

# Chapter 2: Alternatives

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## 2.1 Introduction

This chapter describes alternatives for an oil and gas leasing program in the UNF, including Alternative 1: No Action; Alternative 2: Proposed Action; and Alternative 3: Modified Resource-based Stipulations. Alternatives will be compared in terms of their individual leasing stipulations and environmental impacts. Leasing stipulations have been defined in Section 1.6.2: Federal Leasing Process. In addition, please refer to Section 1.6: Oil and Gas Leasing General Background for additional information about the Federal leasing process, which would be applied under each alternative.

### 2.1.1 Development of Alternatives

Preliminary alternatives that were developed prior to the scoping process by the UNF ID Team included a No Action Alternative and a Proposed Action Alternative.

During scoping, concerns were raised about impacts of the alternatives on the following resources:

- municipal and culinary water sources (addressed in Section 4.7)
- sage grouse habitat (addressed in Section 4.9)
- moose habitat (addressed in Section 4.9)
- mule deer fawning habitat (addressed in Section 4.9)
- streams eligible for wild and scenic river classification (addressed in Sections 4.7, 4.13, and 4.11)
- visual resources (addressed in Section 4.11)
- developed recreation sites (addressed in Section 4.13)
- recreation residences (addressed in Section 4.13)
- inventoried roadless areas (addressed in Section 4.5)
- BOR Central Utah Project (CUP) withdrawn lands and facilities (addressed in Section 4.7)

To address these concerns and to account for new information about municipal and culinary water sources, the Proposed Action Alternative was amended to include lease stipulations for municipal and culinary water sources. Information about municipal and culinary water sources is the only new information that was incorporated into the Proposed Action Alternative since the 2003 Land and Resource Management Plan .

Under direction of the Forest Supervisor, a third alternative was developed to address concerns raised about the above-mentioned resources. For Alternative 3, additional leasing stipulations would apply that would provide more protection measures for resources in the UNF.

During scoping, Reclamation CUP lands and facilities were identified as a resource that would need additional oil and gas lease stipulations. In cooperation with Reclamation, the UNF

identified additional lease stipulations for Reclamation CUP-withdrawn lands and facilities. Under all alternatives, a Lease Notice (LN) would be included with all oil and gas leases that contain facilities and power lines operated by the Reclamation CUP. The LN would inform the lessee that infrastructure is present which must be protected. Additional stipulations would be applied under Alternatives 2 and 3; these stipulations are summarized in Sections 2.2.2: Alternative 2 and 2.2.3: Alternative 3. Stipulations that would apply under each alternative are indicated in tables 2.2, 2.3, and 2.5. For more information about CUP facilities, including a map showing location of CUP facilities, see Section 3.7: Water Resources, Including Culinary and Municipal Water Systems, Surface Water, and Groundwater, and figure 3.20.

## 2.2 Description of Alternatives

### 2.2.1 Alternative 1: No Action

The UNF contains approximately 897,400 acres. The No Action Alternative would continue current management of leasing activities on approximately 197,000 acres of the UNF, which have been previously identified in the WUB FEIS. The remainder of lands on the UNF would continue to have no leasing opportunities.

#### ***Land Available for Leasing***

Approximately 197,000 acres of UNF System Lands are available for leasing under this alternative and approximately 193,000 acres have already been leased. The approximate remaining 4,000 acres of lands available for leasing under this alternative are located in the southeastern portion of the UNF in the following MAs: Strawberry Reservoir; Diamond Fork; Willow Creek; White River; and Upper Spanish Fork Canyon (figure 2.1).

Lands not available for leasing are those lands discussed in Section 1.3: Lands Involved. Under all alternatives these lands are not available for leasing and will not be analyzed in this EIS.

#### ***Leasing Stipulations***

Current management of leasing activities in the UNF apply the oil and gas leasing stipulations as they are described in the WUB FEIS ROD. Table 2.1 shows the oil and gas lease stipulations exactly as they are included in the WUB FEIS ROD (see pages 4-7 in the WUB FEIS ROD). Figure 2.1 is a map of the No Action Alternative which shows the most restrictive lease stipulations that would be applied under this alternative.

Table 2.1. Western Uinta Basin oil and gas leasing stipulations.

Resource	Stipulation	Objective	Rationale
Elk Calving Areas	TL	To preclude the commencement of surface-disturbing activities within the elk calving area which could cause increased stress and/or displacement during the critical time period (May 1 to Jun. 30).	Under SLT, activities can be delayed for up to 60 days to mitigate disturbance to elk during the calving period, but this would not provide needed mitigation in calving areas that are also deer or elk wintering range. A lease stipulation would need to preclude commencement of activities during the extended protection period (Nov. 15 to Jun. 30). Also, by attaching a TL to the lease, the lessee is made aware of that requirement at the time the lease is acquired. The No Lease or NSO stipulations are overly restrictive since operations conducted outside the calving period would have a minimal effect on elk.
Elk Winter and Yearlong Range	TL	To preclude the commencement of surface-disturbing activities within the deer winter range which could cause increased stress and/or displacement of animals during the critical time period (Nov. 15 to Apr. 30).	SLTs provide for delay of activities for up to 60 days. Since the critical period extends for approximately 165 days, SLT would not be adequate. The No Lease or NSO stipulations are overly restrictive since operations conducted outside the calving period would have a minimal effect on elk.
Deer Winter Range	TL	To preclude the commencement of surface-disturbing activities within the deer winter range which could cause increased stress and/or displacement of animals during the critical time period (Nov. 15 to Apr. 30).	SLTs provide for delay of activities for up to 60 days. Since the critical period extends for approximately 165 days, SLT would not be adequate. The No Lease or NSO stipulations are overly restrictive since operations conducted outside the calving period would have a minimal effect on deer.
Deer Summer Range	SLT	The resource concern related to deer summer range is focused on the fawning period. The key time period within the analysis area for deer fawning is from May 15 to Jun. 15. This protection can be provided using SLT.	Under SLT, activities can be delayed for up to 60 days to mitigate disturbance to deer during the fawning period. Since the key period is 30 days, SLTs provide adequate mitigation and even allow for a buffer timeframe should it be deemed appropriate during the site-specific project analysis. A TL stipulation would provide no added mitigation than what is provided under SLT.

Resource	Stipulation	Objective	Rationale
Sensitive Wildlife Species	CSU — A survey would be required prior to surface-disturbing activities to determine the possible presence of any sensitive wildlife species and operations be designed and/or located so as not to adversely affect the viability of the species.	To ensure that proposed activities do not adversely affect the viability of wildlife species.	Since the specific habitats of sensitive wildlife are not known or can change over time, a CSU stipulation will ensure that activities do not adversely affect the viability of these species should they be found during a survey at the time a well is proposed. The No Lease or NSO stipulation is overly restrictive since we are seeking to protect viability of a species, and not necessarily each individual animal, which can often be avoided when locating facilities. Under SLT, moving a facility 200 meters may not be sufficient to ensure a species' viability.
Semi-Primitive Non-Motorized/Roadless	CSU	To minimize impacts to and ensure restoration of the recreational values and natural setting within the area of SPNM and roadless shown in Figs. 3-8 and 3-9 of the WUB FEIS (Aug. 1997).	A CSU stipulation will ensure that impacts to SPNM recreational values and roadless areas can be minimized when locating and designing facilities. The stipulation will require extensive reclamation to return the area to near natural condition in a reasonably short time period. An NSO stipulation is not used because the forest plans allow roads and activities within these areas. The potential direct and indirect impacts disclosed in the WUB FEIS (table, pp, 4-58) are limited in scope and are acceptable with proper reclamation. Most of the anticipated reclamation could be achieved under SLT, but in some cases, special operating practices would be needed to achieve the level of reclamation needed.
Developed Recreation Sites and Trailheads	NSO	To preclude surface occupancy and new surface-disturbing activities within developed recreation sites.	Construction of a developed campground or establishment of a summer home area allocates those lands for a specific use. An NSO stipulation is necessary to protect the capital investment and associated recreation values. A CSU, TL, or SLT stipulation would allow operation within these areas which could negatively affect the capital investment and/or recreational setting. The No Lease option is not appropriate since impacts can be mitigated under an NSO stipulation and not leasing could cause administrative problems related to unleased lands within a spacing unit.

Resource	Stipulation	Objective	Rationale
Geologic Hazards and Unstable Soils	NSO	To preclude surface-disturbing activities on areas that have a high erosion/stability hazard and would be difficult to reclaim.	Surface disturbance within these areas would cause accelerated erosion or increased instability and would be difficult to reclaim; therefore, an NSO stipulation is necessary. Operations within these areas could occur under either a CSU or TL stipulation, or under SLT, but erosion and the stability of the area would be negatively affected. The No Lease option is not appropriate since impacts can be mitigated using an NSO stipulation and not leasing could cause administrative problems related to unleased lands within a spacing unit.
Slopes >35%	NSO	To preclude construction of well sites and related facilities such as tank batteries on slopes over 35% which would involve relatively large cut and fill slopes and would be difficult to rehabilitate.	This stipulation is necessary to protect the basic soil and water resource. Soil disturbance of an area required for a well pad on steep slopes would be difficult to reclaim and could result in unacceptable soil loss through erosion and potentially increase the sediment load in the streams. Operations within these areas could occur under either a CSU or TL stipulation, or under SLT, but erosion and the reclamation of the area would be negatively affected. The No Lease option is not appropriate since impacts can be mitigated using an NSO stipulation and not leasing could cause administrative problems related to unleased land within a spacing unit.
Riparian Areas >40 Acres	NSO	To require that activities are located or designed so as to minimize surface-disturbing activities and protect riparian areas.	An NSO stipulation is necessary for areas greater than 40 acres which may not be avoided or protected under SLT. The intent is to protect areas smaller than 40 acres to the same degree, but they would be protected under existing regulations (43 CFR 3101.1-2 and 36 CFR 228.108(j)) and not require a specific lease stipulation. Protection of riparian areas is important to help maintain water quality and stream bank stability, and to provide wildlife and shade for fisheries.
Wetland Areas > 40 Acres	NSO	To require that activities are located or designed so as to minimize surface-disturbing activities and protect jurisdictional wetlands relative to Executive Order 11990.	An NSO stipulation provides assurance that the intent of Executive Order 11990 can be met. The intent is to protect areas smaller than 40 acres to the same degree, but they would be protected under existing regulations (43 CFR 3101.1-2 and 36 CFR 228.108(j)) and not require a specific lease stipulation.

Resource	Stipulation	Objective	Rationale
Retention and Partial Retention Visual Quality Objective (VQO)	CSU — Proposed activities would be required to be located and/or designed to meet the VQO within one year of commencing operations.	To ensure that the visual quality of the area is maintained.	Application of the CSU stipulation identifies the standard that the operator must meet and provides the opportunity to still conduct activities as long as that standard is met. The No Lease option or an NSO stipulation is overly restrictive in that the VQO can often be met using vegetative or topographic screening and similar methods to mitigate the visual impacts. Under SLT, some impacts could be mitigated but operations could not be denied if the VQO could not be met.
Sensitive Plants	CSU — A survey would be required prior to surface-disturbing activities to determine the possible presence of any sensitive plant species and operations be designed and/or located so as not to adversely affect the viability of the species.	To ensure that proposed activities do not adversely affect the viability of a plant species.	Since the specific location of sensitive plants is not known or can change over time, a CSU stipulation will ensure that activities do not adversely affect the viability of these species should they be found during a survey at the time a well is proposed. The No Lease or NSO stipulation is overly restrictive since we are seeking to protect viability of a species, and not necessarily each individual plant, which can often be avoided when locating facilities. Under SLT, moving a facility 200 meters may not be sufficient to ensure a species' viability.
Research Natural Areas (RNAs)	NSO	To preclude surface disturbance within the areas and to maintain its near natural conditions for future research use.	A commitment has been made to maintain RNAs for research; an NSO stipulation is necessary to protect the area in such a condition. Also, the area contains unique resources that cannot be provided elsewhere on the forests. A CSU or TL stipulation, or leasing under SLT would allow operations in the areas which would have negative impacts on the natural conditions of the RNA. The No Lease option is not appropriate since impacts can be mitigated under an NSO stipulation and not leasing could cause administrative problems related to unleased lands within a spacing unit.

**2.2.2 Alternative 2: Proposed Action**

The Proposed Action would make leasing decisions, including identification of stipulations, as required by 36 CFR 228.102(d) for UNF System lands.

***Land Available for Leasing***

Land available for leasing includes all UNF System lands (897,400 acres) except those described in Section 1.3.2: Lands Not Available For Leasing (157,900 acres). Therefore, the total land available for leasing under this alternative is approximately 739,500 acres. This figure does not

include split estate lands (approximately 38,800 acres) as being part of the total leasable acreage as it does in Chapter 4. As mentioned previously, none of the split estate acreages are mapped in existing GIS data, and as a result (although excluded from availability for leasing), they remain part of the analyzed acreages in Chapter 4. Please refer to Section 1.3.2: Split Estates for a more detailed discussion of the nature of split estate data.

### ***Leasing Stipulations***

Leasing stipulations outlined on pages 3-7 and 3-8 of the LRMP are the basis of the stipulations applied forest-wide under this alternative. For all new leasable mineral operations, leasing stipulations would be applied according to the Recreation Opportunity Spectrum (ROS) class of the area, and any specific resource areas. See table 2.2 for leasing stipulations that would apply under the Proposed Action Alternative by ROS and see table 2.3 for stipulations that would apply under resource areas. If there is a conflict between the two tables, then the most restrictive stipulation would apply. Figure 2.2 is a map of Alternative 2 which shows the most restrictive lease stipulations that would be applied under this alternative.

In addition to lease stipulations outlined in the LRMP, the Proposed Action would take into consideration new information about culinary and municipal water sources located in the UNF. Since the LRMP, municipal and culinary water sources in the UNF have been delineated in accordance with the Utah Safe Drinking Water Act (USDWA). To comply with the Utah SDWA and to provide protection for these resources, lease stipulations for Groundwater Zones and Surface Water Zones have been identified. These stipulations are shown in table 2.3 under Watershed Resources. Drinking water resources are discussed in more detail in Section 3.7: Water Resources, and are shown on figure 3.21.

Lease stipulations that would be applied to Reclamation CUP lands and facilities under this alternative would incorporate lease stipulations as recommended by Reclamation during scoping. The stipulations include a NSO within 200 feet of water conveyance structures and NSO within 1000 feet of a dam, and additional stipulations might be added as appropriate for each individual Lease Notice.

Table 2.2. Leasing stipulations by ROS class and management prescription for the Proposed Action Alternative.

Management Prescription	Stipulation <sup>1</sup> by ROS Class					
	Primitive	Semi-Primitive Non-Motorized	Semi-Primitive Motorized	Roaded Natural	Roaded Modified	Rural
1.4 Wilderness	NA					
1.5 Recommended Wilderness		NSO	NSO			
2.1 Wild and Scenic Rivers: Wild <sup>2</sup>	NL	NSO				
2.2 Wild and Scenic Rivers: Scenic <sup>2</sup>	NSO	CSU	CSU	CSU	CSU	
2.3 Wild and Scenic Rivers: Recreation <sup>2</sup>		CSU	CSU	CSU	CSU	
2.4 Research Natural Areas	NSO					
2.5 Scenic Byways		NSO	CSU	CSU	CSU	CSU
2.6 Undeveloped Areas		NSO	NSO	NSO	NSO	NSO
3.1 Aquatic, Terrestrial, and Hydrologic Resources		NSO	CSU	CSU	CSU	CSU
3.2 Watershed Emphasis		NSO	CSU	CSU	CSU	CSU
3.3 Aquatic and Terrestrial Habitat		NSO	TL, CSU	TL, CSU	TL, CSU	TL, CSU
4.4 Dispersed Recreation		NSO	TL, CSU	TL, CSU	TL, CSU	TL, CSU
4.5 Developed Recreation		NSO	NSO	NSO	NSO	NSO
5.1 Forested Ecosystems: Limited Development		NSO	CSU	CSU	CSU	
5.2 Forested Ecosystems: Vegetation Management		CSU	SLT	SLT	SLT	
6.1 Non-forested Ecosystems		NSO	CSU	SLT	SLT	SLT
7.0 Wildland Urban Interface <sup>3</sup>						
8.1 Mineral Development				SLT	SLT	SLT
8.2 Utility Corridor/ Communication Sites			CSU	CSU	CSU	CSU
8.3 Administrative Sites			NSO	NSO	NSO	
8.4 Recreation Residences			CSU	CSU	CSU	
All Riparian Habitat Conservation Areas	NL	NSO	NSO	NSO	NSO	NSO

Note: Blank cells indicate there is no acreage within that particular management prescription/ROS class combination.

<sup>1</sup> Stipulations are subject to valid existing rights.

<sup>2</sup> Areas with a management prescription of 2.1 Wild and Scenic Rivers: Wild, 2.2 Wild and Scenic Rivers: Scenic, or 2.3 Wild and Scenic Rivers: Recreational have an underlying prescription. The most restrictive stipulation of the two prescriptions will apply in these areas.

<sup>3</sup> Areas with a management prescription of 7.0 Wildland Urban Interface have an underlying prescription that will dictate the stipulation to be applied.

Table 2.3. Leasing stipulations by resource area for the Proposed Action Alternative.

Resource Area	Stipulation
<b>Watershed Resources</b>	
Geologic hazards/unstable soils	NSO
Steep slopes >35 percent	NSO
Riparian/wetlands >40 acres	NSO
Drinking Water Source Protection Zones: Groundwater Zones 1–4 Surface Water Zone 1 Surface Water Zones 2–4	NSO NSO LN
<b>Wildlife and Plant Species</b>	
Greater sage grouse breeding habitat in the Vernon and Strawberry Reservoir MAs	TL: March 1–June 1 in the Vernon MA, and March 1- June 15 in the Strawberry Reservoir MA
Critical elk winter range	TL: December 1–March 30
Critical deer winter range	TL: December 1–March 30
Critical elk calving range	TL: May 15–July 15
Critical elk year-long range	TL: November 15–June 30
Lynx Analysis Units	TL: December 1 –March 30
Presence of threatened or endangered species	LN
Presence of a Forest Service sensitive species	CSU
<b>Research Natural Areas</b>	NSO
<b>Developed Campgrounds</b>	NSO
<b>Visual Resources</b>	
Preservation (subject to valid existing rights)	NL
Retention and Partial Retention	CSU
Modification	SLT
<b>Reclamation CUP Facilities and Power Lines</b>	LN
<b>Reclamation CUP Lands and Infrastructure</b>	<ul style="list-style-type: none"> <li>• NSO within 200 feet of water conveyance structures</li> <li>• NSO within 1000 feet of a dam</li> </ul>

### 2.2.3 Alternative 3: Modified Resource-based Stipulations

The third alternative would make leasing decisions, including identification of stipulations as required by 36 CFR 228.102(d) for the UNF System lands.

#### **Land Available for Leasing**

This alternative specifically excludes inventoried roadless area (IRA) acreages from leasing availability. In some cases, IRA acreages overlap with other types of land also excluded from leasing. Therefore, land available for leasing would include all UNF System Lands (897,400 acres) except for inventoried roadless areas (554,850 acres), and the balance of those lands described in Section 1.3.2: Lands not available for leasing (approximately 118,000 acres, consisting of Wilderness (58,000), Strawberry Lands (45,190), and split estate (14,810) acres).

Therefore, land available for leasing under the third alternative is reduced to approximately 224,550 acres. The reduction in split estate acreage is based on a linear reduction that correlates with the excluded IRA acreage. Please refer to Section 1.3.2: Split Estates for a more detailed discussion of the nature of split estate data.

**Leasing Stipulations**

Leasing stipulations outlined in the LRMP pages 3-7 and 3-8 will be the basis of the stipulations applied forest-wide. For this alternative, more restrictive lease stipulations have been developed for the following management prescriptions and resource areas:

- 2.2 Wild and Scenic Rivers: Scenic
- 2.3 Wild and Scenic Rivers: Recreation
- 4.5 Developed Recreation
- 8.3 Administrative Sites
- 8.4 Recreation Residences
- Wildlife and Plant Species
- Watershed Resources
- Visual Quality

In addition to the more restrictive leasing stipulations for resources, Inventoried Roadless Areas would not be leased under this alternative. For all new leasable mineral operations, leasing stipulations would be applied according to the lease stipulations that are described in table 2.4 and table 2.5. In the event of conflicting lease stipulations between these two tables, then the most restrictive lease stipulation would apply. Figure 2.3 is a map of Alternative 3 which shows the most restrictive lease stipulations that would be applied under this alternative.

Stipulations for Reclamation CUP lands and facilities (see figure 3.20 for location of Reclamation facilities) that would apply under this alternative include the LN that applies under all alternatives and a NSO stipulation for areas that are identified by the Reclamation as withdrawn and/or retained. Reclamation provided a map during scoping that identified lands as withdrawn and/or retained. This map is contained in the project record. Areas identified in this map are generally located to the west of Strawberry Reservoir and include areas associated with Diamond Fork Pipeline, Upper Diamond Fork Tunnel/Pipeline, Tanner Tunnel, Strawberry Tunnel, and Syar Tunnel.

For Reclamation CUP water-conveyance structures that were not indicated on the map provided during scoping, a NSO stipulation at a width of 0.5 mile buffer would be applied on each side of the structures. These water structures include Water Hollow, Layout, Vat, Rhodes, and Hades Tunnels, as well as the Currant Creek Pipeline and Tunnel. A one mile radius NSO buffer would also apply to all Reclamation dams that are located within UNF boundaries.

**Table 2.4. Leasing stipulations by ROS class and management prescription for the Modified Resource-based Stipulations Alternative.**

Management Prescription	Stipulation <sup>1</sup> by ROS Class					
	Primitive	Semi-Primitive Non-Motorized	Semi-Primitive Motorized	Roaded Natural	Roaded Modified	Rural
1.4 Wilderness	NA					
1.5 Recommended Wilderness		NSO	NSO			
2.1 Wild and Scenic Rivers: Wild <sup>2</sup>	NL	NSO				
2.2 Wild and Scenic Rivers: Scenic <sup>2</sup>	NSO	NSO	NSO	NSO	NSO	
2.3 Wild and Scenic Rivers: Recreation <sup>2</sup>		NSO	NSO	NSO	NSO	
2.4 Research Natural Areas	NSO					
2.5 Scenic Byways		NSO	CSU	CSU	CSU	CSU
2.6 Undeveloped Areas	NL	NL	NL	NL	NL	NL
3.1 Aquatic, Terrestrial, and Hydrologic Resources		NSO	CSU	CSU	CSU	CSU
3.2 Watershed Emphasis		NSO	CSU	CSU	CSU	CSU
3.3 Aquatic and Terrestrial Habitat		NSO	TL, CSU	TL, CSU	TL, CSU	TL, CSU
4.4 Dispersed Recreation		NSO	TL, CSU	TL, CSU	TL, CSU	TL, CSU
4.5 Developed Recreation		NSO & Buffers <sup>4</sup>	NSO & Buffers <sup>4</sup>	NSO & Buffers <sup>4</sup>	NSO & Buffers <sup>4</sup>	NSO & Buffers <sup>4</sup>
5.1 Forested Ecosystems: Limited Development		NSO	CSU	CSU	CSU	
5.2 Forested Ecosystems: Vegetation Management		CSU	SLT	SLT	SLT	
6.1 Non-forested Ecosystems		NSO	CSU	SLT	SLT	SLT
7.0 Wildland Urban Interface <sup>3</sup>						
8.1 Mineral Development				SLT	SLT	SLT
8.2 Utility Corridor/ Communication Sites			CSU	CSU	CSU	CSU
8.3 Administrative Sites			NSO & Buffers <sup>4</sup>	NSO & Buffers <sup>4</sup>	NSO & Buffers <sup>4</sup>	
8.4 Recreation Residences			NSO & Buffers <sup>4</sup>	NSO & Buffers <sup>4</sup>	NSO & Buffers <sup>4</sup>	
All Riparian Habitat Conservation Areas	NL	NSO	NSO	NSO	NSO	NSO

Note: Blank cells indicate there is no acreage within that particular management prescription/ROS class combination.

<sup>1</sup>Stipulations are subject to valid existing rights.

<sup>2</sup>Areas with a management prescription of 2.1 Wild and Scenic Rivers: Wild, 2.2 Wild and Scenic Rivers: Scenic, or 2.3 Wild and Scenic Rivers: Recreational have an underlying prescription. The most restrictive stipulation of the two prescriptions will apply in these areas.

<sup>3</sup>Areas with a management prescription of 7.0 Wildland Urban Interface have an underlying prescription that will dictate the stipulation to be applied.

<sup>4</sup>NSO Buffers are 1/4 mile.

**Table 2.5. Leasing stipulations by resource area for the Modified Resource-based Stipulations Alternative.**

Resource Area	Stipulation
<b>Watershed Resources</b>	
Geologic hazards/unstable soils	NSO
Steep slopes >35 percent	NSO
Riparian/wetlands >40 acres	NSO
Drinking Water Source Protection Zones: Groundwater Zones 1–4 Surface Water Zone 1–2 Surface Water Zone 3–4	NSO NSO LN
<b>Wildlife and Plant Species</b>	
Greater sage grouse breeding habitat in the Vernon and Strawberry Reservoir MAs	TL: A 2-mile buffer from March 1–June 1 in Vernon MA, and a 2-mile buffer from March 1–June 15 in the Strawberry Reservoir MA
Critical elk winter range	TL: December 1–March 30
Critical deer winter range	TL: December 1–March 30
Critical elk calving range	TL: May 15–July 15
Critical elk year-long range	TL: November 15–June 30
Lynx Analysis Units	TL: December 1 –March 30
Mule deer fawning habitat (a combination of critical and high summer range coverages)	TL: May 15–July 15
Presence of threatened or endangered species	LN
Presence of a Forest Service sensitive species	CSU
<b>Research Natural Areas</b>	NSO
<b>Developed Campgrounds</b>	NSO
<b>Visual Resources</b>	
Preservation (subject to valid existing rights)	NL
Retention	NSO
Partial Retention	CSU
Modification	SLT
<b>Inventoried Roadless Areas</b>	NL
<b>Reclamation CUP Facilities and Power Lines</b>	LN
<b>Reclamation CUP Lands and Infrastructure</b>	NSO for lands identified by Reclamation as withdrawn and/or retained NSO 0.5 mile buffer for water conveyance structures. 1 mile radius NSO buffer around Reclamation dams.

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## 2.3 Comparison of Alternatives

Table 2.6. Leasing stipulations by ROS class and management prescription by alternative.

NFS Lands Not Available for Leasing	Proposed Action Alternative*	Modified Resource-based Stipulations Alternative*
		Designated Wilderness Area Strawberry Project lands Lands with Non-Federal Subsurface Mineral Estate
Management Prescription/Resource	Leasing Stipulations	
1.4 Wilderness	NA	NA
1.5 Recommended Wilderness	NSO	Same as Proposed Action
2.1 Wild and Scenic Rivers: Wild	Primitive-NL Semi-Primitive Non Motorized-NSO	NL
2.2 Wild and Scenic Rivers: Scenic	Primitive-NSO Semi-Primitive Non Motorized-CSU Semi-Primitive Motorized-CSU Roaded Natural-CSU Roaded Modified-CSU	NSO
2.3 Wild and Scenic Rivers: Recreation	Semi-Primitive Non Motorized-CSU Semi-Primitive Motorized-CSU Roaded Natural-CSU Roaded Modified-CSU	NSO
2.4 Research Natural Areas	NSO	Same as Proposed Action
2.5 Scenic Byways	Primitive-NSO Semi-Primitive Non Motorized-CSU Semi-Primitive Motorized-CSU Roaded Natural-CSU Roaded Modified-CSU Rural-CSU	Same as Proposed Action
2.6 Undeveloped Areas	NSO	NL
3.1 Aquatic, Terrestrial, and Hydrologic Resources	Semi-Primitive Non Motorized-NSO Semi-Primitive Motorized-CSU Roaded Natural-CSU Roaded Modified-CSU Rural-CSU	Same as Proposed Action
3.2 Watershed Emphasis	Semi-Primitive Non Motorized-NSO Semi-Primitive Motorized-CSU Roaded Natural-CSU Roaded Modified-CSU Rural-CSU	Same as Proposed Action
3.3 Aquatic and Terrestrial Habitat	Semi-Primitive Non Motorized-NSO Semi-Primitive Motorized-TL and CSU Roaded Natural-TL and CSU Roaded Modified-TL and CSU Rural-TL and CSU	Same as Proposed Action
4.4 Dispersed Recreation	Semi-Primitive Non Motorized-NSO Semi-Primitive Motorized-TL and CSU Roaded Natural-TL and CSU Roaded Modified-TL and CSU Rural-TL and CSU	Same as Proposed Action
4.5 Developed Recreation	NSO	NSO & NSO buffer (buffers are 1/4 mile)
5.1 Forested Ecosystems: Limited Development	Primitive-NSO Semi-Primitive Non Motorized-CSU Semi-Primitive Motorized-CSU Roaded Natural-CSU Roaded Modified-CSU	Same as Proposed Action
5.2 Forested Ecosystems: Vegetation Management	Semi-Primitive Non Motorized-CSU Semi-Primitive Motorized-SLT Roaded Natural-SLT Roaded Modified-SLT	Same as Proposed Action
6.1 Non-forested Ecosystems	Semi-Primitive Non Motorized-NSO Semi-Primitive Motorized-CSU Roaded Natural-SLT Roaded Modified-SLT Rural-SLT	Same as Proposed Action
8.1 Mineral Development	SLT	Same as Proposed Action
8.2 Utility Corridor/Communication Sites	CSU	Same as Proposed Action
8.3 Administrative Sites	NSO	NSO & NSO buffers (buffers are 1/4 mile)
8.4 Recreation Residences	CSU	NSO
Riparian Habitat Conservation Areas	Primitive-NL Semi-Primitive Non Motorized-NSO Semi-Primitive Motorized-NSO Roaded Natural-NSO Roaded Modified-NSO Rural-NSO	Same as Proposed Action

\*The No Action Alternative is not included in this table. No Action Alternative leasing stipulations were developed under a prior Forest Plan and leasing stipulations were not developed under that alternative for MPs. Thus, this table is not applicable for the No Action Alternative.

Table 2.7. Leasing stipulations for resource areas by alternative.

Resource Area	No Action Alternative	Proposed Action Alternative	Modified Resource-based Stipulations Alternative
<b>Watershed Resources</b>			
Geologic hazards/unstable soils	NSO	Same as No Action	Same as No Action
Steep slopes >35 percent	NSO	Same as No Action	Same as No Action
Riparian/wetlands >40 acres	NSO	Same as No Action	Same as No Action
Drinking Water Source Protection Zones: Groundwater Surface Water	SLT	Zones 1-4: NSO Zone 1: NSO; Zone 2-4 LN	Zones 1-4: NSO Zone 1-2: NSO; Zone 3-4 LN
<b>Wildlife and Plant Species</b>			
Greater sage grouse breeding habitat in the Vernon and Strawberry Reservoir MAs	SLT	TL: March 1–June 1 in the Vernon MA, and March 1- June 15 in the Strawberry Reservoir MA	TL: A 2-mile buffer from March 1–June 1 in Vernon MA, and a 2-mile buffer from March-June 15 in the Strawberry Reservoir MA
Critical elk winter range	TL: November 15-April 30	TL: December 1–March 30	Same as Proposed Action
Critical deer winter range	TL: November 15-April 30	TL: December 1–March 30	Same as Proposed Action
Critical elk calving range	TL: May 1–June 30	TL: May 15–July 15	Same as Proposed Action
Critical elk year-long range	TL: November 15-April 30	TL: November 15–June 30	Same as Proposed Action
Lynx Analysis Units	No Stipulation Identified	TL: December 1–March 30	Same as Proposed Action
Mule deer fawning habitat	No Stipulation Identified	Same as No Action	TL- May 15-July 15
Presence of threatened or endangered species	LN	Same as No Action	Same as No Action
Presence of a Forest Service sensitive species	CSU	Same as No Action	Same as No Action
<b>Research Natural Areas (RNAs)</b>	NSO	Same as No Action	Same as No Action
<b>Developed Campgrounds</b>	NSO	NSO	
<b>Developed Recreation Sites and Trailheads</b>	NSO	NSO for MP 4.5 CSU for MP 8.4	NSO & NSO buffers (buffers are 1/4 mile) for MP 4.5 NSO for MP 8.4
<b>Visual Resources</b>			
Preservation (subject to valid existing rights)	No Stipulation Identified	NL	Same as Proposed Action
Retention	CSU	Same as No Action	NSO
Partial Retention	CSU	Same as No Action	Same as No Action
Modification	No Stipulation Identified	SLT	Same as Proposed Action
<b>Roadless/Inventoried Roadless Areas</b>	CSU	No Stipulation Identified	NL
<b>Reclamation CUP Facilities and Power Lines</b>	LN	Same as No Action	Same as No Action
<b>Reclamation CUP Lands and Infrastructure</b>	Lease Notice Issued	NSO within 200 feet of water conveyance structures NSO within 1000 feet of a dam	NSO for lands identified by Reclamation as withdrawn and/or retained NSO 0.5 mile buffer for water conveyance structures. 1 mile radius NSO buffer around Reclamation dams.

Light shading indicates stipulations that differ from the No Action Alternative. Dark shading indicates stipulations that are unique to the Modified Resource-based Stipulations Alternative.

### 2.3.1 Oil and Gas Leasing Stipulation Acreage by Alternative

Table 2.8. Leasing stipulation acreage by alternative.

Lease Stipulations	No Action Alternative	Proposed Action Alternative <sup>1</sup>	Modified Resource-based Stipulations Alternative <sup>1</sup>
No Surface Occupancy	89,430	477,400	107,600
Controlled Surface Use and Timing Limitation	NA	112,900	86,880
Controlled Surface Use	102,020	152,700	0
Timing Limitation	1,360	2,500	37,450
Standard Lease Term	3,830	31,800	0
Lands Available for Leasing <sup>1</sup>	196,600	777,300	231,930

NA= Not Applicable.

Acreages are approximate and due to rounding may not precisely match numbers given in Chapter 4.

<sup>1</sup>Number of acres for the proposed action and modified resource-based alternatives includes split estate lands and the total is approximate.

### 2.3.2 Activities Causing Ground Disturbance by Alternative

In summary, issuing an oil and gas lease also grants rights to explore and develop mineral rights that may be located within the lease boundaries. While this EIS does not approve surface-disturbing activities, the issuance of a lease may eventually result in surface disturbing activities; these activities are called connected actions. Connected actions are analyzed in this EIS (see Chapter 1 and Chapter 4 for more discussion on activities connected to oil and gas leasing).

Table 2.9 summarizes the connected actions of oil and gas leasing that could result in ground disturbance for each alternative. A summary of potential acres of ground disturbance is also provided. A full description of activities can be found in Section 4.1.3: Analysis of Connected Actions. Impacts from surface disturbing activities are fully analyzed in Chapter 4, and summarized in section 2.3.3.

Table 2.9. Activities causing ground disturbance by alternative.

Alternative	# of Exploratory Wells Projected	Acres of Disturbance Related to Well Pad Construction	Projected Miles of Temporary Road Construction	Acres of Disturbance Related to Road Construction (include temporary road construction and reconstruction)	Acres of Disturbance for Production Well	Total Acres of Potential Ground Disturbance
No Action	1	2	1	4.9	0	6.9
Proposed Action	12	24	12	36	1.2	61.2
Modified Resource-based Alternative	12	24	12	36	1.2	61.2

### 2.3.3 Comparison of Alternatives by Resource

A comparison summary of Forest-wide impacts of the alternatives to each resource is given in table 2.10. A full description of impacts is included in Chapter 4. In addition, a summary of impacts by RFOGD is included for each resource in Chapter 4.

Table 2.10. Comparison of alternatives by resource.

Resource	No Action Alternative	Proposed Action Alternative	Modified Resource-based
Socio-economics	One exploratory well is expected to be drilled somewhere in the WUB FEIS Analysis Area. Beneficial employment, income, and population impacts are expected to be minor. Adverse impacts to the functioning of ecosystems, aesthetics, and the quality of recreational activities are expected to be minor. No environmental justice-related impacts are predicted.	12 exploratory wells are projected to be drilled forest-wide. Beneficial employment, income, and population impacts are expected to be minor, but likely larger than in the No Action Alternative. Adverse impacts to the functioning of ecosystems, aesthetics, and the quality of recreational activities are expected to be minor, but likely larger than in the No Action Alternative. No environmental justice-related impacts are predicted.	12 exploratory wells are projected to be drilled forest-wide. Beneficial employment, income, and population impacts are expected to be minor, but likely smaller than in the Proposed Action Alternative. Adverse impacts to the functioning of ecosystems, aesthetics, and the quality of recreational activities are expected to be minor, but likely smaller than in the Proposed Action Alternative. No environmental justice-related impacts are predicted.
Soils and Geologic Hazards	The disturbance caused by road and pad building activities resulting from one projected well is estimated to be 6.9 acres. This could cause localized sedimentation and erosion. This would be minimized by following lease stipulation and effects are expected to be minor and short-term.	The disturbance caused by road and pad building activities resulting from 12 projected wells is estimated to be 61.2 acres. This could cause localized sedimentation, erosion and scarring on steep slopes. This would be minimized by following lease stipulations and overall effects are expected to be minor to moderate and short-term	Same as Proposed Action

Resource	No Action Alternative	Proposed Action Alternative	Modified Resource-based
Transportation	<p>Any impacts to the transportation system are expected to be minor. The disturbance caused by road building activities resulting from one projected well is estimated to be 4.9 acres. Increased traffic volume from oil and gas exploration activities would have the most impact on roads that experience relatively small amount of traffic. In general, NFS roads would experience more impacts to traffic than County, State, or Federal roads.</p>	<p>Any impacts to the transportation system are expected to be minor and short-term. Due to the projected construction of 12 exploration wells, the forest road system would be improved slightly, resulting in approximately 36 acres of disturbance for the reconstruction and/or construction of these temporary roads. Increased traffic volume from oil and gas exploration activities would have the most impact on roads that experience relatively small amount of traffic. In general, NFS roads would experience more impacts to traffic than County, State, or Federal roads.</p>	<p>Any impacts to the transportation system are expected to be minor and short-term. Due to the projected construction of 12 exploration wells, the forest road system would be improved slightly, resulting in approximately 36 acres of disturbance for the reconstruction and/or construction of these temporary roads. Increased traffic volume from oil and gas exploration activities would have the most impact on roads that experience relatively small amount of traffic. In general, NFS roads would experience more impacts than County, State, or Federal roads.</p>
Inventoried Roadless Areas	<p>Minor adverse short-term impacts. CSU stipulation that would apply would require that design of roads and facilities minimize impacts. Extensive reclamation required.</p>	<p>Minor adverse short-term impacts. 12 miles of temporary road projected. Majority (70 percent) of IRAs have NSO further reducing impacts.</p>	<p>No direct effects. Minor or negligible indirect short-term effects. Impacts include possible loss of scenic value or sense of solitude.</p>
Watershed Resources; including wetlands, floodplains, and riparian areas	<p>Minor, short-term impacts are possible from one well. A CSU stipulation would protect large wetland and riparian areas (&gt;40 acres). Impacts to smaller areas can be avoided under SLT. RHCAs would not have a stipulation applied but 1,960 acres would be protected under CSU, 30 under a TL, and 4,910 under NSO. Disturbance is estimated to be 6.9 acres, including 4.9 acres for roads.</p>	<p>Minor, short-term impacts are possible from 12 wells. A NSO stipulation would protect large wetland and riparian areas (&gt;40 acres). RHCAs would be protected by NL and NSO. Direct impacts to smaller areas can be avoided under SLT. Disturbance is estimated to be 61.2 acres, with 24 miles of roads</p>	<p>Same as the Proposed Action Alternative.</p>

Resource	No Action Alternative	Proposed Action Alternative	Modified Resource-based
<p>Water Resources Including Culinary and Municipal Water Systems, Surface Water, and Ground Water</p>	<p>Minor, short-term impacts are possible from one well. Up to 6.9 acres of disturbance could occur. The stipulations for geological hazards/unstable soils and for steep slopes would provide significant protection against stream erosion and for maintenance of water quality, thereby also protecting culinary and municipal water systems.</p>	<p>Minor, short-term impacts are possible from 12 wells. Up to 61.2 acres of disturbance could occur. The stipulations for geological hazards/unstable soils, for steep slopes, and for DWSPs would provide significant protection against stream erosion and for maintenance of water quality, thereby also protecting culinary and municipal water systems.</p>	<p>Minor, short-term impacts are possible from 12 wells. Up to 61.2 acres of disturbance could occur. The stipulations for geological hazards/unstable soils, for steep slopes, and for DWSPs would provide significant protection against stream erosion and for maintenance of water quality, thereby also protecting culinary and municipal water systems.</p>
<p>Vegetation, Noxious Weeds, and Invasive Species</p>	<p>Short- to long-term, negligible to minor</p>	<p>Short- to long-term, negligible to minor</p>	<p>negligible</p>

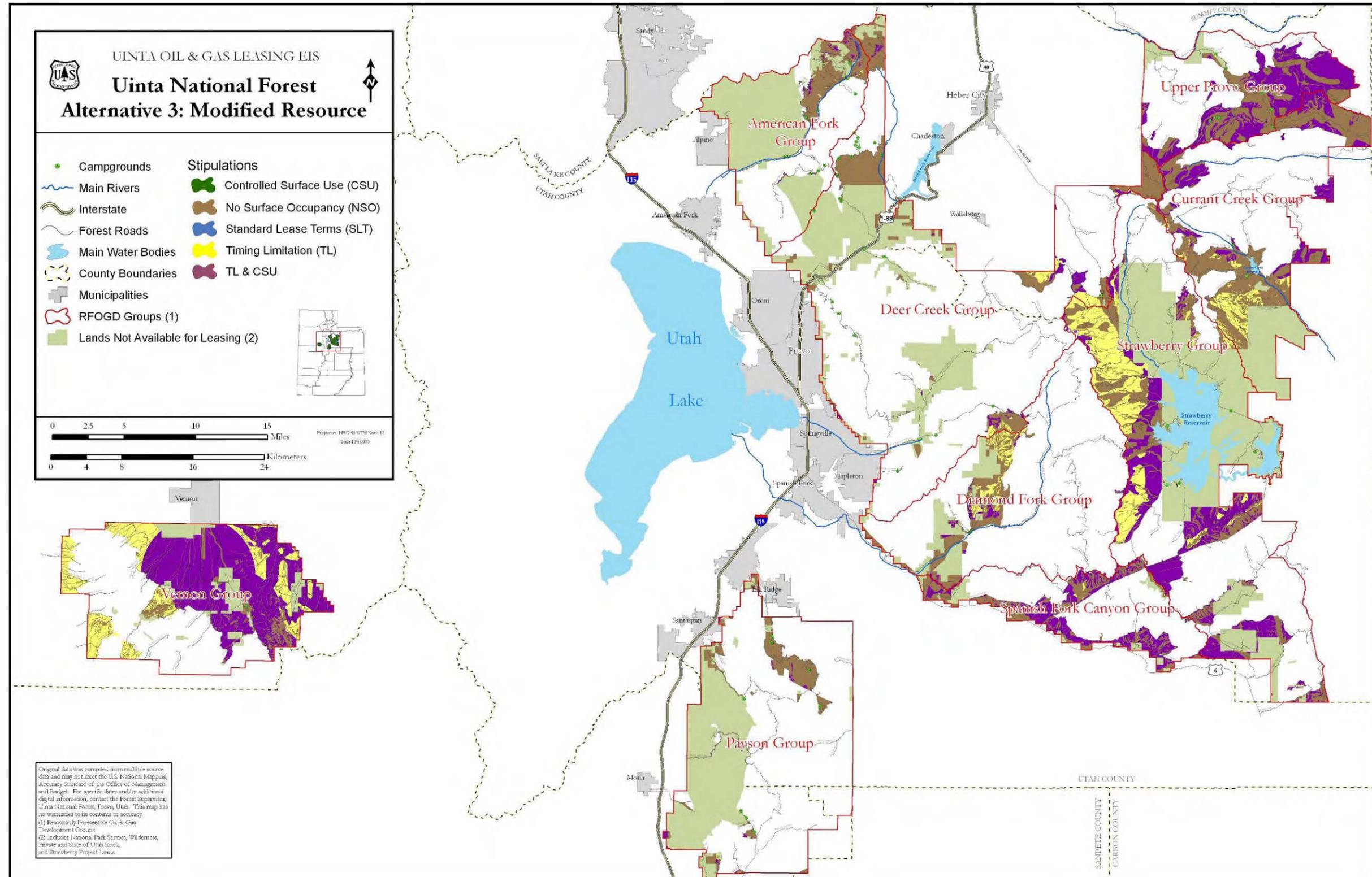
Resource	No Action Alternative	Proposed Action Alternative	Modified Resource-based
<p>Terrestrial and Aquatic Flora and Fauna, Including Threatened, Endangered, Sensitive, and Management Indicator Species</p>	<p><b>Wildlife-</b> The amount of disturbance relative to the amount of available habitat on the UNF is less than one percent. Impacts would be negligible.</p> <p><b>Special Status Species-</b> No direct impacts to sensitive (or other) fish species would occur due to SLT. No direct impacts to other plant and animal species are anticipated and indirect impacts would be negligible to minor, because of mitigation measures and other protections afforded to special status species.</p> <p><b>Fisheries-</b> indirect impacts from habitat degradation would be long-term and minor.</p> <p><b>Big-game, sage grouse, and lynx-</b> big game wintering: no impact calving: no impact fawning: negligible to minor sage grouse habitat: no impact LAUs: negligible to minor</p>	<p><b>Wildlife-</b> The amount of disturbance relative to the amount of available habitat on the UNF is less than one percent. Impacts would be negligible to minor.</p> <p><b>Special Status Species-</b> No direct impacts to sensitive (or other) fish species would occur due to SLT. No direct impacts are anticipated to other plant and animal species and indirect impacts would be negligible to minor, because of mitigation measures and other protections afforded to special status species.</p> <p><b>Fisheries-</b> indirect impacts from habitat degradation would be long-term and minor.</p> <p><b>Big-game, sage grouse, and lynx-</b> big game wintering: negligible to minor calving: negligible to minor fawning: minor sage grouse habitat: negligible to minor LAUs: negligible</p>	<p><b>Wildlife-</b> Effects to wildlife would be the same under all alternatives because the amount of disturbance relative to the amount of available habitat on the UNF is less than one percent. Impacts would be negligible to minor.</p> <p><b>Special Status Species-</b> No direct impacts to sensitive (or other) fish species would occur due to SLT. No direct impacts to other plant and animal species are anticipated and indirect impacts would be negligible to minor, because of mitigation measures and other protections afforded to special status species.</p> <p><b>Fisheries-</b> indirect impacts from habitat degradation would be long-term and minor.</p> <p><b>Big-game, sage grouse, and lynx-</b> big game wintering: negligible to minor calving: negligible to minor fawning: negligible to minor sage grouse habitat: negligible LAUs: negligible</p>
<p>Air Resources</p>	<p>Minor and local adverse effects from fugitive dust, vehicle emissions, and drilling and completion emissions.</p>	<p>Impacts would be similar to the No Action Alternative but the impacts would be greater due to increased number of wells and disturbed acres, along with associated increases in dust and emissions.</p>	<p>Impacts would be similar to the Proposed Action Alternative</p>

Resource	No Action Alternative	Proposed Action Alternative	Modified Resource-based
Visual Resources	Impacts to visual resources due to well pad and road construction are expected to create strong visual contrasts, but impacts would be short-term and localized, due to reclamation following exploration activities.	Impacts to visual resources due to the projected construction of 12 well pads and accompanying access roads are expected to create strong visual contrasts, but impacts would be short-term and localized, due to reclamation following exploration activities.	Impacts to visual resources due to the projected construction of 12 well pads and accompanying access roads are expected to create strong visual contrasts, but impacts would be short-term and localized, due to reclamation following exploration activities.
Cultural Resources	If a cultural resource is identified, it would be protected by avoidance or excavation and recordation. Standard stipulations require the lessee to report and protect all cultural resources found during construction.	If a cultural resource is identified, it would be protected by avoidance or excavation and recordation. Standard stipulations require the lessee to report and protect all cultural resources found during construction.	If a cultural resource is identified, it would be protected by avoidance or excavation and recordation. Standard stipulations require the lessee to report and protect all cultural resources found during construction.
Developed and Dispersed Recreation	Short-term minor adverse impacts. Total projected disturbance is less than a hundredth percent of recreational acreage available.	61.2 acres of disturbance projected from 12 wells and access roads. Small amount of disturbance and short-term nature of exploration activities results in minor, adverse effects. Effects would be minimized through mitigation measures and BMPs implemented to reduce noise and visual impacts.	Fewer acres of recreation available for leasing and additional stipulations applied to developed recreation would result in fewer impacts to recreation than the Proposed Action Alternative. All other impacts would be same as the Proposed Action Alternative.
Other Mineral Resources		Other Minerals Resources are discussed in Soils and Geologic Hazards Sections (3.3 and 4.3)	Other Minerals Resources are discussed in Soils and Geologic Hazards Sections (3.3 and 4.3)





Figure 2.3. Map of Modified Resource-based Stipulations Action alternative.



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