made toward each mitigation effort, provided in Table J-7. Mitigation actions that had not been implemented were considered for the 2023 MJHMP.

In addition, supporting local plans, studies, and programs were reviewed to determine additional progress in local mitigation efforts. Relevant ongoing actions were considered for the 2023 MJHMP as well.

Table J-7: Prudhoe Bay Progress in Local Mitigation Efforts

Action #	Action	Status
3.1	Seek funding to elevate, flood proof, buy out, or relocate structures subject to flooding and coastal storm surge.	Ongoing. Mitigation action modified and included in the 2023 MJHMP.
4.1	Acquire the services of a suitably qualified firm or individual to study the effects of a warmer weather pattern on the permafrost.	Ongoing. The NSB is working with ARIES for research and funding. Mitigation action modified and included in the 2023 MJHMP.
4.2	Apply for mitigation funds to insulate the permafrost from development.	Ongoing. The NSB is working with ARIES for research and funding. Mitigation action modified and included in the 2023 MJHMP.



US Census TigerLine (2021)
Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community
Source: Esri, Maxar, Earthstar Geographics, and the GIS User

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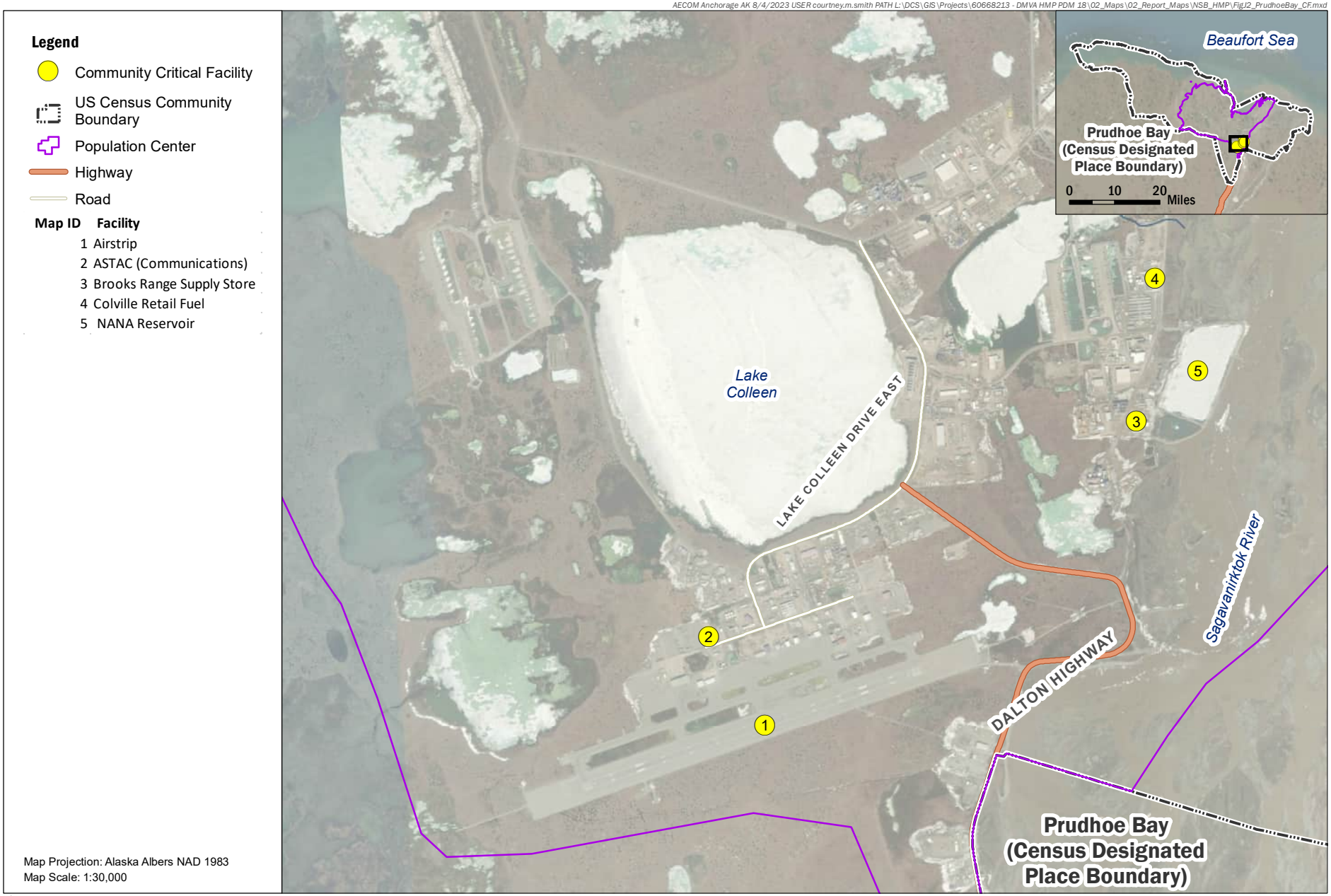
North Slope Borough 2023
Multi-Jurisdictional Hazard Mitigation Plan

PRUDHOE BAY OVERVIEW MAP

Figure J-1

AECOM Anchorage AK 8/4/2023 USER courtney.m.smith PATH L:\DCS\GIS\Projects\60668213 - DMVA HMP PDM 18\02_Maps\02_Report_Maps\NSB_HMP\FigJ2_PrudhoeBay_CF.mxd



North Slope Borough (2022); US Census TigerLine (2021)
Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community
Source: Esri, Maxar, Earthstar Geographics, and the GIS User

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PRUDHOE BAY CRITICAL FACILITIES

Figure J-2