

**Conceptual Regional Mitigation Strategy Document for the
Northeastern Region of the National Petroleum Reserve in Alaska**

DRAFT FOR PUBLIC REVIEW

April 15, 2016

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Introduction to the RMS

What is a Regional Mitigation Strategy?

A Regional Mitigation Strategy (RMS) guides how mitigation will be provided to compensate for some of the unavoidable adverse environmental and sociocultural impacts of development. Unavoidable impacts are those impacts that remain after all reasonable measures have been taken to avoid and/or reduce impacts (discussed in Sections 3 and 4 below). An RMS identifies and evaluates compensatory mitigation needs and actions within a large geographic area, before permitting decisions are made and development occurs.

Unless otherwise specified, the term ‘impacts’ will refer to ‘unavoidable adverse impacts’.

Why did the BLM develop an RMS for the Northeastern NPR-A?

The development of an RMS for the Northeastern National Petroleum Reserve in Alaska (NPR-A) is required by the Bureau of Land Management’s (BLM) Supplemental Environmental Impact Statement (EIS) and Record of Decision (ROD) for the Greater Mooses Tooth 1 (GMT1) project. The GMT1 ROD implements the Department of the Interior’s direction on improving mitigation policies and practices, and BLM’s national mitigation guidance.

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.*

The primary purpose of this RMS is to identify a prioritized list of mitigation actions to compensate for impacts on important resources and resource uses in advance of future development in the region.

How will the RMS for the Northeastern NPR-A be used?

The BLM will use the RMS when it is evaluating future development projects through the National Environmental Policy Act (NEPA) process, and as it makes permit decisions for each project. The RMS includes information about resources and future development scenarios in the Northeastern NPR-A which will help BLM evaluate cumulative effects, development impacts, and whether compensatory mitigation will be required for future projects. If compensatory mitigation is required, the RMS provides a “roadmap” for determining how much compensation to require, a list of potential mitigation actions, and criteria for evaluating potential mitigation actions. While the RMS is *not* a BLM decision document, it includes specific

recommendations to inform BLM decisions about compensatory mitigation. A more detailed discussion of the relationship between the RMS for the Northeastern NPR-A and the Application for Permit to Drill (APD) process is presented in Appendix 1.

How will the RMS benefit the North Slope communities and the environment?

Under current national policy, some impacts of future development in the Northeastern NPR-A will require compensatory mitigation. This type of mitigation is in addition to all of the measures taken to avoid and/or reduce impacts in and around the development site. This will benefit North Slope communities and the natural environment by providing additional means to sustain and enhance human and natural conditions that would otherwise be degraded by development.

How is the RMS being developed and who is involved?

The RMS is being developed through a transparent and collaborative process, involving a wide range of affected stakeholders. Stakeholders include Alaska Native residents of the North Slope, Tribal governments, local governments, North Slope organizations, other Federal agencies, the State of Alaska, academia, industry, and others with interests in development and mitigation in the NPR-A.

The RMS process has included three public workshops (held in Barrow and Fairbanks), government-to-government consultations and public meetings in Nuiqsut (the community most impacted by development to date), meetings with the NPR-A Working Group, a substantive and user-friendly website, and opportunities for stakeholders to submit nominations for mitigation actions/locations and written comments on draft sections of the strategy.

The public now has the opportunity to review and provide comments on this Conceptual RMS document. The BLM will produce a draft RMS for the Northeastern NPR-A and distribute that draft for review in summer 2016. Additional meetings will be held in North Slope communities during the final draft review period.

Elements of the NPR-A RMS

The RMS includes the ten sections shown below. Each section is described in the remainder of this document.

Section 1 – Geographic Region Included in the Northeastern NPR-A RMS



The BLM is proposing that the RMS apply to the Northeastern region of the NPR-A, defined 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 (Map 1).

The RMS will apply to development projects within the region shown on Map 1 that are enabled or assisted by the existence of GMT1. The BLM may require mitigation to compensate for certain unavoidable adverse impacts from these projects (as explained in Sections 3 and 4 of this document).

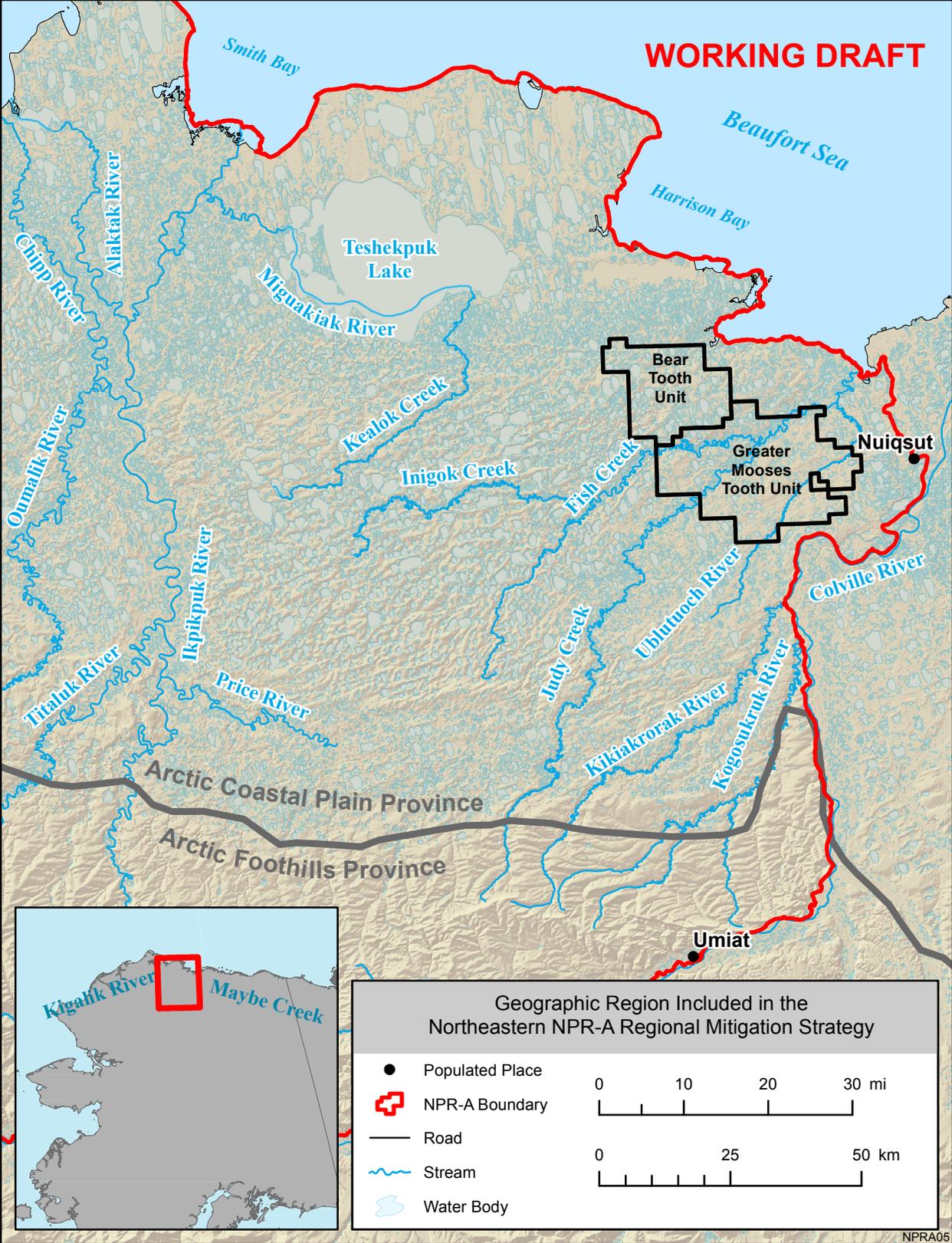
The type of mitigation action and its location will be based on its potential effectiveness in addressing development impacts.

Why isn't there a boundary line around the region on the map?

The BLM had initially proposed a “firm, fixed-line” boundary for the RMS. However, during public workshops and in written comments, nearly all stakeholders stated that a firm RMS boundary line would *not* reflect the dynamic relationships between resources, resource patterns, people, and communities on Alaska’s North Slope.

Defining a broad “region” for the RMS (Map 1) will provide more flexibility in selecting and siting compensatory mitigation actions, to ensure that they are effective in meeting mitigation goals. This regional approach is also better suited to the dynamic nature of North Slope resources and resource use than is a fixed line RMS boundary. The RMS will not focus on whether a development impact or mitigation action is “inside” or “outside” of a fixed boundary line on a map, but instead on explaining the approach BLM will use to address development impacts in future mitigation planning and decision-making.

WORKING DRAFT



Section 2 – Reasonably Foreseeable Development Scenario



This RMS must address “land uses that are *enabled or assisted by the presence of GMT1*,” primarily oil development, that may impact resources, values, and functions in the region. Other than a proposal to develop one additional production pad (GMT2), no definitive plans exist that identify future development. Thus, to develop an RMS, the BLM must develop and apply a “reasonably foreseeable development scenario” (RFDS) for development that is expected to be enabled or assisted by the development of GMT1.

Don’t projections of oil development already exist?

Yes, but they quickly become outdated as conditions change. The BLM chose an existing projection, the 2004 Alpine Satellite Development Plan, as a starting point for developing this RFDS. The BLM updated the 2004 Plan to include information now available for GMT1 as well as a second production pad now in the permitting process (GMT2).

The development scenario was further updated with the following information: data obtained from exploratory drilling, changes in the areas that are available and not available for development as identified in the 2012 NPR-A Integrated Activity Plan (IAP), the current status of infrastructure projects, existing leased areas and/or production unit boundaries, and updated market trends.

What kind of development is expected in the foreseeable future and where might it be located?

Industry representatives indicated to BLM that industry plans would have any future satellite production pads enabled by GMT1 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 GMT or Bear Tooth Units, and these pads would be within a 10-mile radius of GMT1 or GMT2. A road and pipeline would connect the additional

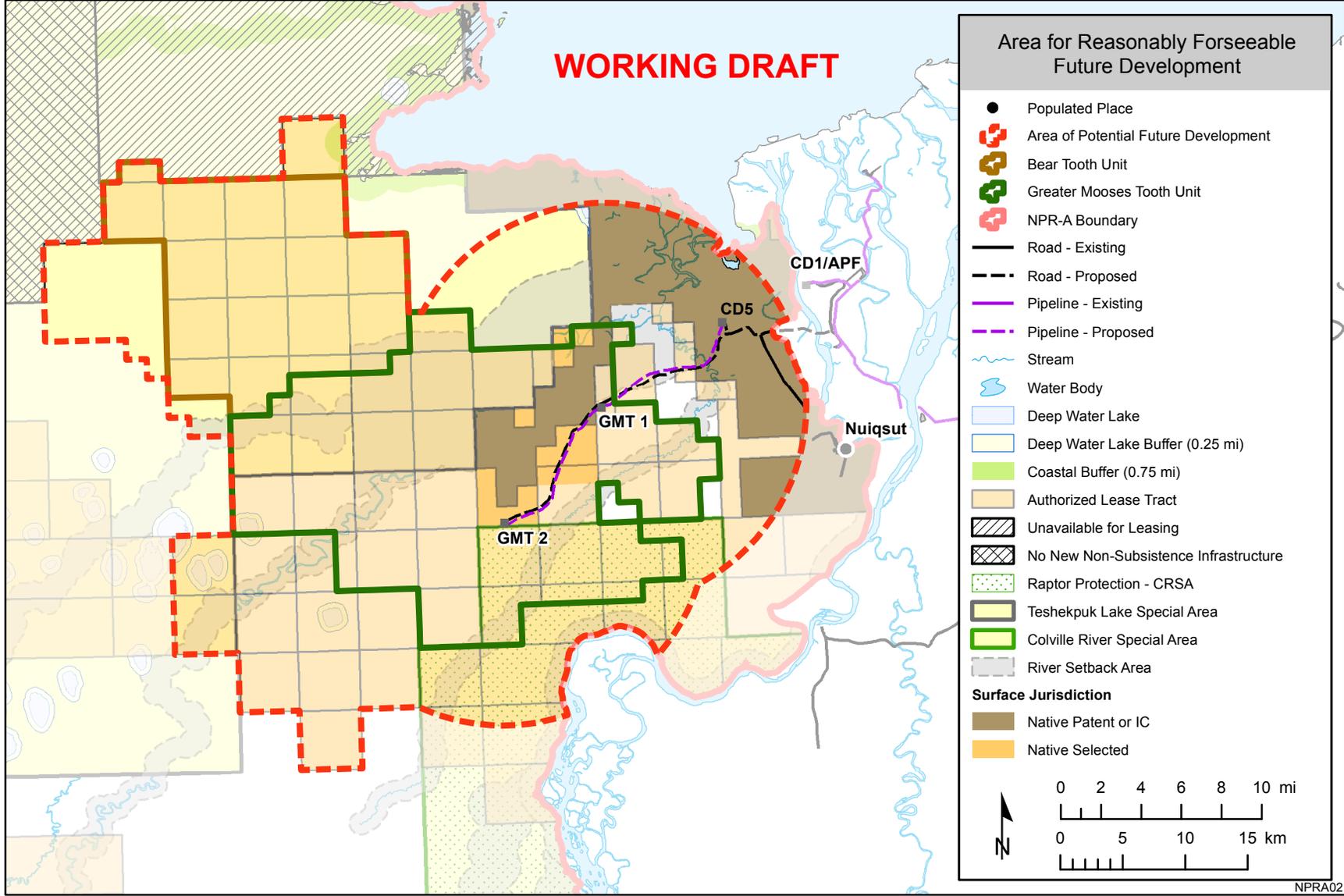
pads to GMT infrastructure. The potential locations of additional production pads are limited by special protection areas and setbacks from certain lakes and rivers.

The BLM has developed a draft map depicting the area where future development enabled or assisted by GMT1, including GMT2 and the two additional production pads, will likely occur. The area shown in Map 2 incorporates this information from industry, but also includes all

leased tracts contiguous to existing oil and gas production units, formerly utilized 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.

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Area for Reasonably Foreseeable Future Development

- Populated Place
- Area of Potential Future Development
- Bear Tooth Unit
- Greater Mooses Tooth Unit
- NPR-A Boundary
- Road - Existing
- Road - Proposed
- Pipeline - Existing
- Pipeline - Proposed
- Stream
- Water Body
- Deep Water Lake
- Deep Water Lake Buffer (0.25 mi)
- Coastal Buffer (0.75 mi)
- Authorized Lease Tract
- Unavailable for Leasing
- No New Non-Subsistence Infrastructure
- Raptor Protection - CRSA
- Teshekpuk Lake Special Area
- Colville River Special Area
- River Setback Area

Surface Jurisdiction

- Native Patent or IC
- Native Selected

0 2 4 6 8 10 mi
0 5 10 15 km

N

NPRA02

Section 3 – Unavoidable Adverse Impacts from Development in the Northeastern NPR-A



The BLM requires that mitigation be used to avoid, minimize, rectify, or reduce over time the environmental impacts of development on lands the BLM manages. For future development in the Northeastern NPR-A, the BLM will require best management practices (BMPs) and lease stipulations that would lessen the adverse impacts of development. However, some *unavoidable* adverse impacts would occur even with implementation of applicable BMPs and lease stipulations.

In previous environmental assessments, the BLM has found that development will have major *unavoidable adverse impacts* on the following resources, regardless of the location and nature of the development within the Northeastern NPR-A and in spite of implementing all reasonable avoidance and minimization measures to mitigate impacts:

- Subsistence
- Sociocultural Systems
- Environmental Justice

The nature and magnitude of impact (major, minor, etc.) from future development to the following resources was found to be dependent on the location and nature of the development project.

- Air Quality
- Water Quality
- Public Health
- Birds
- Fish
- Terrestrial Mammals
- Threatened and Endangered Species: polar bear
- Threatened and Endangered Species: spectacled eider
- Cultural Resources
- Visual Resources
- Land Use and Ownership

Finally, impacts to the following resources from future development regardless of where it occurs in the region were identified as minor, negligible, or positive, and are not further considered in this RMS:

- Climate and Meteorology/ Climate Change – Negligible impacts
- Economy – Positive impacts
- Geology and Mineral Resources – Minor impacts
- Marine Mammals – Negligible impacts
- Oil, Saltwater, and Hazardous Material Spills – Minor impacts, except very low probability event
- Noise – Minor impacts
- Paleontological Resources – Negligible impacts
- Petroleum Resources – Purpose of development, royalties paid
- Recreation – Negligible impacts
- Sand and Gravel Resources – Minor impacts
- Soils and Permafrost/Physiography and Geomorphology – Minor impacts
- Threatened and Endangered Species - Steller's eider – No impacts expected
- Transportation – Minor impacts
- Vegetation and Wetlands – USACE 404 Wetlands Permit covers this resource

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Section 4 – Impacts that Warrant Compensatory Mitigation



After identifying unavoidable adverse impacts to specific resources (Section 3), the BLM will consider the following questions in determining whether an impact warrants compensatory mitigation:

- Would compensatory mitigation be appropriate? (Is it needed for and effective in protecting the resources?)
- Are the resources important, that is, do they have a high level of BLM management significance?
- Are the resources scarce or trending down in condition?
- Are the resources sensitive, vulnerable to other adverse changes (such as climate change), or not able to recover from changes?

If the impacts meet one or more of the above criteria, then those impacts warrant compensatory mitigation (Figure 1).

What impacts warrant compensatory mitigation for this RMS?

Using the criteria above, this RMS recommends that impacts to the following resources warrant compensatory mitigation, regardless of the location and exact nature of the individual projects:

- Subsistence
- Sociocultural Systems
- Environmental Justice

The rationale for this finding is that these are important, scarce, or sensitive resources that were found to be subject to major impacts in the GMT1 Supplemental EIS. It is expected that future, additional development in the same area will also have major impacts to these resources. The final determination on whether these impacts warrant compensatory mitigation will be made by the BLM through its project-specific decisions, supported by NEPA evaluations.

Aren't there some impacts that may warrant compensatory mitigation for this RMS depending on the nature and location of future development?

The RMS finds that the following impacts *may* warrant compensatory mitigation, depending on the location and nature of the development project. The final determination on whether these impacts warrant compensatory mitigation will be made by BLM through its project-specific decisions, supported by NEPA evaluations.

- Air Quality – Moderate impacts, important resource
- Water Quality – Minor impacts, important resource
- Public Health – Minor or moderate impacts, sensitive resource
- Birds – Minor impacts, important resource
- Fish – Minor impacts, important resource
- Terrestrial Mammals – Minor impacts, important resource
- Threatened and Endangered Species: Polar Bear – Minor impacts, sensitive and scarce resource
- Threatened and Endangered Species: Spectacled Eider – Minor impacts, sensitive and scarce resource
- Cultural Resources – Moderate impacts
- Visual Resources – Minor impacts
- Land Use and Ownership – Moderate impacts

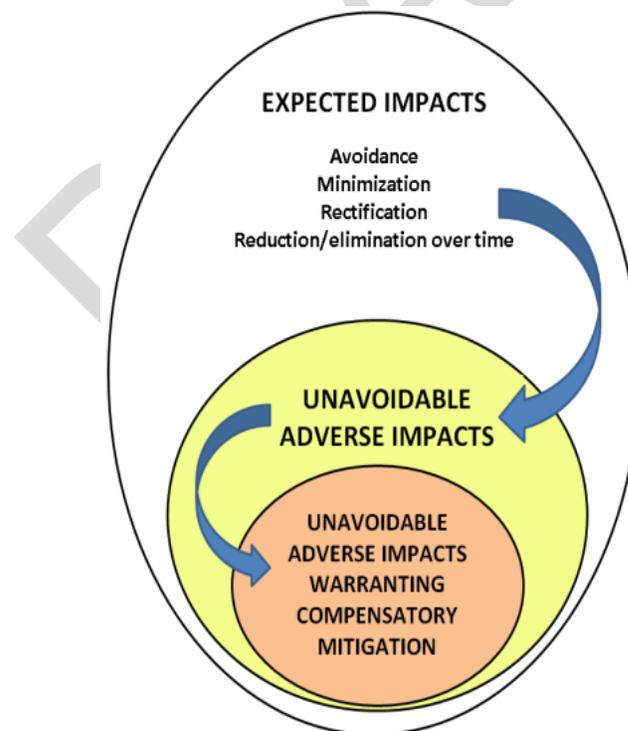


Figure 1: Impacts, Unavoidable Impacts, and Unavoidable Impacts Warranting Compensatory Mitigation

Section 5 – Recommended Compensatory Mitigation Amount¹



Once BLM has determined that compensatory mitigation will be required for a development project, it must determine how much mitigation will be required. This section describes the proposed methodology and the cost factors that BLM would use to determine the compensatory mitigation amount.

Requirements and Methods

The recommended compensatory mitigation amount for the Northeastern NPR-A RMS will include a **base cost**, which will be modified (adjusted up or down) depending on impacts associated with a specific proposed project. The base cost will start as a scalable amount (for example, a per acre mitigation cost), and will be adjusted in consideration of various impact factors, including the importance, scarcity, and sensitivity of the affected resources.

The base cost should be built on the impacts that warrant mitigation, which for this RMS include impacts to subsistence and sociocultural systems (and associated environmental justice impacts, since these impacts disproportionately affect Alaskan Native populations). Although the area of on-the-ground impacts from infrastructure is relatively small (area of the well pad and new road and pipeline), the total impact area is much larger, because subsistence use is avoided for a distance of at least 2.5 miles from these infrastructure features (based on information in the GMT1 Supplemental EIS).

The proposed approach for this RMS is to develop a per-acre base cost from the acreage of subsistence use area impacted (affected) by a development project. This is an appropriate approach because all of the anticipated RFDS projects are located within subsistence use area (avoidance of which also impacts sociocultural systems). The area impacted would be

calculated as the area around infrastructure that would no longer be used for subsistence hunting, which includes at least a 2.5-mile buffer around new production pads, roads, and

¹ Although there are several ways compensatory mitigation obligations could be satisfied, including proponent-responsible compensatory mitigation, purchasing credit from approved mitigation banks or conservation/mitigation exchanges (if available), or contributions to a mitigation fund (in-lieu fee), this RMS focuses on a compensatory mitigation fee. Additionally, proponent-responsible mitigation (whereby the developer undertakes mitigation actions directly) will not likely be preferred by the applicant or other stakeholders.

pipelines. Map 3 illustrates this approach to determining the acreage of the area impacted, using the GMT1 infrastructure as an example. As depicted in Map 3, the area impacted by GMT1 includes BLM managed land, Native patents, Native selected land, and State land. It should be noted that the base fee will be applied to the entire impacted area regardless of land ownership.

The base cost for each project within the northeastern NPR-A will correspond to the impacts warranting mitigation (Section 4) for that project. NEPA analysis will be required for each new proposed project, and project-specific factors may result in identifying additional impacts warranting mitigation and corresponding mitigation amounts. Since the entire northeastern NPR-A is subsistence use area, it is expected that, at a minimum, compensatory mitigation would be required for all projects for impacts to subsistence, sociocultural systems, and environmental justice. For future projects, impacts to other resources (for example, impacts to terrestrial mammal, fish, or birds) may be found to warrant compensatory mitigation. An example of an additional impact that might be found to warrant mitigation could be impacts to wetlands. Under Section 404 of the Clean Water Act, impacts to wetlands require compensatory mitigation. This compensatory mitigation is separate from the compensatory mitigation for impacts to subsistence use and sociocultural systems recommended through the RMS. The compensatory mitigation for impacts to wetlands would be administered through the Corps of Engineers, separate from the BLM's compensatory mitigation requirements.

Once the base cost for a project is established, it will be adjusted upward or downward based on **modifiers** that address particular project characteristics and impacts. Footprint and buffer encroachments (also called incursions) into setback or special areas defined in the applicable IAP at the time of permit issuance for a project are examples of modifiers that would increase the base cost by a designated percentage. Distance of the project to the nearest community could also be a modifier, because of increased visual, and emissions impacts. Conversely, an arrangement for the new facility to hire personnel locally is an example of a modifier that could result in a decrease from the base cost, lowering the compensation amount. A separate modifier is recommended to account for cumulative effects; this multiplier would increase for each successive project.

In addition to the base cost and modifiers described above, contingency, administration, and monitoring fees need to be included in the compensatory mitigation amount. The contingency fee would be paid in full at the time that BLM issues the project permit, because this fee could be needed at any time during the implementation of mitigation actions. However, administration and monitoring fees may be paid as a lump sum at the time of permit issuance, or may be paid annually, if specified in the permit conditions.

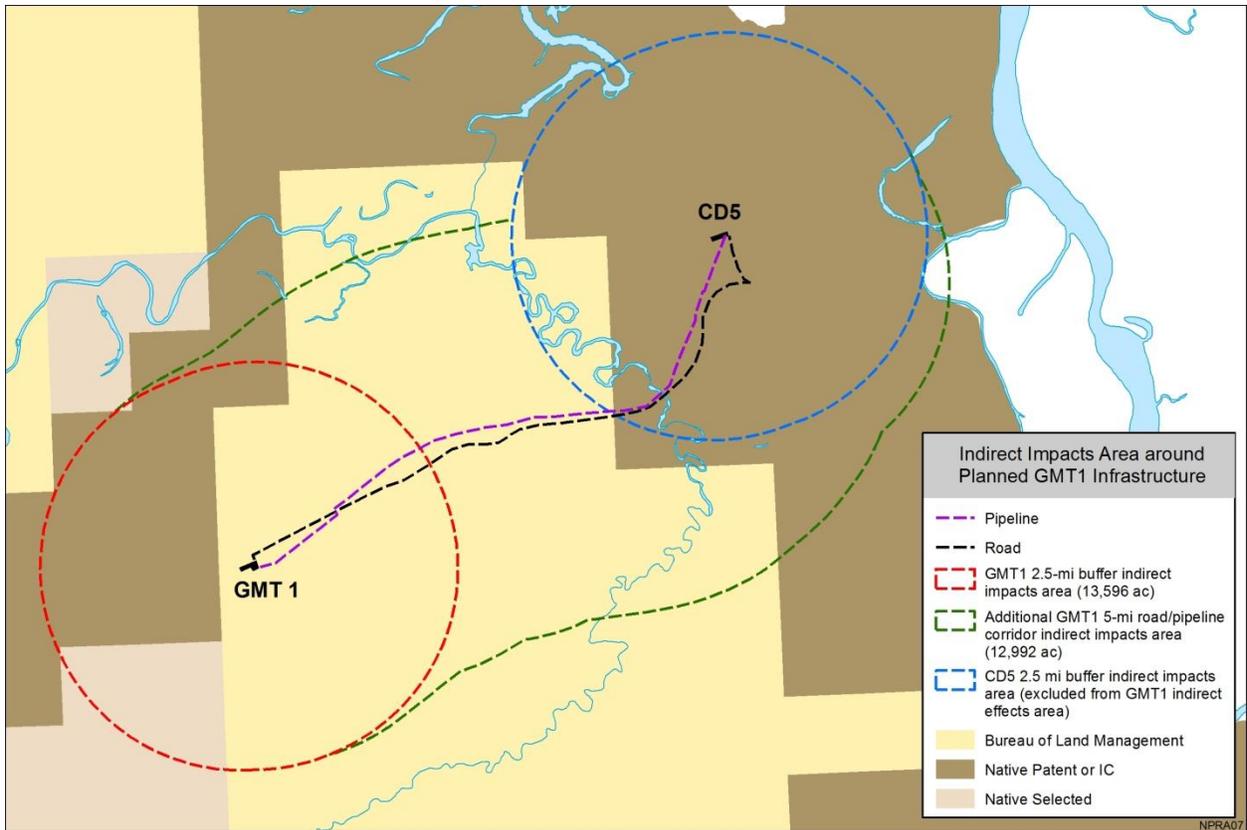
What is the recommended compensatory base cost for the Northeastern NPR-A RMS?

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 a way of life practiced in this location for thousands of years and is priceless. However, because compensation for losses is essential and is a beneficial way to address development impacts, this RMS is proposing to use

the precedence of the GMT1 mitigation settlement to estimate an appropriate base cost for impacts to a subsistence use area. The proposed base cost for this RMS is \$150 per acre of subsistence use area lost for the duration of the development.² Compensatory mitigation modifiers are also recommended based on additional impact considerations; these recommendations are listed in Table 1, along with suggested cost adjustments for each. The recommended base cost and modifiers presented here would result in a total compensatory mitigation fee commensurate with that paid for the GMT1 project. For the purpose of calculating a fee, a 'facility' is defined as a production pad and all new supporting infrastructure, including roads and pipelines. For example purposes, a production pad with a new road and pipeline would be considered one facility.

The mitigation amount presented in this RMS is a recommendation, not a decision. At the conclusion of any project-specific NEPA evaluation for projects in the Northeastern NPR-A, the BLM authorized officer will identify the appropriate compensatory mitigation amount as part of the BLM's project decision. The compensatory mitigation amount selected by the authorized officer may differ from the recommendations made in this RMS due to several factors, including but not limited to: (1) new information regarding the presence/absence of environmental resources and impacts warranting mitigation; (2) implementation of additional BMPs, avoidance areas, or other technologies that would minimize impacts; and/or (3) updated assessments of mitigation costs and an adjustment of the base cost to current year dollars to account for inflation.

² This is based on total cost of \$7 million for GMT1, assuming 26,600 acres of disturbance to subsistence use area and 43 acres of encroachment into setback area. While this cost is less than the per acre base costs recently issued for solar energy development (which range from about \$3,200 to \$3,900/acre; BLM and Argonne 2016a; 2016b), for North-Slope development the base costs are estimated for the larger area of subsistence/sociocultural impacts, rather than a smaller area of impacts to soils, water, vegetation, and wildlife.



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Table 1. Recommended Modifiers to the Base Cost for Compensatory Mitigation

Modifier	Considerations	Suggested Adjustment to Base Cost
Encroachment of development footprint into Setback or Special Area defined in applicable IAP	Amount of increase based on mitigation fee associated with GMT1 footprint encroachment into setback area. Suggested modifier value is for footprint encroachment of up to 50 acres; cost increase for more than 50 acres of encroachment to be negotiated.	Increase by \$70,000 for each acre of encroachment
Proximity to Nearest Community	To compensate for a variety of impacts that increase with proximity (e.g., to public health, sociocultural systems). This modifier only applies to facilities within approximately 10 miles of a community; current requirements indicate that no facilities would be cited nearer than 3 miles to a community (per the 1997 Surface Use Agreement between Kuukpik Corporation and ARCO Alaska, Inc). This modifier applies to any or multiple components of a new facility (e.g., road, pipeline and/or production pad) that occurs within 10 miles of a community. This modifier would be applied no more than one time per development.	Increase by \$1,000,000 if facility would be located from 3 to 10 miles from community
Local Hiring Agreement	Adjustment to account for benefit to sociocultural systems and fewer environmental justice impacts from local hiring. (Precedent – Red Dog Mine arrangements)	Decrease: specific amount to be determined through analysis of hiring proposal
Cumulative Impacts	Modifier for each successive new facility to account for cumulative loss of resources. This modifier applies to any or multiple components of a new facility (e.g., road, pipeline and/or production pad). This modifier would be applied no more than one time per development.	Increase by additional \$1,500,000 per facility (e.g., \$1.5M for first additional facility, 2 x \$1.5M for second additional facility, etc.)
Damage to ecosystems/habitat found to warrant compensatory mitigation through project-specific NEPA	Calculate additional compensatory mitigation cost based on area of habitat impacted and cost to restore and/or preserve similar habitat	Increase determined through project NEPA
Disturbance of Special-Status Species Habitat (for BLM-sensitive species that are non-ESA listed and not addressed under ESA Section 7 requirements)	Calculate additional compensatory mitigation cost based on area of habitat impacted and cost to restore and/or preserve similar habitat	Increase determined through project NEPA

Section 6 – Management of Compensatory Mitigation Funds



Compensatory mitigation funds do not supplement the BLM’s operating budget; these funds must be used only for compensatory mitigation actions under the RMS and managed and accounted for separately. The BLM will select management options for mitigation funds that ensure that the funds are managed and expended for the identified purposes and according to applicable law, regulation, and policy.

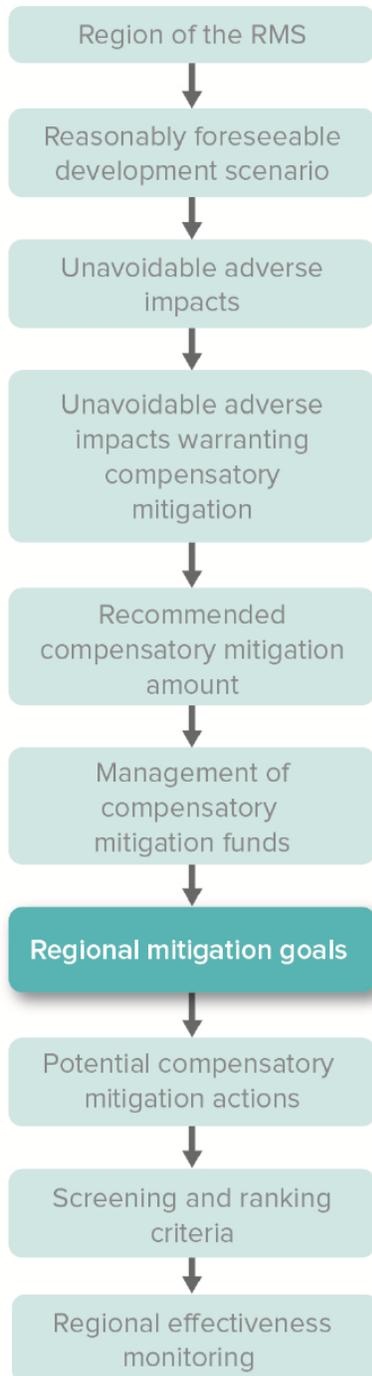
The BLM would prefer that an independent third-party manage compensatory mitigation funds. While it is permissible for the BLM to manage mitigation funds, the agency is discouraged from doing so due to increased workloads on BLM staff, overhead rates charged by the BLM’s National Operations Center, etc. If a third-party is used, the BLM will retain oversight. 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.

When compensatory mitigation funds are required for development projects under the RMS, the BLM will implement a transparent and effective accounting system to track funds contributed and funds spent, and to establish a funding mechanism to cover administration, durability, monitoring, and reporting for the duration of the impacts. The decision document for each project will be as specific as possible regarding what types of compensatory mitigation actions will be funded and how they will contribute to meeting RMS mitigation goals. A management agreement will be set up between the BLM, the entity contributing the mitigation funds, and the BLM-retained third-party fund manager. The agreement will include the amount of funding the BLM is accepting, the resource outcomes that will be achieved with the funds, discussion of how durability of the mitigation will be ensured, timelines for expending the funds, discussion of how additionality will be ensured,³ accounting for administrative and contingency fees, and details on reporting requirements.

³ “Additionality” means that the funds would not be spent for any action that should be done by BLM or another entity independent of the compensatory mitigation requirements.

Section 7 – Regional Mitigation Goals

NE NPR-A RMS



The purposes of the regional mitigation goals are to:

- Set goals to be achieved through mitigation as development occurs on the public lands within for the northeastern NPR-A region.
- Guide the BLM in selection of compensatory mitigation objectives and actions to address impacts of future development projects.

The BLM is proposing the following mitigation goals for the RMS. They were derived from the list of potential impacts and are meant to make explicit the desired outcome of mitigation actions. These goals (also called mitigation standards) have been developed and improved with input from stakeholders during public workshops:

1. Sustain and enhance access to and use of traditional subsistence use areas.
2. Sustain and enhance opportunities and rights for native peoples to live, practice, and pass-on Inupiaq culture and lifestyle.
3. 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.
4. Sustain and enhance the health and safety of the residents.
5. Sustain and enhance opportunities for economic and community development, such as job training and local contracting.

Section 8 – Potential Compensatory Mitigation Actions



Table 2 lists nearly 40 potential compensatory mitigation actions that were nominated by stakeholders. The identification number that appears in the 'ID' column in Table 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)

It is recognized that many of these mitigation actions could address impacts to more than one resource.

Additional compensatory mitigation actions may be added to Table 2 in the future, based on:

- government-to-government consultations;
- additional nominations from stakeholders;
- BLM subject matter expert recommendations; and
- other federal, state, and local government recommendations.

Table 2. 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 building a road to provide access from Nuiqsut to the Colville River or dredging the Nigliq Channel. Potential locations include: Colville River Delta/Special Area, Colville River Watershed, Fish Creek, Nuiqsut, or Nigliq Channel.
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.
6	SUB	Develop and implement programs to enhance production of local food sources
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 updating the Nuiqsut Paisangich.
11	ENV	Acquire conservation easements or issue preservation leases for areas with important environmental, subsistence, or cultural resource values. Potential locations include: Colville River Delta/Special Area, Colville River Watershed, Teshekpuk Lake Special Area and vicinity.
12	ENV	Prohibit permanent non-subsistence infrastructure in areas with important environmental, subsistence, or cultural resource values.
13	ENV	Continue monitoring of annual survival of the Spectacled Eider on the North Slope.
14	ENV	Identify and protect high-value wetlands (for example, important waterfowl molting areas).
15	ENV	Fund programs to protect against the introduction and proliferation of invasive species. Potential locations: Colville River Watershed, Nuiqsut.
16	ENV	Buy out older lease tracts in areas with important environmental, subsistence, or cultural resource values. Potential locations: Teshekpuk Lake caribou herd migration corridors, river crossings, and insect relief areas, Teshekpuk Lake Special Area and vicinity, and Ikpikpuk river area.
17	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.
18	ENV	Develop and implement research and monitoring projects focused on improving the understanding of the effects of development infrastructure and activities on subsistence species.
19	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.

ID	Primary Impact	Mitigation Action
20	ENV	Restore/maintain water flow volume, protect surface water quality. Potential locations: Colville River Delta/Special Area, Colville River Watershed, Fish Creek.
21	ENV	Fund projects to control erosion. Potential locations: Colville River Delta/Special Area.
22	ENV	Collect baseline data and provide ongoing monitoring of ecosystem health and function. Potential locations: Colville River Watershed, Fish Creek, Teshekpuk Lake Special Area and vicinity.
23	ENV	Evaluate and predict effects of environmental change in breeding areas on Spectacled Eiders.
24	ENV	Improve education efforts to eliminate take and the use of lead shot across the range of the Spectacled Eiders.
25	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.
26	HEALTH	Improve air quality monitoring – add more stations, upgrade stations to best available technology, monitor for a broader suite of pollutants.
27	HEALTH	Support health programs in impacted communities, including those designed to address need for drug/alcohol programs.
28	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.
29	COMM	Build recreation centers, teen centers, playgrounds, and/or picnic areas in and around impacted communities.
30	COMM	Provide parking in Deadhorse to facilitate North Slope residents' use of Dalton Highway for transportation.
31	COMM	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.
32	COMM	Support the implementation/expansion of STEM (Science Technology Engineering Math) programs, such as the Alaska Native Science and Engineering Program (ANSEP) in impacted communities.
33	COMM	Support the development and implementation of job training programs in North Slope communities.
34	COMM	Develop and implement programs that support local entrepreneurial and economic development in impacted communities.
35	COMM	Fund increased local oversight/monitoring of development activities - e.g., staff, training, funding to contract for technical and scientific expertise.
36	COMM	Pay for engineering/architectural plans to secure sources of construction funding for facilities and infrastructure improvements in impacted communities.
37	COMM	Fund the development of long-term community development plans for impacted communities.
38	COMM	Build new housing to meet growing demand in impacted communities.

The following mitigation actions were nominated by stakeholders, but can be accomplished by including them as conditions of a lease or permit. 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 BLM is leasing.
- Hire local monitors to monitor environmental compliance.

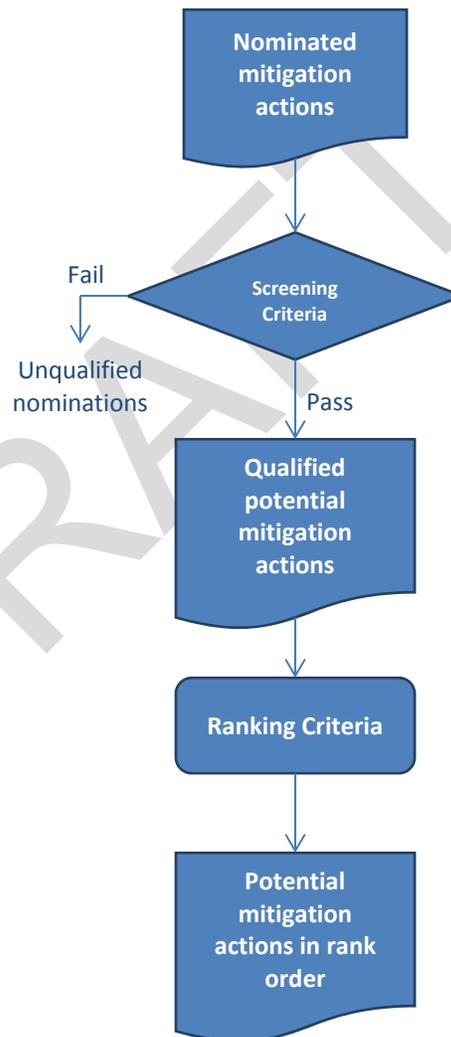
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Section 9 – Screening and Ranking Criteria for Compensatory Mitigation Actions



The RMS will include two types of criteria that will be used by BLM to evaluate and select potential compensatory mitigation actions, as shown in Figure 2: *screening and ranking criteria*. These are described in this section.

Figure 2 Screening and Ranking Process



Why screen potential mitigation actions?

Screening Criteria

The purpose of the screening criteria is to ensure that the actions being considered are legal, and meet two basic elements of the BLM's compensatory mitigation: connection and additionality. Every potential mitigation action must meet each of the following three criteria to be considered for implementation:

Legality: Does the action conform to applicable law, regulation, and policy?

Connection: Does the action reasonably address and is it proportional to the unavoidable impact(s) warranting compensatory mitigation?

Additionality: Is the action redundant/is it likely to be done by the BLM or some other entity?

Ranking Criteria

Table 2 (in Section 8) lists nearly 40 different actions that could potentially compensate for impacts of development in the Northeastern region of the NPR-A. Further, these actions could be implemented in different locations. The ranking criteria will be used to sort or "rank" the list of potential mitigation actions according to their potential to most effectively and efficiently address impacts. However, the ranked list is just a recommendation for consideration by those making the decision about mitigation. Other factors, such as opportunities to leverage funds, may influence the decision about which mitigation action(s) would be most effective for a particular development project.

The proposed ranking criteria include:

Importance: How strong is local stakeholder support for the action?

Effectiveness: How effective will the action be in achieving the RMS goals?

Risk: How certain is it that the desired outcome will be achieved?

Feasibility: How practicable is the action in terms of technology, logistics, cost, and time?

Durability: How likely is it that the outcomes of the action will last at least as long as the impacts of development?

Timeliness (e.g., time lag, temporal loss): How much time is expected to elapse between the time the impacts first occur and the time the full benefits of the action are realized?

Section 10 – Effectiveness Monitoring



The RMS will include a section that discusses how mitigation actions will be monitored for effectiveness – and how the RMS will be changed in the future (if necessary) to make sure it is effective in meeting its mitigation goals over the long-term.

Monitoring Plan

The RMS will include guidelines for developing and implementing a monitoring plan that will assess the success of the compensatory mitigation action(s) in achieving the desired outcome in the expected timeframe(s),

BLM will need to answer the question: *Did the mitigation actions achieve the desired outcome?* This will require stating the desired outcome(s) for each mitigation action in a way that can be observed and measured, and developing a plan for carrying out the monitoring in a cost effective manner. BLM will need to determine what parameters it can observe (monitor) in the field to evaluate success.

Adaptive Management Plan

The RMS will also include guidelines for developing an adaptive management plan. If monitoring data show that mitigation measures are not achieving the expected outcomes, the adaptive management plan will indicate how the RMS will be revised to improve its success in the future. The basic adaptive management process is depicted in Figure 3.

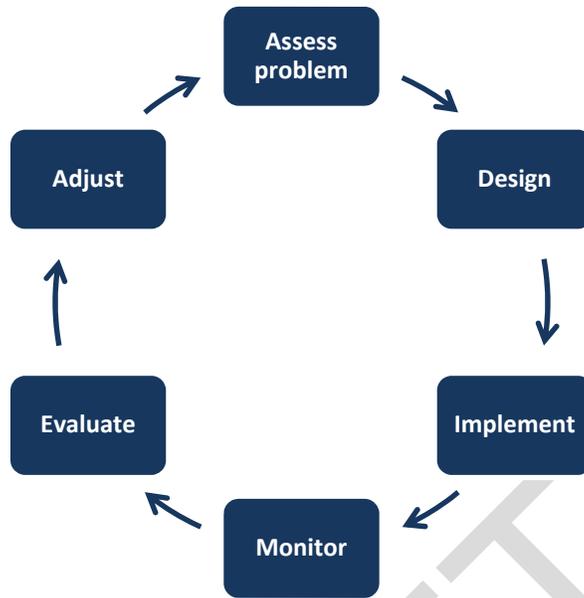


Figure 3: Adaptive Management Process

What next?

This document provides explanations of:

- What an RMS is and why one is being developed for the Northeastern NPR-A
- The contents of each section of the RMS as they currently exist
- How the sections of the RMS relate to one another
- How the RMS will be used

A draft RMS for public review and comment is expected to be made available in the summer, 2016. Background data and supporting documentation will be contained in a separate companion document, which will be available for review and comment at the same time as the RMS.

Comments and inquiries may be directed to:

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Appendix A - How Will the RMS be Used by BLM?

The BLM will use the RMS to guide the process of identifying, implementing, and monitoring mitigation actions to compensate for development impacts in the Northeastern NPR-A. As shown in Figure 4, it will support the NEPA and permit decision processes associated with processing Applications for Permit to Drill (APD). It will also inform project-specific compensatory mitigation plans, if required. While the RMS is *not* a BLM decision, it includes specific recommendations to inform the decisions of the BLM authorized officer about future development and mitigation requirements.

Application for Permit to Drill (APD)

The permitting process is triggered by an application for permit to drill (APD), or other similar development authorization request.

National Environmental Policy Act Evaluation Process

Receipt of a complete APD by BLM triggers a NEPA process to assess and document the impacts of the proposed action. The impact assessment includes, but is not limited to:

- Identification of the affected resources for several project alternatives. Often, alternatives are formulated by altering the location and or size of the footprint of the project, both of which address the first level of the mitigation hierarchy⁴ – to avoid adverse impacts if possible.
- An assessment of how resources would be affected under each alternative – specifically, how the baseline conditions and trends would be altered by the alternative over its lifetime. The projected baseline for each impacted resource incorporates the effects of external forces, such as climate change.
- An assessment of cumulative impacts, based on the impacts of existing development and on a reasonably foreseeable future development.

The RMS includes the following information that will help in the NEPA process:

- A reasonably foreseeable development scenario (RFDS) that can contribute to the assessment of cumulative impacts.
- Unavoidable impacts that will occur with development in the region.
- Unavoidable impacts that could occur with development.
- Baseline conditions and trends of resources in the region.

⁴ The BLM will implement the mitigation hierarchy process to address impacts to resources. First, the BLM will seek to avoid impacts (e.g., by altering project design, location, or timing, or declining to authorize the project). Then, the BLM will seek to minimize, rectify, and reduce or eliminate impacts over time (e.g., through project modifications, permit conditions, interim and final reclamation, etc.). Generally, only after these mitigation steps are taken, BLM may seek to compensate for some or all of the remaining impacts (i.e., unavoidable adverse impacts). Some impacts may be considered acceptable and would not require mitigation.

- Criteria for identifying impacts that warrant compensatory mitigation.
- A stakeholder-nominated list of potential mitigation actions (and suggested locations) that could be implemented.
- Screening and ranking criteria to help prioritize the mitigation actions and locations that would be most effective in addressing impacts.

Permit Decision

The RMS will support the BLM's permit decision process by providing:

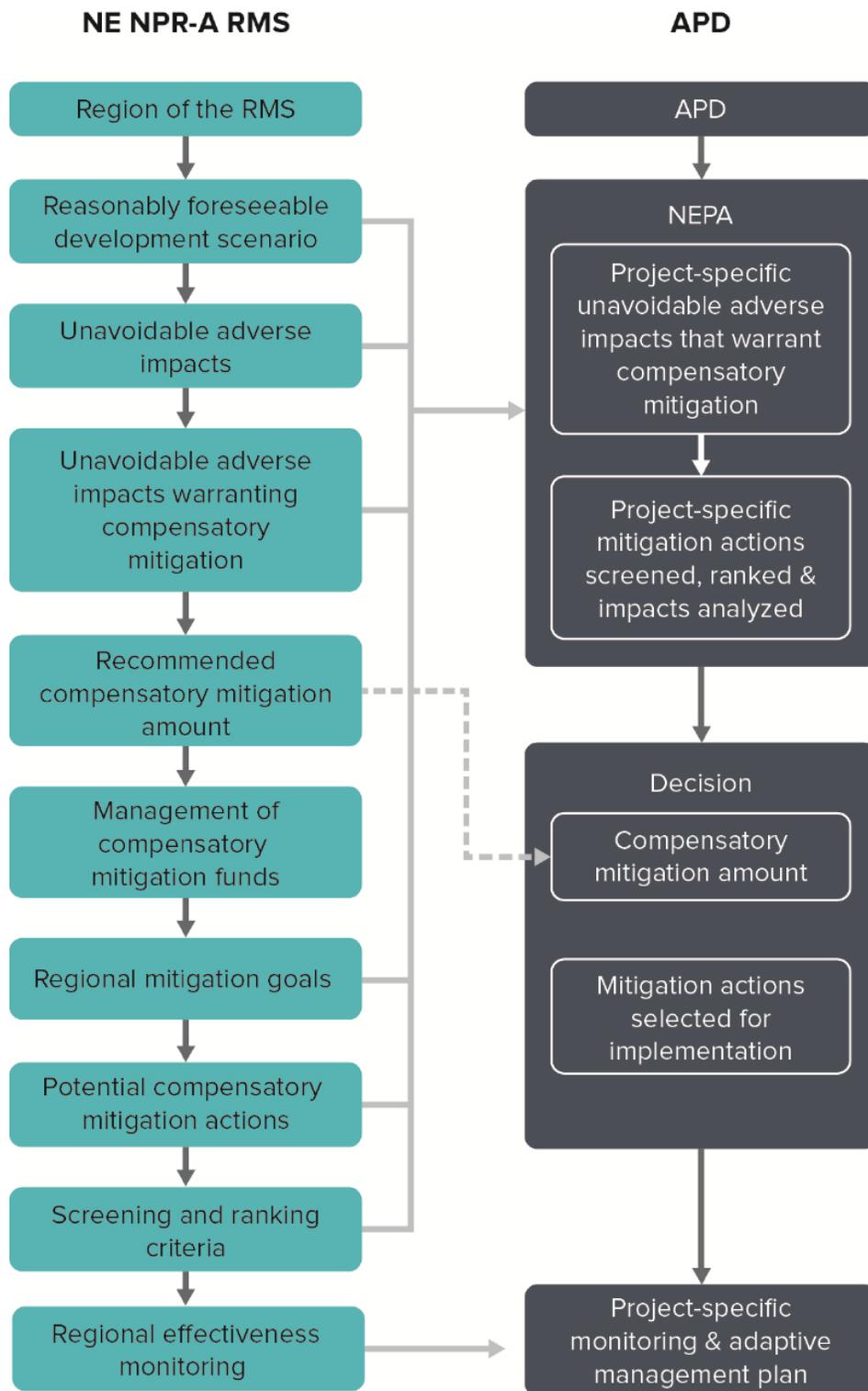
- Guidelines for determining a compensatory mitigation amount.
- A process for selecting compensatory mitigation actions for implementation.
- Guidelines for mitigation fund management.

Project Specific Monitoring and Adaptive Management

BLM will use the RMS when it is developing monitoring plans for permitted projects, to evaluate the success of any compensatory mitigation that was required, and in adapting as needed to optimize success.

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Figure 4: How the Northeastern NPR-A Regional Mitigation Strategy Will be Used



Glossary

Adaptive management: A management process that includes monitoring to determine whether management actions are meeting clearly defined outcomes; and, if not, making management changes that will best ensure that outcomes are met or re-evaluated.

Avoidance: Avoiding an impact altogether by not taking a certain action or parts of an action.

Base cost: Per acre cost associated with compensating for unavoidable adverse impacts that warrant compensatory mitigation. May be associated with an area of direct impacts (e.g., habitat loss) or with an area of indirect impacts (e.g., subsistence or cultural impacts). For some impacts, such as the degradation of the traditional lifestyle of indigenous people, the base cost cannot easily be related to an impacted land area, and may be derived from the cost of implementing selected mitigation actions. Where appropriate, some base costs may incorporate several approaches.

Baseline: The pre-existing condition of a resource, at all relevant scales, which can be quantified by an appropriate attribute(s). During environmental reviews, the baseline is considered the affected environment that would exist if a proposed action did not occur, and is used to compare predictions of the effects of the proposed action or a reasonable range of alternatives.

Best management practices (BMPs): State-of-the-art, efficient, effective, and practicable mitigation measures to avoid, minimize, rectify, reduce or eliminate impacts over time.

Buffer encroachment: A situation where the presence of development causes changes in conditions and/or land uses on land adjacent to the development (a buffer zone around the developed area) that overlaps with an area that has been designated for protection, such as a river set-back.

Compensation: Addressing impacts by replacing or providing substitute resources or environments.

Compensatory mitigation action: An action that results in the restoration, establishment, enhancement, and/or preservation of resources to offset a residual impact.

Durability: Maintaining the effectiveness of a mitigation measure for the duration of the impacts from a land use activity.

Duration of the impact: The length of time that an action causes an impact to resources. The duration of some impacts may be indefinite or perpetual.

Effective: Produces the desired outcome.

Effects: The direct, indirect, and cumulative impacts from a land use activity; effects and impacts are synonymous.

Enhance: Manipulate a resource to improve it.

Footprint encroachment: A situation where the physical footprint of development (including any surface disturbance associated with the development) occurs within an area that has been designated for protection, such as a river set-back.

Goal (regional goal or land use plan goal): A broad statement of a desired outcome.

Impacts: The direct, indirect, and cumulative effects from a land use (development) activity; the terms “effects” and “impacts” mean the same thing when used in this document.

Important: resources that have a high level of significance for land management.

Landscape: A geographic area encompassing ecosystems and human systems that is characterized by a set of common management concerns. The landscape is not defined by the size of the area, but rather by the interacting elements that are relevant and meaningful to management.

Minimize: Reduce impacts by limiting the degree or magnitude of the action.

Mitigation: Mitigation includes five steps: (1) avoiding the impact altogether by not taking a certain action or parts of an action; (2) minimizing impacts by limiting the degree or magnitude of the action; (3) rectifying the impact by repairing, rehabilitating, or restoring the affected environment; (4) reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; and, (5) compensating for the impact by replacing or providing substitute resources or environments.

Mitigation Desired Outcome: A clearly-defined and measurable result of a compensatory mitigation action.

Mitigation fund (i.e., an in-lieu fee fund): An arrangement, facilitated by a sponsor, where resources are restored, established, enhanced, and/or preserved, by pooling and spending funds from a single or multiple authorized land users, for the purpose of compensating for residual effects to resources from land use activities. In general, a mitigation fund accepts funds for compensatory mitigation from authorized land users, whose obligation to provide compensatory mitigation is then transferred to the mitigation fund sponsor.

Mitigation hierarchy: See Mitigation, the process and order of preference for the application of the five steps in mitigation, i.e., avoidance, minimization, remediation, reduction over time, and/or compensation, in order.

Mitigation Strategy: A document that identifies, evaluates, and communicates potential mitigation needs and mitigation actions in a geographic area, at relevant scales, in advance of anticipated development.

Modifier: A factor that is used to adjust the base cost of compensatory mitigation. Some modifiers increase the cost, such as encroachment into a river set-back area, while others may reduce the base cost.

Monitoring: Making and recording observations for the purpose of comparing actual outcomes with desired or anticipated outcomes.

NEPA process/analysis: An analysis prepared pursuant to the National Environmental Policy Act (NEPA), such as a planning- or project-level environmental assessment (EA) or environmental impact statement (EIS).

Objective (regional objective or land use plan objective): A description of a desired outcome for a resource in a land use plan. Objectives can be quantified and measured and, where possible, have established time frames for achievement.

Offsite Mitigation: Mitigation that is implemented at a different location than the development project area.

Onsite Mitigation: Mitigation implemented in the development project area.

Preservation: The removal of a threat to, or preventing the decline of, resources. Preservation may include the application of new protective designations on previously unprotected land or the relinquishment or restraint of a lawful use that adversely impacts resources.

Proponent-responsible compensatory mitigation: resources that are restored, established, enhanced, and/or preserved, by an [authorized land user](#) (or an authorized agent or contractor), for the purpose of compensating for residual effects to resources from land use activities.

Reasonably foreseeable development scenario: A description of the development that is expected to occur in the future for a given geographic area.

Resources (and their values, services, and/or functions): Resources are natural, social, or cultural objects or qualities; resource values are the importance, worth, or usefulness of resources; resource services are the benefits people derive from resources; and resource functions are the physical, chemical, and/or biological processes that involve resources.

Restoration: the manipulation of degraded resources in order to return the resources to an undegraded condition.

Scarce: resources that are not plentiful or abundant, and may include resources that are experiencing a downward trend in condition.

Sensitive: resources that are delicate and vulnerable to adverse change, such as resources that lack resilience to change agents such as wildfire, invasive species, and climate change..

Unavoidable impacts: Any adverse reasonably foreseeable impacts that remain after the application of the first four steps in the mitigation hierarchy; also referred to as residual impacts. Compensatory mitigation actions (the fifth step in the mitigation hierarchy) focus on addressing unavoidable impacts.

Acronyms

APD	Application for Permit to Drill
BLM	Bureau of Land Management
BMP	Best Management Practice
EIS	Environmental Impact Statement
GMT	Greater Mooses Tooth
IAP	Integrated Activity Plan
NEPA	National Environmental Policy Act
NPR-A	National Petroleum Reserve in Alaska
RFDS	Reasonably foreseeable development scenario
RMS	Regional Mitigation Strategy
ROD	Record of Decision