



U.S. Department of the Interior
Bureau of Land Management

DRAFT Regional Mitigation Strategy

for the Northeastern National Petroleum Reserve in Alaska

September 2016



The Bureau of Land Management Today

Our Vision

To enhance the quality of life for all citizens through the balanced stewardship of America's public lands and resources.

Our Mission

To sustain the health, diversity, and productivity of the public lands for the use and enjoyment of present and future generations.

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Prepared in conjunction with:
Argonne National Laboratory
Environmental Science Division
Argonne, Illinois

Executive Summary

Submissions of oil and gas development project proposals are projected to continue in the Northeastern National Petroleum Reserve in Alaska (NPR-A). Federal rules and stipulations are in place to avoid, minimize, and/or reduce environmental impacts from development. In addition, there are non-federal mitigation programs such as the State of Alaska's NPR-A Impact Mitigation Grant Program in place to offset impacts to communities. Despite these existing regulations and mitigation programs, analyses of the impacts of development in the region indicate that future development could result in unavoidable impacts primarily to the Iñupiat people in the region, their subsistence activities, the ecosystems upon which they depend for subsistence, and their culture. These unavoidable impacts are referred to as residual impacts, or those impacts that remain after other mitigation types are applied. The Bureau of Land Management (BLM) is establishing a strategy to identify compensatory mitigation opportunities to help offset residual impacts that may be identified in future environmental analyses of development in the region.

The Council on Environmental Quality has defined mitigation in its regulations at 40 CFR 1508.20 to include: avoiding impacts, minimizing impacts, rectifying impacts, reducing or eliminating impacts over time, and compensating for remaining residual effects. Collectively, the five aspects of mitigation (avoid, minimize, rectify, reduce/eliminate, compensate) are referred to as the mitigation hierarchy. This strategy is focused only on the compensatory mitigation aspect as it relates to anticipated development in the Northeastern NPR-A. Other elements of the mitigation hierarchy are accomplished in the NPR-A as described in the NPR-A Integrated Activity Plan Final Environmental Impact Statement (EIS), and in project-specific National Environmental Policy Act (NEPA) documents, such as the Supplemental EIS for the Alpine Satellite Development Plan (ASDP) and for the Proposed Greater Mooses Tooth 1 (GMT1) Development Project.

The development of this Regional Mitigation Strategy (RMS) for the Northeastern NPR-A was required by the BLM February 2015 Record of Decision (ROD) for the GMT1 Project. The GMT1 ROD implements the Department of the Interior's direction on improving mitigation policies and practices – see Department of the Interior Manual Chapter 600 DM 6.

While oil and gas development has been on-going on Alaska's North Slope since the late 1960s, it was not until 2015 that the first development project, known as GMT1 was approved on public land managed by the BLM within the boundary of the NPR-A. The GMT1 Record of Decision approved the proposed development and included a requirement to develop and execute this Regional Mitigation Strategy. The purpose of this strategy is to identify, evaluate, and communicate potential compensatory mitigation actions for the NPR-A in advance of anticipated oil and gas development on public lands.

The GMT1 project is but the first of several development projects that are likely to occur in the region over the next several decades. The RMS, along with best management practices and mitigation measures required by the NPR-A Integrated Activity Plan (IAP), allows the BLM to present potential compensatory mitigation actions that can be considered at the beginning of the environmental analysis, thereby allowing a comprehensive consideration of the mitigation hierarchy.

The RMS is the result of a collaborative process by representatives from the oil industry, Federal and state government, Alaska Native interest groups, North Slope communities, conservation groups, the NPR-A Working Group, and other interested stakeholders. Collaboration with the various stakeholders is designed to create a well-balanced mitigation framework that will increase consistency, predictability, and certainty for future oil and gas development, while providing for environmentally responsible development of resources within the Northeastern NPR-A.

The RMS identifies the process for determining whether compensatory mitigation is required for a given development project, the mitigation actions that could compensate for the project's impacts, what the cost would be through developing an implementation plan for mitigation, and how to measure the overall effectiveness of the mitigation actions. Although the RMS provides a summary of the unavoidable impacts that could occur from oil and gas development in the region, the actual impacts will vary with the nature and location of specific facilities. Accordingly, an implementation plan will be developed for each specific development project. The RMS lays the groundwork for these plans to be developed and executed quickly under the umbrella of this landscape-level strategy that takes into account the impacts of development and long-term trends in the human and natural environments, including the changes brought on by climate change.

The development of the RMS builds on a history of planning, management, and permitting for the NPR-A area. Any proposed mitigation actions that result from the strategy would be analyzed through separate environmental analyses, following the National Environmental Policy Act and established procedures of public input. A technical companion has also been developed to provide detailed information used to create this RMS document.



Caribou in the National Petroleum Reserve in Alaska. (Bob Wick, BLM)

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Hunter scouting for caribou along the Meade River. (BLM)

Introduction

What is a Regional Mitigation Strategy?

When the BLM conducts a NEPA analysis for a proposed development project, the subject matter experts may conclude that the project would likely result in impacts that cannot be fully mitigated through avoidance and minimization measures. To offset the adverse effects of these residual impacts, the BLM may require compensatory mitigation when it is warranted.

The BLM developed this strategy to identify possible residual impacts, identify mitigation actions that could address those impacts, and describe how those mitigation actions should be prioritized. The development of this RMS builds on a history of planning, management, and permitting for the area.

The RMS for the Northeastern NPR-A is a landscape-level approach to compensate for the residual impacts that may occur with oil and gas development in the region. While this strategy is not a BLM decision, it will inform future decisions on specific oil and gas development projects on public land in the region by providing a process that can be used to apply compensatory mitigation.

Greater Mooses Tooth 1 Record of Decision

The GMT1 ROD states that the RMS for the Northeastern NPR-A will:

- Serve as a roadmap for mitigating impacts from GMT1 and future projects enabled or assisted by the existence of GMT1.
- Identify resources, values, and functions that warrant mitigation.
- Identify priority areas within the Northeastern NPR-A for avoidance and future compensatory mitigation actions.

Best Management Practices Already in Place in the NPR-A

The 2013 Record of Decision for the NPR-A IAP/EIS incorporated 217 best management practices. In addition, the 2015 GMT1 Record of Decision required an additional 27 supplemental best management practices. These best management practices are important tools within the mitigation hierarchy to avoid and minimize adverse impacts to important cultural and natural resources.

Goals of the Regional Mitigation Strategy

The compensatory mitigation strategy's goals are derived from input from regional and local stakeholders on values that need to be protected. The goals form the foundation of the RMS, and serve as the guiding principles that all mitigation should strive to achieve in the region. These goals are to:

- Sustain and enhance access to and use of traditional subsistence use areas.
- Sustain and enhance opportunities and rights for native peoples to live, practice, and pass on Iñupiaq culture and lifestyle.
- Sustain and enhance the functionality of the ecological system, including land, water, and landscapes that allow for sustainable populations of fish and wildlife and their natural movement and distribution.
- Sustain and enhance the health and safety of the residents.
- Sustain and enhance opportunities for economic and community development, such as job training and local contracting.

How this Regional Mitigation Strategy Document is Structured

This document is designed to explain in a clear and logical order what a regional mitigation strategy is, why the BLM is establishing one for the Northeastern NPR-A, and how the strategy will work.

After describing the background for development in the region, the document explains how the northeastern region itself is defined geographically and what development is likely to occur in the region in the future. The document also identifies the steps to determine compensatory mitigation opportunities in the Northeastern NPRA at the project scale.

A technical companion document has also been prepared to accompany this document. The Technical Companion (Argonne 2016) contains the detailed data and information that was gathered and considered by the BLM to inform this RMS and is incorporated by reference. The Technical Companion should be used as a primary reference document for the reader who desires a greater level of detail regarding this RMS.



CD-2 pad, example of pad design for GMT1. (ConocoPhillips)

Background

In 1923 President Warren Harding set aside the Naval Petroleum Reserve No. 4, a 22.8-million acre area on Alaska's North Slope to secure an emergency oil supply for the U.S. Navy. In 1976, in accordance with the Naval Petroleum Reserves Production Act, the administration of the reserve was transferred to the BLM within the Department of the Interior, and the reserve was renamed the NPR-A. The Naval Petroleum Reserves Production Act, as amended, authorizes the BLM to provide competitive leasing of oil and gas in the NPR-A while protecting and mitigating for impacts to surface resources. The law also provides for designation of special areas containing significant subsistence, recreational, fish and wildlife, or historical or scenic values.

Oil and gas development has been on-going on Alaska's North Slope since the late 1960s, principally on land owned by the State of Alaska. The BLM offered the first federal oil and gas leases within the NPR-A in 1983, and has conducted 10 lease sales since, including a sale every year since 2010. As of September 2016, there are 212 leases in place in the NPR-A, amounting to more than 1.7 million acres leased.

The BLM's management of the NPR-A is guided by an IAP, the most recent of which was finalized in 2013. The plan made more than half of the land in the NPR-A (11.8 million acres) available for oil and gas leasing and development, and for the location of supporting infrastructure. The remaining 11 million acres is not open to leasing in order to protect important ecological systems and the Alaska Native cultures that depend on them.

The first leases that are scheduled to be developed on public land in the NPR-A are part of the 2004 Alpine Satellite Development Plan. The plan, proposed by ConocoPhillips Alaska Incorporated (CPAI), included five satellite drilling pads: CD-3, CD-4, CD-5, CD-6, and CD-7. CD-3 is on State of Alaska land and CD-4 is on land owned by Kuukpik Corporation, a Native-owned corporation created under the authority of the Alaska Native Claims Settlement Act for the village of Nuiqsut. CD-5 is on land conveyed to Kuukpik Corporation within the NPR-A; CD-6 and CD-7 are on lands administered by the BLM in the NPR-A. ConocoPhillips proposed to place 20 to 30 wells on each of the five satellite drilling pads and to transport the unprocessed, three-phase drilling product (oil, gas, and water) to the Alpine Central Processing Facility, located on State Land in the Colville Delta east of the NPR-A. Produced oil would be placed in the existing pipeline system for transport to the Trans-Alaska Pipeline System.

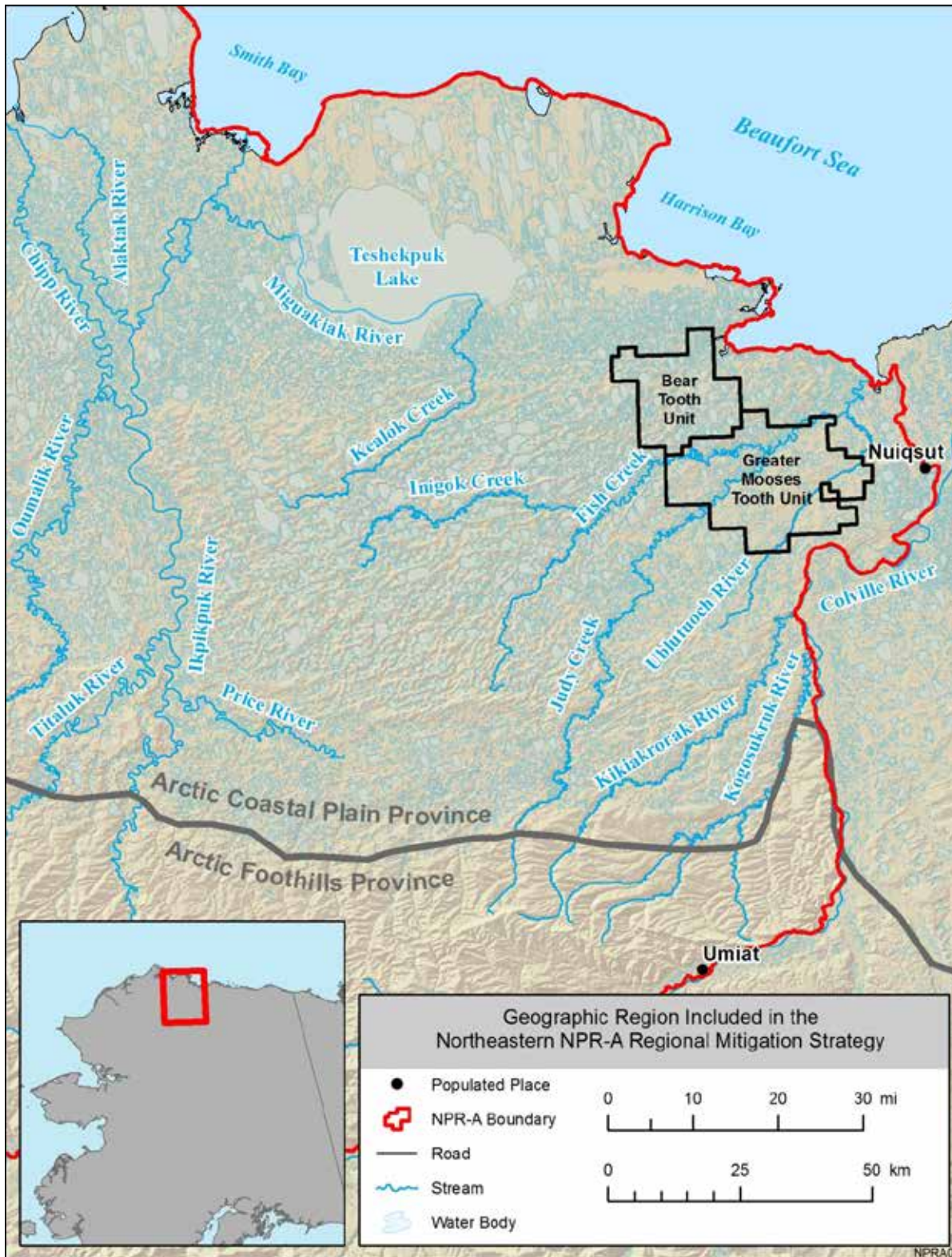
Why the BLM created a Regional Mitigation Strategy

In 2013, CPAI submitted an application to the BLM for a right-of-way and related authorizations to construct, operate, and maintain a drill site, access road, pipelines, and ancillary facilities to support development of the GMT1 production pad, previously referred to as CD-6. The name was changed because two production units were established after the ASDP was authorized: the Greater Moose Tooth unit and the Bear Tooth unit. The proposed GMT1 drill site location and the majority of the associated roads and pipeline route are on BLM-managed lands and will therefore constitute the first oil development on BLM-managed land on the North Slope.

A Supplemental Environmental Impact Statement (SEIS) was prepared to supplement the ASDP Final EIS. The SEIS evaluated changes in the overall project design and GMT1 specific proposals. The BLM published a ROD on February 13, 2015. The ROD authorized the construction of GMT1 and implements the Department of the Interior's direction on improving mitigation policies and practices. Specifically, the GMT1 Decision included stipulations designed to avoid and/or minimize adverse impacts. Despite the full and successful implementation of these stipulations, the BLM determined that residual impacts would remain and adversely affect subsistence resources and activities. To compensate for these residual impacts from the GMT1 development project, the ROD specified that CPAI would provide \$8 million to establish a compensatory mitigation fund. This fund was used to facilitate the development and implementation of this RMS through a collaborative, multi-stakeholder process that includes identifying potential mitigation projects to protect areas of critical environmental, subsistence, or cultural significance, restore disturbed sites, and benefit subsistence users most directly impacted by development projects. The fund will also be used to finance mitigation projects to offset the identified residual adverse impacts from GMT1. The BLM is working with stakeholders, including members of the Native Village of Nuiqsut who are the most directly impacted by the GMT1 project, to create an implementation plan for the GMT1 compensatory mitigation fund.

The GMT1 project is the first of several development projects that are likely to occur in the region over the next several decades. The purpose of this RMS is to identify, evaluate, and communicate potential future compensatory mitigation needs and actions in the Northeastern NPR-A in advance of anticipated oil and gas development.

The Region for the Northeastern NPR-A Regional Mitigation Strategy



Geographic Region included in the Northeastern NPR-A RMS. (BLM)

The BLM defines the Northeastern Region of the NPR-A as the area between the Colville River on the east, the Chipp and Ikpikpuk rivers on the west, the Beaufort Sea on the north, and the boundary between the coastal plain and foothills on the south. The region is home to the Iñupiat people, and contains a rich array of natural and cultural resources.

The GMT1 ROD specified that the general geographic scope of the RMS is the Northeastern NPR-A region, and directed the BLM to implement a public process to define a more specific geographic region for the RMS. The BLM had initially proposed a firm, fixed-line boundary for the RMS; however, written comments and public comments during stakeholder workshops resulted in a modified approach. Considering a broad region for the RMS provides more flexibility in selecting and siting compensatory mitigation actions, to ensure that they are effective in meeting mitigation goals. Therefore, the RMS applies to a larger region beyond the defined area of reasonable foreseeable development described below. This regional approach is also more suited to the dynamic nature of North Slope resources and resource use than is a fixed-line RMS boundary. The RMS therefore does not focus on whether or not a development impact is located inside or outside a fixed boundary line on a map, but instead explains the approach that the BLM will use to address development impacts in future mitigation planning and decision making.

The Reasonably Foreseeable Development Scenario

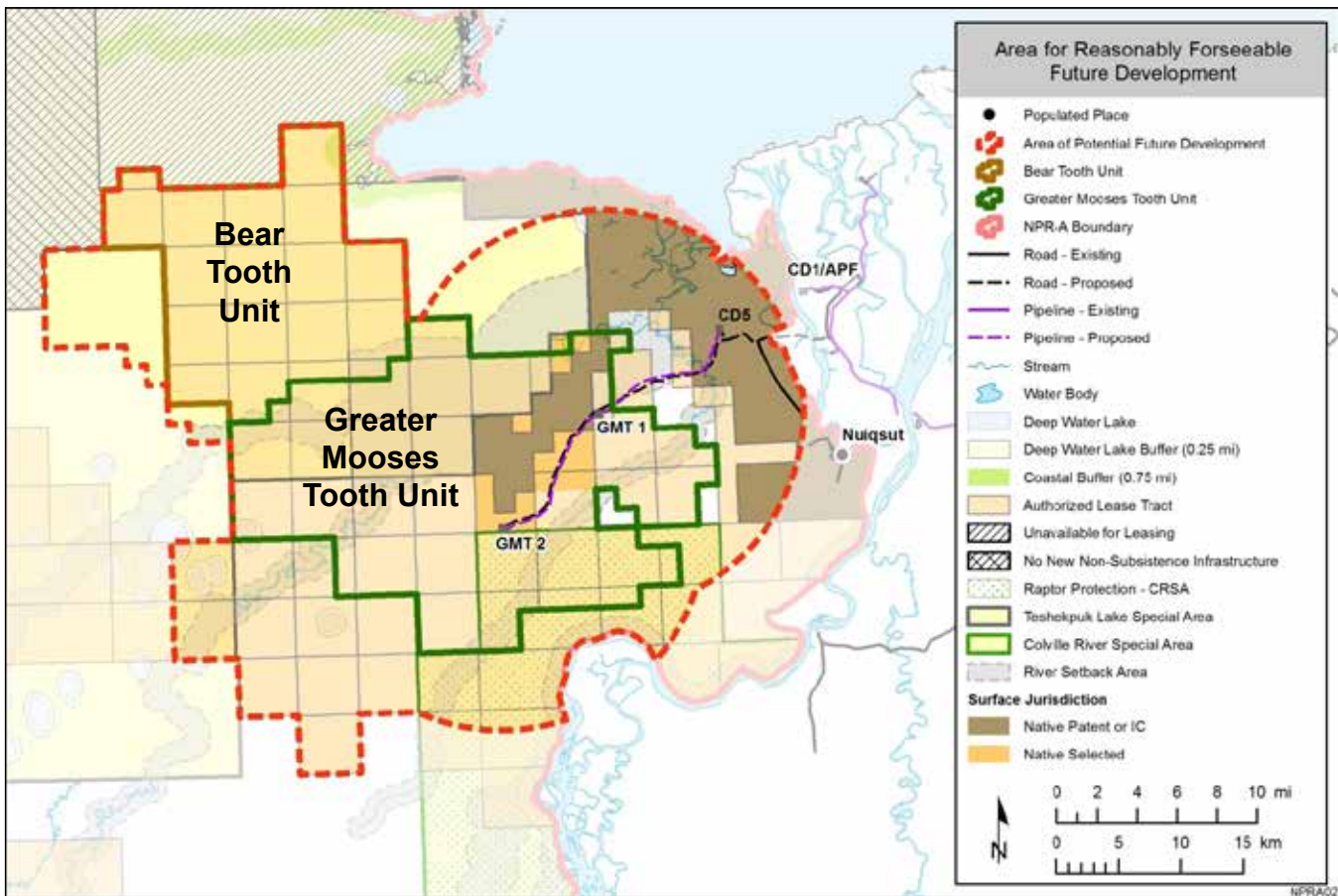
Oil and gas development is a function of many dynamic and interconnected variables, including the known locations and recoverable quantities of oil and gas, extraction and transportation technology, availability and/or feasibility of supporting infrastructure, environmental conditions and trends, and demand for oil and gas, among others.

Projections of oil and gas development in the Northeastern region of the NPR-A were prepared for the ASDP, the IAP, and GMT1, and are included in the cumulative impact analysis sections of the associated NEPA documents. For this RMS, per the GMT1 ROD, the BLM has developed a reasonably foreseeable development scenario (RFDS) related to projects that are expected to be enabled or assisted by the development of GMT1. The RFDS helps to predict future activities that could result in residual impacts in the region, and helps to set the framework for determining potential mitigation actions. The RMS could also be used by other entities to determine appropriate compensatory mitigation for development projects in the region on other lands not managed by the BLM. The RFDS is based on currently available information regarding potential future activities in the region.

Industry representatives have indicated that any future satellite production pads enabled by GMT1 would be located within a 30-mile radius of the Alpine Central Processing Facility. Industry anticipates that, at most, two more production pads would occur in either the Greater Mooses Tooth or Bear Tooth Units, and these pads would be within a 10-mile radius of GMT1 or GMT2. However, there is enough flexibility in this RMS to accommodate additional developments should the anticipated amount exceed two. It is assumed that roads and pipelines would connect additional pads to GMT1 infrastructure. The potential locations of additional production pads may be limited by special protection areas and setbacks from certain lakes and rivers.

The RFDSmap depicts where future development enabled or assisted by GMT1 are likely to occur. Reasonably foreseeable actions are actions for which there are existing decision, funding, formal proposals, or which are highly probable, based on known opportunities or trends. The area shown incorporates the information provided by industry, and also includes all leased tracts contiguous to existing oil and gas production units, formerly utilized/unitized areas contiguous to the Bear Tooth Unit that have known reserves, and additional areas recommended by BLM staff with expertise in oil and gas development.

This projection is scaled-back from the 2004 Alpine Satellite Development Plan projection which identified 22 additional production pads and two additional processing facilities. While the 2004 projection purposely overestimated development to analyze the impacts of the most optimistic development scenario given understanding of oil and gas resources at the time, this RFDS underscores the decreased level of anticipated production due to changes in market conditions since 2004 and enhancements in technology, including directional drilling. If actual development significantly exceeds this RFDS, the assumptions used in this RMS would be updated and revised.



Reasonably Foreseeable Development Scenario. (BLM)

Steps of the Strategy

The White House Council on Environmental Quality (CEQ) has defined mitigation in its regulations at 40 CFR 1508.20 to include: avoiding impacts, minimizing impacts, rectifying impacts, reducing or eliminating impacts over time, and compensating for remaining residual effects. Collectively, the five aspects of mitigation (avoid, minimize, rectify, reduce/eliminate, compensate) are referred to as the mitigation hierarchy.

BLM's management of the NPR-A is guided by the 2013 NPR-A IAP (BLM 2013a). The plan made more than half of the land in the NPR-A (11.8 million acres) available for oil and gas leasing. The remaining land (11 million acres) is not open to leasing, in order to protect important ecological systems. Designating these areas as not open to leasing is an example of the avoidance element of the mitigation hierarchy. The IAP also specified best management practices (BMPs) that must be implemented to minimize impacts from development that may occur in areas open to leasing. Requiring developers to implement the existing BMPs is an example of the minimization element of the mitigation hierarchy.

Another element of the mitigation hierarchy is to apply compensatory mitigation to a project when it is warranted. The steps described below specify the process to be followed to determine the compensatory mitigation required for a development project.



Teshkepuk Caribou herd.(Scott Guyer, BLM)

Step 1: Determine whether compensatory mitigation is warranted

The first step is to determine whether compensatory mitigation is warranted for a given development project. The process begins when a company submits an application for development. To process the application, the BLM will generally prepare a NEPA document to evaluate and disclose potential impacts and consider mitigation measures (which can include BMPs). The NEPA document will consider appropriate avoidance and minimization measures, and identify any residual impacts that remain after these measures are applied. If residual impacts are identified, then compensatory mitigation may be appropriate.

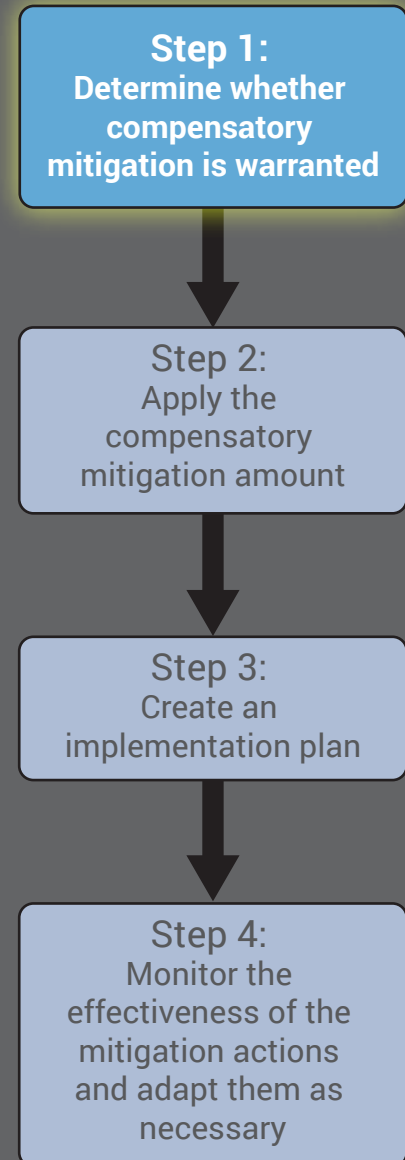
Potential residual impacts from future oil and gas development may be identified for the following resources and uses in a NEPA document:

- The physical environment, including air quality, surface and groundwater resources and water quality, soils resources, and paleontological resources.
- The biological environment, including birds, fish, terrestrial and marine mammals, vegetation, and special status species.
- Social systems and related resources, including socio-cultural systems, subsistence, environmental justice, public health, cultural resources, visual resources, recreation, wild and scenic rivers, and wilderness characteristics.



Yellow Wagtail in the NPR-A. (Bob Wick, BLM)

NE NPR-A RMS



After the implementation of avoidance and minimization measures, some residual adverse impacts from oil and gas development might remain. To determine whether any such residual impacts warrant compensatory mitigation, the BLM generally considers the potential for any of the following:

- Residual adverse effects that inhibit achieving compliance with laws, regulations, and/or policies;
- Residual adverse effects that inhibit achieving the applicable land use plan's resource goals, including applicable mitigation standards;
- Residual adverse effects to important, scarce, or sensitive resources that have been previously identified in a mitigation strategy as warranting compensatory mitigation;
- Residual adverse effects to important, scarce, or sensitive resources that are identified through a NEPA process as warranting compensatory mitigation.

The Supplemental EIS for GMT1 identified major impacts to subsistence uses and sociocultural systems from the project, largely because the development would take place within a heavily used and historically critical subsistence area. The RFDS indicates that several additional oil and gas facilities and associated infrastructure would be constructed in the future in nearly the same geographic area. Because of this anticipated future development, major impacts on subsistence and sociocultural impacts are also anticipated, and thus could warrant compensatory mitigation. The major subsistence and sociocultural impacts from the development, as described in the GMT1 Final SEIS, were found to affect a minority population (Alaska Natives) disproportionately, and were thus identified as causing major impacts to an environmental justice population.

If a residual impact meets one or more of the above criteria, then the BLM will generally find that the impact warrants compensatory mitigation. Based on consideration of the expected impacts from future oil and gas development under the RFDS, the following impacts are expected to warrant compensatory mitigation:

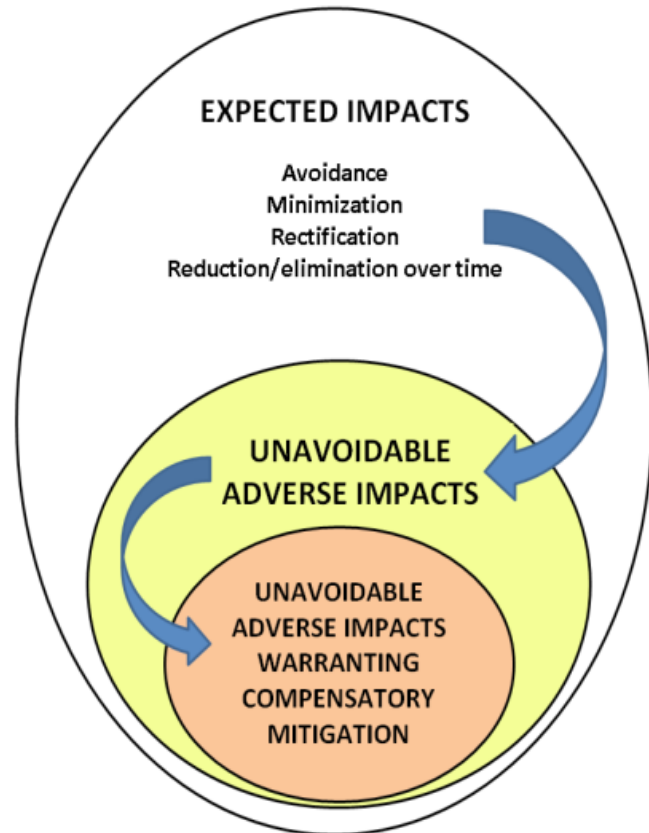
- Subsistence impacts
- Sociocultural systems impacts
- Environmental justice impacts



Field Camp for water quality assessments at Teshekpuk Lake water quality. (USGS)

Based on preliminary consideration of future oil and gas development under the RFDS, the following impacts may also be unavoidable and adverse, and may therefore be residual impacts that warrant compensatory mitigation within the region:

- Air quality impacts
- Water quality impacts
- Public health impacts
- Impacts on birds (e.g., greater white-fronted goose)
- Impacts on fish (e.g., broad whitefish)
- Impacts on terrestrial mammals (e.g., caribou)
- Impacts on polar bears (a threatened and endangered species) (except for compensatory mitigation required under the Endangered Species Act)
- Impacts on spectacled eiders (a threatened and endangered species) (except for compensatory mitigation required under the Endangered Species Act)
- Cultural resource impacts
- Visual resource impacts
- Land use and ownership impacts

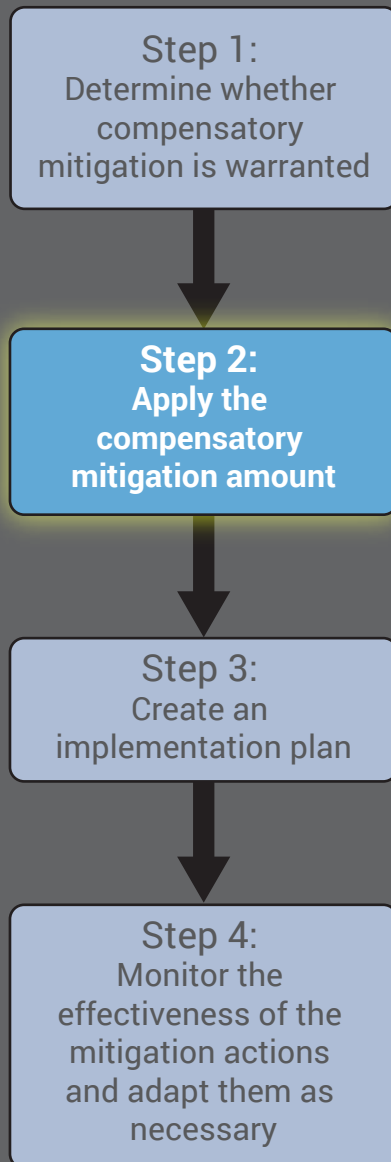


Impacts, Unavoidable Impacts, and Unavoidable Impacts Warranting Compensatory Mitigation. (BLM)

Many of these resources are important, scarce, and/ or sensitive, but were not found to be subject to major impacts under the GMT1 Final SEIS. However, projects under the RFDS could potentially have different and greater or lesser impacts, depending on the exact location of the project and associated infrastructure, and other aspects of the project that would be determined at the time a project-specific NEPA impact analysis is conducted.

When a project is proposed, baseline information specific to the area can be used to indicate whether or not residual adverse impacts are likely to occur. Applicants are required by existing BMPs to have an understanding of the resources present in the area of proposed development, and are encouraged to incorporate and propose all forms of mitigation that address potential impacts as part of their application for development.

NE NPR-A RMS



Step 2: Apply a compensatory mitigation method

As discussed previously, subsistence use and associated social and cultural impacts are those most likely to warrant compensatory mitigation due to the inability to fully mitigate the impacts through minimization or avoidance. North Slope residents have stated that monetary values cannot or should not be assigned to their subsistence way of life, rights, and culture; subsistence is an inherent right and is considered to be priceless. However, it is not necessary to assign a monetary value to the loss of subsistence use to determine a mitigation cost. By utilizing an action or set of actions that would compensate for the loss, the cost of the development and implementation of those actions would represent the compensatory mitigation amount.

Through the development of the RMS, stakeholders have identified potential actions that could enhance resource values including subsistence activities and associated social and cultural values on site and elsewhere. All of these projects have monetary costs that could be factored into a compensatory mitigation requirement, and associated benefits that build social, cultural, and ecological resilience in the region.

This RMS lays the foundation for a process in which these actions can be proposed in advance of project impacts. We refer to this approach as the Action-Based Method, which utilizes stakeholder-identified actions as the mechanism for compensation to address the residual impacts identified. We also present a Per-Acre Fee Method which would result in a compensatory mitigation fee. Both of these methods could allow mitigation actions to be bundled together or otherwise strategically placed on the landscape commensurate to the identified residual impacts. Whether the Action-Based Method or the Per-Acre Fee Method, or a combination of the two is used, the applicant is encouraged to identify potential compensatory mitigation as early as possible, including in the Application for Permit to Drill. These proposed compensatory mitigation actions will then be evaluated in the NEPA analysis. If necessary, further refinements or updates may result based on the residual adverse impacts that warrant compensatory mitigation identified in the NEPA analysis and through applicant, BLM and stakeholder input.

The Action-Based and the Per-Acre Fee Methods are presented below. The mitigation project opportunities referred to in the methods can be found in Table 2-1.

Action-Based Method

If it is anticipated that a proposed project will have residual, adverse impacts that warrant compensatory mitigation, an applicant or the BLM can use the Action-Based Method to propose the appropriate mitigation action(s) from the master list presented in Table 2-1. There are two potential ways to implement the Action-Based Method: 1) by the applicant with the submittal of an application for development; or 2) by the BLM in coordination with the applicant during the NEPA process. Either option would be analyzed as part of the NEPA analysis for any proposed development and therefore would incorporate significant stakeholder involvement. Ultimately, the BLM has the final authority to require compensatory mitigation based on the outcome of the NEPA analysis, and all compensatory mitigation requirements will be stated within the applicable decision document.

Applicant-Proposed Compensatory Mitigation

All development projects require the submittal of an application, such as an Application for Permit to Drill (APD) or a Right-of-Way application. Based on the proposed development location, baseline resource data, and the application of existing BMPs, the applicant can make a preliminary determination whether or not residual adverse impacts may result from their proposed development. If the applicant determines that there will be no residual impacts, then they will need to provide detailed rationale in support of this determination as part of their application.

If the applicant determines that residual impacts that warrant compensatory mitigation could occur, then they will submit to the BLM proposed action(s) to address the impacts. Table 2-1 and the associated ranking criteria should be used by the applicant to identify the potential actions that are commensurate to the residual impact identified. The applicant will also be required to describe the level of local resident input and coordination, and stakeholder involvement carried out in determining the actions to propose. The applicant-proposed action(s) will then be considered as part of their proposal in the NEPA analysis in order to determine the adequacy of the compensatory mitigation to offset residual impacts to the anticipated affected resources. Through the NEPA process, the BLM will ensure additional stakeholder involvement through an iterative process of reviewing and assessing the adequacy of the actions to address the impacts identified, including the opportunity to suggest alternative actions that could better address the unavoidable, adverse impacts. The Final EIS will include the selected compensatory mitigation actions to be carried in conjunction with the Preferred Alternative.

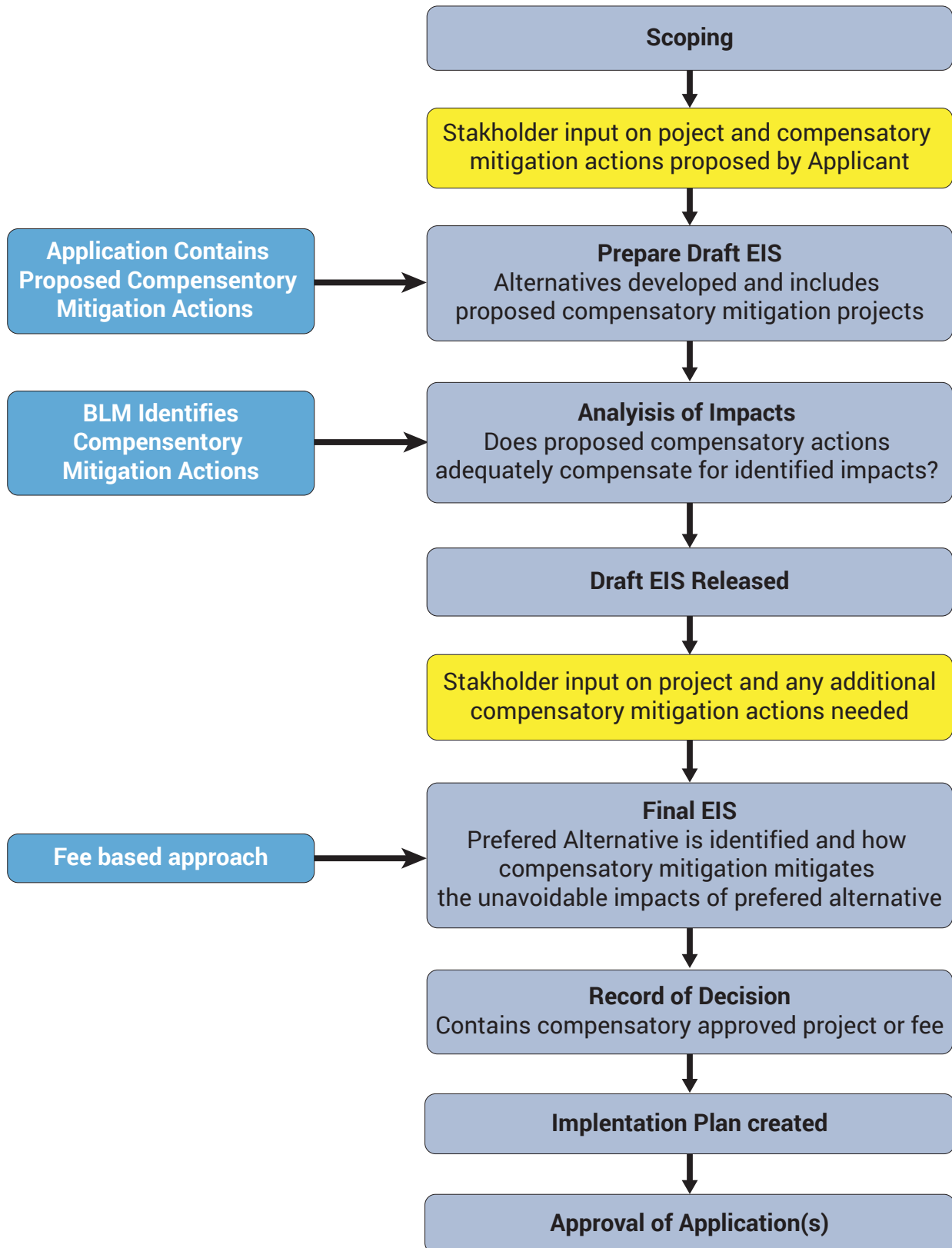
The decision will include a determination of the required compensatory mitigation action(s). An implementation plan must be submitted prior to any application associated with the development being approved.

BLM-Determined Compensatory Mitigation

The applicant could choose not to propose a compensatory mitigation action in conjunction with their application. In this situation, the BLM would initiate the NEPA process and preliminarily determine

PROJECT BASED METHOD

NEPA PROCESS



appropriate compensatory mitigation action(s), if any, if residual adverse impacts are identified during the analysis of alternatives. BLM will consider the list of compensatory mitigation opportunities identified in Table 2-1 as well as the ranking criteria, and propose compensatory mitigation actions that are commensurate to the impacts identified, and include this information in the Draft EIS. Through the NEPA process, the BLM will ensure additional stakeholder involvement through an iterative process of reviewing and assessing the adequacy of the actions to address the impacts identified. Determining which actions would mitigate the impacts would be done in close collaboration with the impacted stakeholders as part of the Draft EIS review, including the opportunity to suggest alternative actions that could better address the unavoidable, adverse impacts. The Final EIS will include the selected compensatory mitigation actions to be carried in conjunction with the Preferred Alternative.

The decision will include a determination of the required compensatory mitigation action(s). An implementation plan must be submitted prior to any application associated with the development being approved.

Both of the action based methods utilize the cost of the actions to be implemented as the determination of the compensatory mitigation amount. The cost for each action within the Northeastern NPR-A will correspond to the impacts warranting mitigation for that action. Since the entire Northeastern NPR-A is a subsistence-use area, it is expected that, at a minimum, compensatory mitigation may be required for all actions with additional adverse impacts to subsistence, sociocultural systems, and environmental justice. If impacts to other resources (for example, impacts to terrestrial mammals, fish, or birds) are found to be residual and adverse, they too may warrant compensatory mitigation.

Per-Acre Fee Method

Applicants may propose a fee via a per-acre amount as compensatory mitigation to offset residual, adverse impacts to affected resources instead of using the Action-Based Method. A compensatory mitigation fee is determined based on a proposed per-acre amount of impact, whether those impacts are from the loss of a traditional harvest area for subsistence use or loss of habitat for an affected resource. The proposed per acre amount of \$100-\$200 is based on stakeholder recommendations and is comparable to other mitigation amounts required by the North Slope Borough for impacts sufficiently similar to the impacts to subsistence use identified in this RMS. The impact area is determined by the footprint of the infrastructure, plus a 2.5 mile zone around the infrastructure to account for indirect impacts related to the development. This means that along a pipeline or road, the acreage would be calculated by adding 2.5 miles on each side, resulting in a 5-mile wide corridor. We recognize that 2.5 miles may be a conservative estimate depending on the resource being mitigated, however, a defined buffer is necessary for determining a mitigation fee.

Using the proposed GMT2 development as an example, the total acreage with the 2.5 mile zone equals approximately 34,000 acres. The total acreage multiplied by \$100 per-acre fee equals a mitigation amount of \$3,400,000, or multiplied by \$200 per-acre fee equals an amount of \$6,800,000. This fee would then be utilized to implement appropriate mitigation actions, such as those described in Table 2-1. Which mitigation actions would be implemented would be determined based on the resources found to have residual impacts warranting compensatory mitigation, and through stakeholder involvement.

The BLM is seeking input on whether the per-acre fee method is appropriate, and if so, what the correct per-acre amount should be to adequately compensate for lost acreage from within a traditional harvest area. In addition, the BLM is seeking input on the appropriate buffer mileage, and whether other formulations to address residual impacts to habitat values should be taken into account.

Other Considerations

Regardless of the method used, any mitigation actions must adequately compensate for the identified residual impacts that warrant compensatory mitigation. Once those required actions have been established, the cost of their implementation and monitoring will establish the compensatory mitigation fee.

This RMS provides a framework for determining mitigation opportunities and is not a decision document. The RMS is meant to convey the process to be used to determine the compensatory mitigation requirements. At the conclusion of any project-specific NEPA evaluation for future projects in the Northeastern NPR-A, the BLM authorized officer will identify the appropriate compensatory mitigation as part of the BLM's project authorization decision.

Under Section 404 of the Clean Water Act, impacts to wetlands require compensatory mitigation through a program administered by the U.S. Army Corps of Engineers. Section 404 compensatory mitigation is separate from the BLM's compensatory mitigation requirements for impacts to subsistence use and sociocultural systems. This RMS could be used by the U.S. Army Corps of Engineers to mitigate the loss of wetlands through the selection of appropriate mitigation actions.

The associated Technical Companion, incorporated by reference, details the environmental and social factors that are potentially affected by development infrastructure based on our current understanding. New information could result in the BLM revising the recommended methods or actions presented in this RMS. Such new information may include the presence or absence of environmental resources and impacts warranting mitigation or the implementation of additional BMPs, avoidance areas, or other technologies that would minimize impacts.

Mitigation Action List

This section identifies the types of mitigation actions that can be taken to compensate for unavoidable impacts caused by oil and gas development in the Northeastern NPR-A. Projects were included on the list considering their ability to achieve the goals of the RMS. The list was derived from stakeholder nominations and the level of detail varies greatly. While some of the actions propose specific projects in specific locations (such as the Colville River access road, or the cultural center in Nuiqsut), others (such as the proposal to restore water quantity and quality) do not. The identification and selection of specific actions, mechanisms, locations, and where they will be implemented will be driven by the impacts of a particular project. Therefore, the identification of specific actions, mechanisms, and sites will occur on a project-by-project basis. This list is not meant to be exclusive; some effective means for mitigation may emerge during the NEPA analysis for individual projects that are not on this list.

The identification number that appears in the ‘ID’ column in Table 2-2 is for reference only – it does not imply rank. The proposed mitigation actions have been grouped by the type of impact they would address. These include impacts to the following resources (noted in the table by the following abbreviations):

SUB = subsistence and food security

CULTURE = Inupiaq culture and lifestyle

HEALTH = human health and safety

ENV = natural resources and systems

COMM = community (including education, economy, and recreational opportunities)

LAND = overall habitat and ecosystem services

Table 2-1 Potential Compensatory Mitigation Actions for the RMS

ID	Primary Impact	Mitigation Action
1	SUB	Facilitate access to areas with important subsistence or cultural resource values, including areas that currently have oil and gas activity. Examples include <ul style="list-style-type: none"> • Building (completing) a road to provide access from Nuiqsut to the Colville River • dredging the Nigliq Channel. • Building ramps on already constructed roads • Reclaiming roads, pipelines and other disturbed areas in areas formerly used for subsistence that are currently avoided • Potential locations include Colville River Delta/Special Area, Colville River Watershed, Fish Creek, Nuiqsut, or Nigliq Channel. Methods could include conservation easements or other tools.
2	SUB	Reimburse hunters for the additional costs of subsistence hunting that are caused by development (e.g., fuel for longer trips, increased equipment maintenance costs, etc.).
3	SUB	Develop and implement programs to share food among North Slope communities.
4	SUB	Develop and implement programs to safely store food (e.g., community freezers and/or ice cellars).
5	SUB	Manage/control sport hunting. Potential locations: Colville River Delta/Special Area, Colville River Watershed, Teshekpuk Lake caribou herd migration corridors, river crossings and insect relief areas, Teshekpuk Lake Special Area and vicinity.

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ID	Primary Impact	Mitigation Action
6	SUB	Develop and implement programs to enhance production of local food sources. <ul style="list-style-type: none"> • Community greenhouses • Reindeer herding • Harvesting cooperatives • Food preparation and preservation courses • Start-up assistance/office space for local Native food-oriented Pampered Chef consultant
7	CULTURE	Construct cultural centers in impacted communities.
8	CULTURE	Fund cultural camps for youth, preferably through an endowment.
9	CULTURE	Support a whaling captain apprentice program.
10	CULTURE	Support projects that document, teach, and protect culture, history, and language, such as: <ul style="list-style-type: none"> • updating the Nuiqsut Paisangich • establishing (ideally in a new cultural center) a library with a focus on Inupiat culture that is open year-round • Establish a community-based photojournalism/media institute to train youth in digital photography equipment and techniques, in story production, and in print and online journal layout to produce and distribute Uifñiq magazine. This could be affiliated with or be a local chapter of the Alaska Teen Media Institute
11	ENV	Protect, restore or reclaim areas with important environmental, subsistence, or cultural resource values. Potential project locations include: Fish Creek, Judy Creek, Tiġmiaqsiġvik (Ublutuooh) River, Colville River Delta/Special Area, Colville River Watershed, and Teshekpuk Lake Special Area and vicinity. Protection mechanisms could include conservation easements and voluntary limits on use and occupancy of existing leases; restoration actions may also be appropriate in certain circumstances (see Appendix F of the <i>Technical Companion</i> for additional mechanisms).
12	ENV	Continue monitoring of annual survival of the Spectacled Eider on the North Slope.
13	ENV	Identify and protect high-value wetlands (for example, important waterfowl molting areas) Protection mechanisms could include conservation easements and voluntary limits on use and occupancy of existing leases (see Appendix F of the <i>Technical Companion</i> for additional mechanisms).
14	ENV	Fund programs to protect against the introduction and proliferation of invasive species. Potential locations: Colville River Watershed, Nuiqsut.
15	ENV	Develop conservation or management plans for the NPR-A, for Special Areas and/or for areas with important environmental, subsistence, or cultural resource values. Potential locations: Colville River Delta/Special Area, Colville River Watershed, Teshekpuk Lake caribou herd migration corridors, river crossings and insect relief areas, Teshekpuk Lake Special Area and vicinity.

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ID	Primary Impact	Mitigation Action
16	ENV	Develop and implement research and monitoring projects focused on improving the understanding of the effects of development infrastructure and activities on subsistence species.
17	ENV	Create/expand/enforce special management areas/buffers. Potential locations: Colville River Delta/Special Area, Colville River Watershed, Fish Creek, Teshekpuk Lake caribou herd migration corridors, river crossings and insect relief areas, Teshekpuk Lake Special Area and vicinity, Ikpikpuk River area.
18	ENV	Restore/maintain water flow volume, protect surface water quality. Potential locations: Colville River Delta/Special Area, Colville River Watershed, Fish Creek.
19	ENV	Fund projects to control erosion. <ul style="list-style-type: none"> • Build breakwaters or causeways Potential locations: Colville River Delta/Colville River Special Area.
20	ENV	Collect baseline data and provide ongoing monitoring of ecosystem health and function. <ul style="list-style-type: none"> • Create a community based ecosystem monitoring program Potential locations: Colville River Watershed, Fish Creek, Teshekpuk Lake Special Area and vicinity.
21	ENV	Evaluate and predict effects of environmental change in breeding areas on Spectacled Eiders.
22	ENV	Improve education efforts to eliminate take and the use of lead shot across the range of the Spectacled Eiders.
23	ENV	Continue monitoring Spectacled Eider blood lead levels in areas where information is lacking, such as the North Slope, and monitor lead levels periodically throughout the range of the Eider.
24	HEALTH	Improve air quality monitoring – Work with the local public to develop a monitoring strategy which includes determining monitoring needs. Implement strategy recommendations that may include additional stations, upgrading stations to best available technology, monitoring for a broader suite of pollutants. Include public education and outreach components with monitoring effort.
25	HEALTH	Support health programs in impacted communities, including those designed to address the need for drug/alcohol counseling and rehabilitation programs.
26	HEALTH	Develop and implement research and monitoring projects focused on improving the understanding of the effects of development infrastructure and activities on human health. Potential locations: Nuiqsut and Anaktuvuk Pass.
27	COMM	Build recreation centers, teen centers, playgrounds, and/or picnic areas in and around impacted communities.
28	COMM	Provide parking in Deadhorse and Oliktok to facilitate North Slope residents' use of the road system for transportation.

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ID	Primary Impact	Mitigation Action
29	COMM	Assist communities in communicating with levels of government to get issues of concern addressed, such as <ul style="list-style-type: none"> • Hire permanent grant writers to submit proposals for impact mitigation and other grants and produce required grant reports • Assist local entities with obtaining technical and legal expertise to advise them on permitting processes
30	COMM	Support the implementation/expansion of STEM (Science Technology Engineering Math) programs, such as the Alaska Native Science and Engineering Program in impacted communities.
31	COMM	Support the development and implementation of job training programs in North Slope communities.
32	COMM	Develop and implement programs that support local entrepreneurial and economic development in impacted communities.
33	COMM	Fund increased local oversight/monitoring of development activities (e.g., staff, training, funding to contract for technical and scientific expertise).
34	COMM	Pay for engineering/architectural plans to secure sources of construction funding for facilities and infrastructure improvements in impacted communities.
35	COMM	Fund the development of long-term community development plans for impacted communities.
36	COMM	Build new housing to meet growing demand in impacted communities.

It is recognized that many of these mitigation actions could address impacts to more than one resource. The BLM is seeking input on the current list of compensatory mitigation actions, as well as any additional actions that could be used to address residual impacts resulting from a development project.

This strategy is a living document that will be amended and adjusted as factors change in the region. Additional compensatory mitigation actions may be added to Table 2-1 in the future, based on:

- Government-to-government consultations;
- Additional nominations from stakeholders such as the NPR-A Working Group or the Subsistence Advisory Panel;
- BLM subject matter expert recommendations; and
- Other federal, state, and local government recommendations.

The following mitigation actions were also nominated by stakeholders. Most of these are avoidance or minimization actions rather than compensatory actions in the mitigation hierarchy and can be best accomplished by including them as conditions of a lease or permit when appropriate. The BLM will consider these recommendations for inclusion in decision documents for future development projects.

- Limit all ground work (research, stick-picking, etc.) to only one summer every three years.
- Limit ground-based disturbances to subsistence activities to only one summer every three years.

- Restrict development activities during sensitive life stages of subsistence wildlife.
- Minimize air and ground traffic during migration and calving.
- Restrict air traffic over important waterfowl and shorebird areas: nesting, brood rearing, and staging, including coastal areas from Nuiqsut to Barrow 3 miles in from coast.
- Increase monitoring and enforcement of environmental regulation compliance on lands that the BLM is leasing.

Ranking Criteria

Table 2-1 lists 36 actions that could potentially compensate for residual impacts of development in the Northeastern region of the NPR-A. Some of these actions could be implemented in multiple locations. The ranking criteria presented below will be used to sort or “rank” the list of mitigation actions according to their potential to most effectively and efficiently address impacts. The points awarded for each of the ranking criteria for each potential compensatory mitigation action/project will be applied according to the scoring method presented in Table 2-2. The points will then be summed for each potential compensatory mitigation action/project, and the list re-ordered from most to least points. This process was undertaken for the mitigation actions that were nominated as a part of this RMS (see Table 2-3). The ranked list is, however, just a recommendation for consideration by those making the decision about compensatory mitigation. Other factors, such as opportunities to leverage funds through appropriate partnerships, may influence the decision about which compensatory mitigation action(s) would be most effective for a particular development project.

Screening and Ranking Process

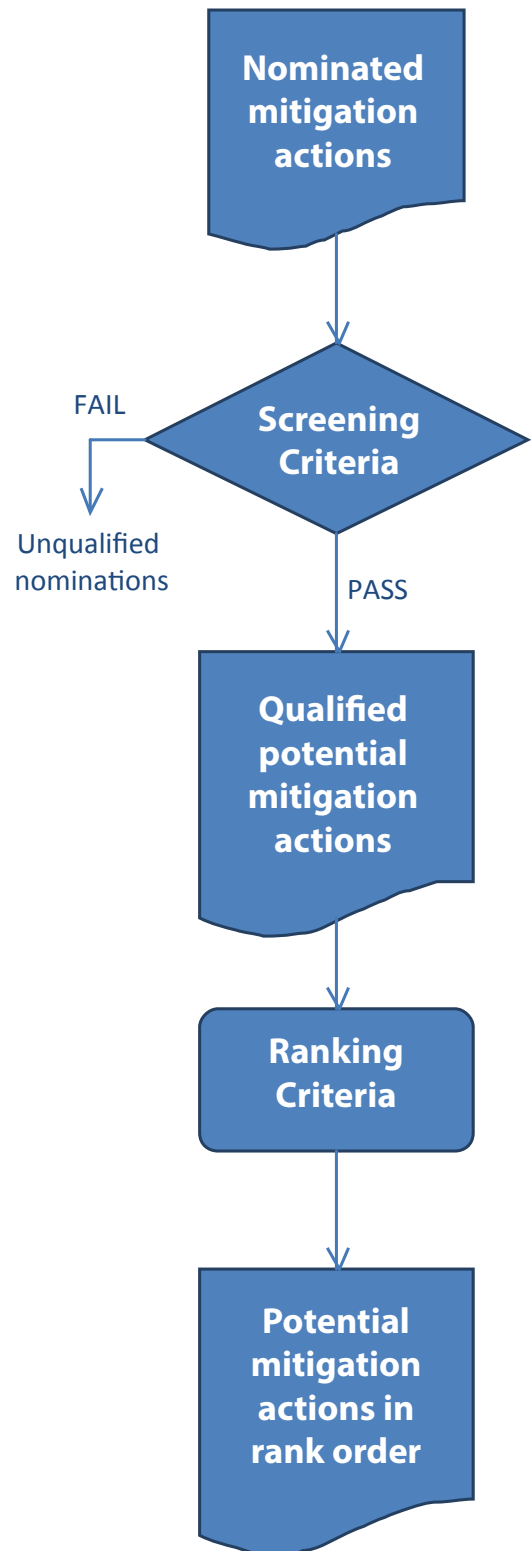


Table 2-2 BLM Matrix for Ranking Candidate Regional Mitigation Actions/Projects

Ranking Criteria	Points Possible	Scoring Rubric
Importance	0 to 5	0 to 5 points based on degree of support from tribal governments; other tribal entities; local communities; Federal, State, and local governments; subject matter experts; and the public at large.
Effectiveness	0 to 5	5 points for actions/locations that fully mitigate all of those unavoidable impacts that warrant mitigation. 2-4 points for actions/locations that fully or partially mitigate some of the unavoidable impacts that warrant mitigation. 1 point for partially mitigating one of the unavoidable impacts that warrant mitigation.
Durability	0 to 5	5 points for actions/locations that are a one-time investment and have a high level of certainty that they will last longer than the impacts. 2-4 points for actions/locations that have moderate level of certainty that they will last longer than the impacts and/or require additional funding. 0-1 points for actions/locations that are at risk of failing to last longer than the impacts.
Risk	0 to 3	3 points for a high degree of certainty based on documented results of success in similar situations. 2 points for moderate degree of certainty based on documented results of success in similar situations. 1 point for moderate degree of certainty based on expert opinion. 0 points for high risk proposals.
Feasibility	0 to 3	1 or 0 points each for technical, administrative, and political feasibility.
Timeliness	0 to 3	3 points for projects that are expected to deliver full benefits immediately. 2 points for projects that are expected to deliver benefits that are not immediate, but within a reasonable amount of time after implementation. 1 point for projects that will deliver benefits with a significant delay after implementation.

- a) *Current baseline/trend is either unaffected or is improved.*
- b) *Adverse impact to baseline/trend is reduced, but not fully restored.*
- c) *Do not require continuous funding, including operations and maintenance funding, and do not require funding to renew after the project is decommissioned and the impacts cease.*

Table 2-3 contains the mitigation actions presented above with the ranking criteria applied. The table is meant to provide insight for the applicant or decision-makers into which potential mitigation actions have the greatest potential to cost-effectively compensate for the residual impacts of oil and gas development that stakeholders feel are of greatest concern. The list is a recommendation only. Decision-makers may select any action from the list presented in Table 2-1, or any other action(s) that are identified based on more detailed analysis, feedback obtained through government to government interactions or public comment, and/or additional considerations, such as cost-sharing opportunities.

Table 2-3 Proposed Mitigation Actions in Rank Order

Point	Action Number	Short Description
20	1	Facilitate access to areas with important subsistence or cultural resource values.
20	2	Reimburse hunters for the additional costs.
20	10	Support projects that document, teach, and protect culture, history, and language.
20	11	Protect, restore or reclaim areas with important environmental, subsistence, or cultural resource values through a no-surface occupancy agreement, conservation easement or other tools
20	13	Identify and protect high-value wetlands.
19	6	Develop and implement programs to enhance production of local food sources.
19	17	Create/expand/enforce special management areas/buffers.
18	5	Manage/control sport hunting.
18	7	Construct cultural centers in impacted communities.
18	8	Fund cultural camps for youth, preferably through an endowment.
18	9	Support a whaling captain apprentice program.
18	18	Restore/maintain water flow volume; protect surface water quality.
16	3	Develop and implement programs to share food among North Slope communities.
16	19	Fund projects to control erosion.
16	24	Improve air quality monitoring.
15	25	Support health programs in impacted communities.
15	27	Build recreation centers, teen centers, playgrounds, and/or picnic areas in and around impacted communities.
15	28	Provide parking in Deadhorse.
14	29	Assist communities in communicating with levels of government to get issues of concern addressed and/or to obtain grants to help the communities deal with impacts.
13	12	Continue monitoring of annual survival of the Spectacled Eider on the North Slope.
13	14	Fund programs to protect against the introduction and proliferation of invasive species.
13	16	Develop and implement research and monitoring projects focused on improving the understanding of the effects of development infrastructure and activities on subsistence species.
13	20	Collect baseline data and provide ongoing monitoring of ecosystem health and function.
13	22	Improve education efforts to eliminate take and the use of lead shot across the range of the Spectacled Eiders.

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Point	Action Number	Short Description
13	26	Develop and implement research and monitoring projects focused on improving the understanding of the effects of development infrastructure and activities on human health.
13	30	Support the implementation/expansion of STEM programs.
13	31	Support the development and implementation of job training programs in North Slope communities.
13	32	Develop and implement programs that support local entrepreneurial and economic development in impacted communities.
13	33	Fund increased local oversight/monitoring of development activities.
13	34	Pay for engineering/architectural plans to secure sources of construction funding for facilities and infrastructure improvements in impacted communities.
12	15	Develop conservation or management plans for the NPR-A, for Special Areas, and/or for areas with important environmental, subsistence, or cultural resource values.
12	21	Evaluate and predict effects of environmental change in breeding areas on Spectacled Eiders.
12	23	Continue monitoring Spectacled Eider blood lead levels in areas where information is lacking.
12	35	Fund the development of long-term community development plans for impacted communities.
11	36	Build new housing to meet growing demand in impacted communities.
10	4	Develop and implement programs to safely store food (e.g., community freezers and/or ice cellars).

This list is meant to provide insight for decision-makers into which potential mitigation actions have the greatest potential to cost-effectively compensate for the unavoidable impacts of oil and gas development that stakeholders feel are of greatest concern. The list is a recommendation only. Decision-makers may select any action from the list, or other actions identified subsequently, based on more detailed analysis, feedback obtained through government-to-government interactions, and/or additional considerations, such as cost-sharing opportunities.



White-fronted goose. (USFWS)

Step 3: Create an implementation plan

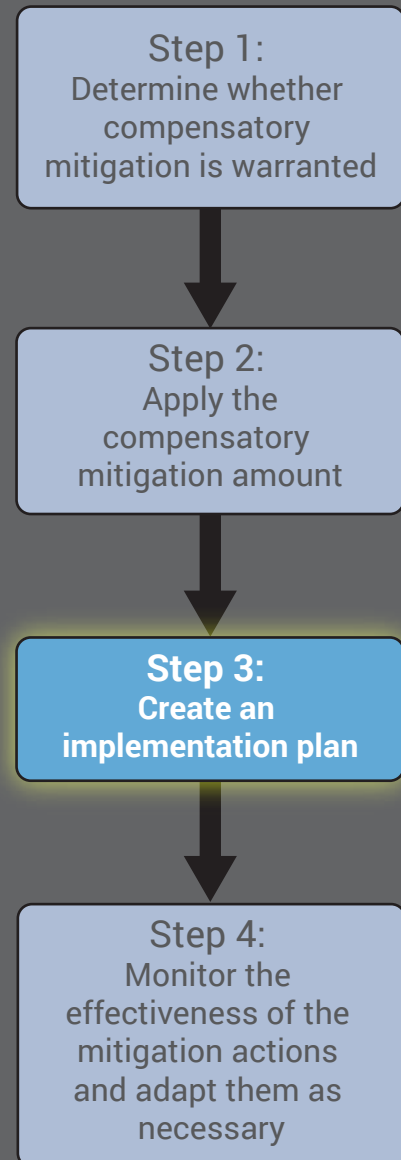
The decision document for each proposed development project will specify what types of compensatory mitigation actions will be required, how they address the identified residual impacts warranting compensatory mitigation, and how they will contribute to meeting RMS mitigation goals. Once the mitigation actions or fees have been determined in the decision, the next step is to create an implementation plan that will specify the compensatory mitigation actions to be completed and how the actions will be carried out for the life of the development.

The purpose of the implementation plan is to describe in detail the compensatory mitigation obligation and how the mitigation actions will be successfully accomplished. The implementation plan will be created by the applicant and approved by the BLM in close consultation with the affected residents and local stakeholders, in order to ensure that mitigation goals are achieved. The plan will include detailed information regarding the mitigation actions that will be carried out, focusing on how they will be implemented on-the-ground and the costs of the mitigation action, which comprise the mitigation fund. The plan will also specify the resource outcomes that will be achieved through the actions, discussion of how durability of the mitigation will be ensured, timelines for implementing the actions, and criteria for assessing the effectiveness of the mitigation actions in achieving mitigation goals. The implementation plan will also include the administrative and contingency fees, and details on reporting requirements.

Required Reporting and Management

The BLM will select management options for mitigation actions that ensure that mitigation funds are managed and expended for the identified purposes and according to applicable law, regulation, and policy. The BLM requires a transparent and effective accounting system to track funds contributed and funds spent, and the establishment of a funding mechanism to cover administration, durability, monitoring, and reporting for the investments for the duration of the impacts from development.

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The BLM would prefer that an independent third party manage the compensatory mitigation funds. An appropriate third party fund manager must be neutral, well-established and provide transparent financial management services, including low management fees and tax-free growth of funds that could result in more financial resources to fund on-the-ground mitigation actions. While it is permissible for the BLM to manage mitigation funds, the agency is discouraged from doing so due to increased workloads on BLM staff and required overhead rates that may result in a reduction of the fee that is directly used for compensating for residual impacts. Regardless of whether the BLM or a third-party manages the fund, the full costs to manage the funds would be included when determining the amount of compensatory mitigation.



Pipeline over tundra. (USGS)

Step 4: Monitor the effectiveness of the mitigation actions and adapt them as necessary

The BLM requires that all mitigation measures be monitored in order to verify desired outcomes are being achieved. If actions do not meet their desired outcome, they will be adapted to improve performance. In order to meet this requirement while minimizing cost, monitoring will be required for assessing the overall effectiveness of compensatory mitigation in the Northeastern NPR-A, and will rely to the greatest extent possible on data already being collected by the BLM or other entities. Therefore, it is recommended that a monitoring strategy be developed for the mitigation actions selected for implementation in the plan.

Adaptive management is a systematic and cyclical process for applying the lessons learned from on-going experiences to increase efficiency and/or effectiveness of achieving a desired outcome. Adaptive management, as it applies to compensatory mitigation, should be applied to mitigation actions. Since mitigation actions are identified in project-specific NEPA analysis, it follows that the development of an adaptive management strategy must occur during project-specific NEPA analysis. Table 2-4 introduces the key components necessary to create an adaptive management strategy: goals, effectiveness measures, indicators, and factors that could affect success. Using the identified RMS goals presented in the Introduction, the table describes potential effectiveness measures that could be used to assess the adequacy of a mitigation action to achieve the goal, as well as the potential indicators that would be used to measure success. The table also identifies potential external factors, outside the control of the operator or the BLM, that could affect the success of the mitigation actions to be implemented. Every implementation plan should include an adaptive management strategy specific to the mitigation actions to be implemented. If, through analysis using the effectiveness measures the mitigation action is shown not to be achieving the mitigation goals, then efforts should be made to modify the action toward successfully achieving the goal.

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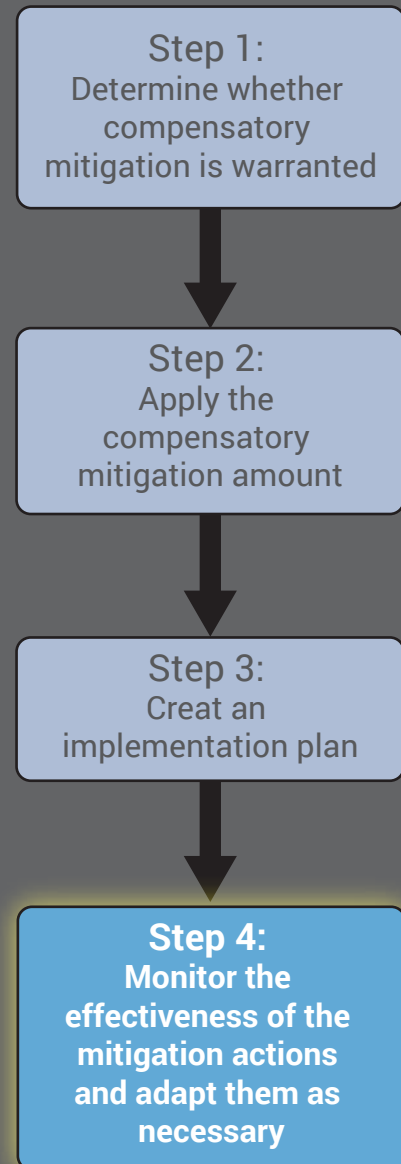


Table 2-4 Potential Measures, Indicators of Success, and External Factors

Goal/Mitigation Standard	Potential Effectiveness Measures	Indicators of Success (Referencing Baseline)	Potential External Factors that Would Require Control
Sustain and enhance access to and use of traditional subsistence use areas	Annual harvest Hunting cost per unit Hunting time per unit	Harvest until needs are met, then steady Costs down Time down	Market forces that effect the cost of fuel, vehicles, equipment, etc. Other conditions or activities that affect wildlife populations and movement (e.g., disease, climate change, other development)
Sustain and enhance opportunities and rights for native peoples to live, practice, and pass on Iñupiaq culture and lifestyle.	Population of village Participation rate in key cultural events	Population up Participation rates up	Other factors that result in out-migration (e.g., economics). Other factors that discourage participation.
Sustain and enhance the functionality of the ecological system, including land, water, and landscapes that allow for sustainable populations of fish and wildlife and their natural movement and distribution.	Populations of key subsistence species Acres by ecological condition class	Populations in natural equilibrium Overall ecological condition improving	Other conditions or activities that affect wildlife populations and movement (e.g., disease, climate change, other development). Non-oil development that degrades ecological condition.
Sustain and enhance the health and safety of the residents.	Longevity Incidence of selected diseases or conditions per capita (e.g., asthma, addiction)	Longevity increasing Incidence decreasing	External factors that affect health and/or safety (e.g., drug-resistant diseases, health care costs, decreasing air quality from non-oil development, etc.)
Sustain and enhance opportunities for economic and community development, such as job training and local contracting.	Unemployment rate Graduation rates Ratio of per capita income and cost of living People's happiness	Unemployment rate decreasing Ratio increasing Graduation rate increasing Happiness increasing	External economic factors: market dynamics, tax policy, cost of goods and services. Corporate policy regarding hiring locals. External social factors (e.g., quality of schools).

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<http://www.facebook.com/BLMAlaska>



<http://www.twitter.com/BLMAlaska>

Front Cover Photo Captions:

Hunter boating on the Kuuk River during caribou season (BLM); insets: Caribou in the Northeast National Petroleum Reserve in Alaska, (Bob Wick, BLM); Male polar bear walks on pack ice near the open water (Eric Regehr, USFWS); Spectacled Eider (USFWS).

Back Cover Photo Caption: Northeast National Petroleum Reserve in Alaska, (Bob Wick, BLM)