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Introduction

Overview of Issues Addressed

The scenery resource analysis is used to identify and minimize the impacts of human caused development to scenery on National Forest lands. This resource is explicitly recognized in law. The National Environmental Policy Act of 1969 (NEPA) states that it is the “continuing responsibility of the Federal Government to use all practicable means to assure for all Americans, aesthetically and culturally pleasing surroundings.” NEPA also requires “a systematic and interdisciplinary approach which will insure the integrated use of the natural and social sciences and the environmental design arts into planning and decision making which may have an impact on man’s environment.”

Numerous other federal laws require all Federal land management agencies to consider scenery and aesthetic resources in land management planning, resource planning, project design, implementation, and monitoring. Several USDA handbooks have been developed to establish a framework for management of scenic resources. This report relies heavily upon Landscape Aesthetics: A Handbook for Scenery Management, USDA Forest Service, Agricultural Handbook No.701.

Landscape Aesthetics handbook discusses the “Scenery Management System which presents a vocabulary for managing scenery and a systematic approach for determining the relative value and importance of scenery in a national forest.” The system to be used in the context of ecosystem management to inventory and analyze scenery in a national forest, to assist in establishment of overall resource goals and objectives, to monitor the scenic resource, and to ensure high-quality scenery for future generations. This handbook discusses many tools for which scenery resource specialists should employ, the best tools available are Scenic Integrity Objections (SIO).

The acceptable limits of change are the documented SIO’s, which serve as a management goal for the scenery resource. The Arapaho & Roosevelt National Forests and Pawnee National Grassland (ARP) Land and Resource Management Plan (1997 Forest Plan) established acceptable limits of change for the scenery resource.

Components of oil and gas development with the highest potential to adversely affect scenery resources include the short term and long term appearance of well sites and production facilities, road construction, pipeline construction, and heavy vehicle traffic.

Issue Indicators

Potential future development of oil and gas leases might result in impacts to scenery.

Impacts to the scenery resource will be measured in acres of scenic integrity objectives potentially impacted.
The frame of reference for measuring achievement of scenic integrity objectives is the valued attributes, such as vast open prairie and unique geological formations, of the existing landscape character being viewed. The project area includes High, Moderate and Low SIOs. High is defined as the valued landscape character “appears unaltered,” moderate is “slightly altered,” and low is “moderately altered.” Complete definitions can be found on page four of chapter two in the scenery handbook.

**Affected Environment**

**Existing Condition**

Introduction

The Pawnee National Grassland has evolved from its wide open prairie origins to more of a rural agricultural and pastoral setting. The Grassland is in the Great Plains Dry Steppe Province, more commonly referred to as the Central High Plains. Predominant vegetation is short and mid-grass prairie with cactus and sage common. Elevation ranges from 4,500 feet to 5,640 feet. Precipitation averages 9 to 17 inches annually, with 80% occurring during the spring and summer months. Temperatures tend to have a high degree of daily and seasonal fluctuation. Summer temperatures can reach over 100 degrees Fahrenheit with single digit humidity levels. Winter temperatures will commonly dip below zero degrees Fahrenheit. Persistent winds are very common year round and often gust over 30 miles per hour.

When precipitation events occur they move very quickly and produce heavy rainfall. The softer and more porous geology of this area has allowed erosion to work relatively quickly resulting in some steep sided mesas, bluffs, and creek bottoms. The best example of such erosion is the Pawnee Buttes which tower over the Grassland. The Buttes are the most recognizable symbol of the Pawnee National Grassland and one of the most visited locations. These areas of topographical interest are a key component to the valued landscape character of the Grassland.

With only minimal precipitation annually, most creeks are intermittent on the Grassland and can remain dry for years. Large cottonwoods populate these intermittent creek beds creating noticeably cooler micro-climates. For most of the year many bird species common to the Grassland are found in these creek bottoms which are few and far between. A few more notable bird species thrive outside of the protected creek bottoms such as the Mountain Plover and Burrowing Owl. These birds are specifically adapted to the dry and windy landscape. The plains are also home to coyote and Pronghorn Antelope which can be found roaming all corners of the Grassland.

Agriculture and grazing have been present in this area since the late 1800s. A few remnants of this early subsistence farming and grazing culture are still present. Most of these remnants are farmhouses that were built over a hundred years ago and have not
been inhabited for approximately the last sixty years. Agriculture and grazing remain a fundamental part of the surrounding communities’ society and economy. An old barn or homestead are views into the past, giving glimpses of how life used to be on the Grassland. This feeling of time travel is a valued landscape character on the Grassland. Farming and ranching have been a part of this landscape since settlers came west on covered wagons in the latter part of the 19th century. Grazing cattle, remnant homesteads and barbed-wire fences are accepted components of the Grassland’s landscape character. The project area is a valuable recreation area. The area is bisected by the Pawnee Pioneer Trails Scenic and Historic Byway which affords many pleasurable viewing opportunities. The Pawnee Buttes and associated trailhead are a popular destination along the Byway. The heaviest use occurs in late spring and early fall, but the area is accessible all year. Bird watching, dispersed camping, hiking and recreational shooting are the most popular recreational activities on the Grassland. Major access to the project area is provided by Colorado State Highway (CSH) 14 that intersects many county roads which lead further into the project area and facilitates wide spread recreational activities. This maze of roads degrades the valued landscape character.

Many of these dispersed recreational activities allow Grassland visitors to escape the congested urban setting. The vastness of the Grassland allows visitors to get away from it all, look in all directions and see only expansive prairie and imagine what it would have been like visiting here prior to human influences. This sense of escape is a valued landscape characteristic of the Grassland.

A relatively new sight on the Grassland is oil and gas surface activities. Oil and gas development has been more concentrated on the east side of the Pawnee National Grassland, and more specifically the southern portion near New Raymer. Oil and gas development has been less concentrated on the west side of the Grassland. Well pads tend to be areas cleared of all vegetation and have vertical structures such as pump jacks, tank batteries and above and below ground piping. Spill containment around the well heads tends to be highly reflective metal paneling. Newly constructed roads are a part of oil and gas activities. Semi-truck traffic has increased dramatically on Grassland roads which has had an adverse effect on scenic quality. Wells that are producing effectively often require pipelines stretching across the landscape to larger storage or production facilities. Pipeline trenches often require a path from the origin to its final destination which could be miles away. The introduction of this linear vegetation free path degrades the valued visual vastness for a term of approximately forty years, the time it takes native vegetation to re-establish.

Existing Scenic Integrity

As stated in Landscape Aesthetics (Agriculture Handbook Number 701) (pg. 2-1), “Scenic Integrity is a measure of the degree to which a landscape is visually perceived to be ‘complete.’ The highest scenic integrity ratings are given to those landscapes which have little or no deviation from the character valued by constituents for its aesthetic appeal. Scenic Integrity is used to describe an existing situation, standard for management, or desired future condition.”
In general, the Pawnee National Grassland would be rated as having a “Low to Moderate” degree of Existing Scenic Integrity. In some areas of the Grassland the landscape appears to be moderately altered by the vast road network and by surface-occupying oil and gas operations. These highly visible elements contribute to visual degradation of the valued landscape character and sense of place. The lack of vegetation and the presence of imported aggregate on the surface introduce colors, forms and textures not commonly found on the Grassland. The vertical elements of well pads occasionally borrow color from the surrounding landscape but introduce architectural styles not naturally associated with the Grassland. These non-natural deviations are even more prevalent on private land which increases the degradation of the overall valued landscape character.

The Grassland is a checker-board of private, state and federal lands, each with their own set of circumstances. Private lands tend to be developed first and with greater intensity. This increased level of surface activity adjacent to federal Grassland lands degrades the overall valued landscape character.

**Scenic Integrity Objectives**

The project area is described in the Forest Plan as having “High, Moderate and Low” Scenic Integrity Objective (SIO) areas. The table below shows the number of acres associated with each scenic integrity objective area within the project.

**Scenic Attractiveness**

“Scenic attractiveness is the primary indicator of the intrinsic beauty of a landscape and of the positive responses it evokes in people. It helps determine landscapes that are important for scenic beauty, based on commonly held perceptions of the beauty of landform, vegetation patterns, composition, surface water characteristics, and land use patterns and cultural features.” (Agriculture Handbook Number 701 pg. 1-14)

The majority of the project area has an indistinctive classification (Class C) because it has a weak sense of variety, vividness, mystery, pattern and balance. The Grassland lacks a wide spread natural variety across the landscape and tends to be more homogenous and subtle natural patterns. Large expanses of rolling plains do not offer much natural contrast or examples of vividness to visitors. The lack of natural contrast across great landscapes does not arouse much curiosity when visitors can see a majority of the area that lies ahead of them. The existing land use patterns including oil and gas and Grassland roads have detracted from the existing scenic quality. Surface-occupying oil and gas activities reduce the visitor’s sense of unity and harmony by going against the presumed order or pleasant arrangement of natural elements. Visitors expect to see the undulating hills, wind-blown fields of prairie grasses and grazing herds of Pronghorn. They do not expect to see straight roads leading to well pads with introduced vertical elements and mechanical operations.

Certain portions of the project area do have distinctive elements (Class A) such as the Pawnee Buttes because of its unusual and unique scenic qualities. This is the only
location on the Grassland where there is such natural contrast and vividness. This natural contrast and vividness is a key component to the valued landscape character.

**Existing Condition Conclusion**

The Pawnee National Grassland prior to westward development was characterized as being naturally vast, pastoral, homogenous, wind-swept, and secluded. Given that the natural landscape lacks much natural contrast and vertical structure, any deviation from these elements is usually seen as domination over the valued landscape character and the memorable sense of place it once created. This increased level of commercialized activity has degraded the valued landscape character on the Pawnee National Grassland.

**Grasslands Land Management Areas**

Management Areas (MAs) are a detailed description of each management area. The table below lists, in descending order, the magnitude in relation to the acreage of land covered along with their Scenic Integrity Objective (SIO).

<table>
<thead>
<tr>
<th>Management Area (MA)</th>
<th>Acreage of Analysis Area</th>
<th>Percentage of Analysis Area</th>
<th>Scenic Integrity Objective (SIO)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.6 - Mid-Composition - Low Structure; Grassland Resource Production</td>
<td>122,511</td>
<td>63.6%</td>
<td>Moderate &amp; Low</td>
</tr>
<tr>
<td>6.4 - Mid-Composition - High Structure; Native Shortgrass Prairie</td>
<td>51,209</td>
<td>26.6%</td>
<td>Moderate &amp; Low</td>
</tr>
<tr>
<td>3.1 - Special Interest Areas - Emphasizing Use or Interpretation</td>
<td>9,526</td>
<td>4.9%</td>
<td>High &amp; Moderate</td>
</tr>
<tr>
<td>4.2 - Scenery</td>
<td>4,920</td>
<td>2.6%</td>
<td>Moderate &amp; Low</td>
</tr>
<tr>
<td>2.2 - Research Natural Areas</td>
<td>2,578</td>
<td>1.3%</td>
<td>High</td>
</tr>
<tr>
<td>3.61 - Prairie Woodland</td>
<td>1,339</td>
<td>0.7%</td>
<td>Moderate</td>
</tr>
<tr>
<td>4.3 - Dispersed Recreation</td>
<td>345</td>
<td>0.2%</td>
<td>Moderate</td>
</tr>
<tr>
<td>8.21 - Developed Recreation Complexes</td>
<td>121</td>
<td>0.1%</td>
<td>Moderate &amp; Low</td>
</tr>
<tr>
<td><strong>TOTAL Acres</strong></td>
<td><strong>192,549</strong></td>
<td><strong>100.0%</strong></td>
<td></td>
</tr>
</tbody>
</table>
For further explanation of each MA see the 1997 Forest Plan.

**Desired Condition**

Desired Conditions were not defined per se in the Forest Plan. However, the vision for scenery resources can be determined through knowledge of forest plan goals, objectives and standards and guidelines.

**Environmental Consequences**

**Methodology**

Scenery resource impacts from oil and gas development result from the visibility of constructed elements of different form, line, color, and texture into the natural landscape combined with the distance at which proposed development is viewed and the concern of the viewer for scenic quality and integrity. The extents of noticeable change on the landscape as a result of project development will be measured in levels of effects to the scenic integrity (Major, Moderate, Minor, or Negligible).

For this project there are three alternatives that will be analyzed. Alternative A is no new lands available for leasing whatsoever. Alternative B is the No Action alternative and proposes that all lands in the Project Area available for leasing in the 1997 Forest Plan would remain available for leasing. Alternative C would make all new lands available for leasing but with a no surface occupancy (NSO) stipulation.

**Spatial and Temporal Context for Effects Analysis**

NEPA requires the effects in an EIS be discussed in terms of context and intensity. In this report, context refers to the location, type, or size of the area affected. Intensity refers to the severity or level of magnitude of impact. The intensity of effects is defined as Major, Moderate, Minor, or Negligible. The duration of effects can be temporary (short-lived, during construction), short term (1 year or less), or long term (more than 1 year).

The Analysis Area is all lands (private, state, federal) within the administrative boundary of the Pawnee National Grassland (~760,000 acres).

The Project Area is all federal lands within the administrative boundary of the Pawnee National Grassland that has not been previously leased. This acreage is approximately 146,374 acres.

**Scenery Analysis Assumptions**

Leasing is a commitment of the resource for potential future exploration and development, but leasing does not compel or authorize any ground disturbing actions in
support of the exploration or development of a lease. As a result of leasing, future exploration and development proposals could be brought forward that would be subject to additional site specific environmental study and permitting requirements.

No alternative specifically proposes the physical exploration or development of oil and gas resources. For this reason, the leasing analysis relies on the reasonable foreseeable development (RFD), which projects potential future surface disturbing activities, to provide a development scenario that has been determined to be reasonable on the all lands (federal, state and private). However, this scenario is dependent on future industry interest, access, market values and many other factors. For the purpose of analyzing impacts on the Analysis Area, there is an estimated 13,041 new wells drilled on 8,742 well pads resulting in 44,440 acres of new disturbance in, near or around the PNG. Restricted to just the Project Area, the RFD projection is for 265 new wells drilled on 80 well pads resulting in approximately 960 acres of new surface disturbance. At this time there is no way of determining how many acres could be leased.

Any future exploration or development of oil and gas resources, if and when it does occur, would result in impacts. However, those impacts would not occur until some point in the future and only following additional site specific environmental study and the federal leasing and development process.

The effects of post-leasing activities on the PNG scenery resources are generally related to surface occupancy and associated ground disturbance, activity, and the presence of unnatural elements such as drilling rigs, storage tanks, pump jacks, and roads previously not part of a landscape or view.

Past, Present, and Foreseeable Activities Relevant to Cumulative Effects Analysis

Past, present and foreseeable future actions in the Analysis Area influencing scenic conditions may include impacts from activities and/or actions associated with the following:

- Oil and gas development on previously leased federal lands, public and private lands
- Wind energy development on private lands
- Vehicle Use of current and future Roads
- Power-lines

Oil and gas development has occurred and will continue to increase in and around the Analysis Area on private lands and other lands (State and Federal) that have 100% private mineral rights. Development is more likely to occur on the eastern portion of the Analysis Area, with emphasis on the southern half of the eastern portion. Oil and gas development will likely have adverse effects on scenic quality directly related to constructed features
(pipelines, power lines, well pads, drill rigs, associated roads, compressor stations, and production facilities) and activities.

Wind energy development has been occurring and may continue to increase in and around the Analysis Area. Development is likely to occur on private lands in the north half of the eastern portion of the Analysis Area. Wind turbines and transmission lines would likely have an impact on scenic quality due to the height of these units and the ability for these to be seen from great distances.

Vehicle use of current and future roads and associated dust will likely continue to increase in and around the Analysis Area. The increased traffic and associated dust will likely occur on both private roads and public roads. An increased level of dust present in the atmosphere will likely have adverse effects on scenic quality due to the reduced ability to view pleasurable landscapes.

Power-line development may continue to increase in and around the Analysis Area. Development will likely occur on both private lands and Grassland lands. Power-lines would likely have adverse effects on scenic quality due to the visibility of the structures in the middle-ground of some valued landscape views.

**Alternative 1 – No New Lands Available for Lease**

Alternative 1 is no new lands available for leasing whatsoever. The lands previously leased, about 43,444 acres, would remain under the terms and conditions as stated in the 1997 Forest Plan.

**Design Features and Mitigation Measures**

There would be no design features or mitigation measures necessary for this alternative.

**Direct Effects**

The beneficial effects of Alternative 1 are the fact that there will be no modification of vegetation or soils associated with well pad construction, there will be no constructed features present on PNG lands, and there would be no drilling operations present on PNG lands.

**Indirect Effects**

A moderate adverse effect on scenery of this no leasing alternative would be the largest amount of surface development on private lands within the Analysis Area. Research provided by BLM states that this alternative would likely require approximately 10% more surface disturbance off national forest system lands, as compared to the NSO alternative. Another minor to moderate adverse effect of this increased private land development would be the increased heavy vehicle use of Analysis Area roads which will likely increase the amount of dust present in view-sheds.
Another minor to moderate adverse effect would be the increased intrusions on the night time scenery from private land oil and gas development such as flare-offs from well sites and drill rig lighting.

Cumulative Effects

All of the effects associated with this alternative would be the result of those previously leased lands. For this alternative all of the effects will result from previously leased lands that have or have not yet been developed, lands with 100% private minerals, or private lands. In combination with past, present and foreseeable future projects in and around the Analysis Area there would be minor adverse cumulative effects on the scenic quality of the grassland. However, the cumulative adverse effects of Alternative 1 would likely be less than Alternative 2 but more than Alternative 3. (See Table 1)

**Alternative 2 – No Action**

Design Features and Mitigation Measures

At the leasing stage, design features are implemented as stipulations to future oil and gas development. If areas are eventually leased and site specific NEPA decisions are made, additional design elements could be developed to ensure compliance with the Forest Plan Standards and Guides and the *Landscape Aesthetics* Handbook (Agriculture Handbook Number 701).

**Scenery Stipulations for Alternative 2**

**CONTROLLED SURFACE USE STIPULATION**

Surface occupancy or use is subject to the following special operating constraints:

To meet Scenic Integrity Objects (SIO’s) and to meet the values associated with the Pawnee Pioneer Trails Scenic and Historic Byway, the Forest Service may require special analysis and mitigation plans for activities proposed along the Scenic Byway and the Pawnee Bird Tour. Mitigation may include relocating operations beyond lands identified under Management Area 4.2 (Scenery) in the 1997 Forest Plan, but not more than two miles from road centerline. Forest Service may also require special analysis and mitigation plans for activities proposed in areas with Moderate Scenic Integrity Objectives, including relocating operations by more than 200 meters.

At the time operations are proposed, the lessee may be required to submit visual simulations and visual resource and interpretive assessments along with plans for Forest Service approval demonstrating that all structures will be visually subordinate to the surrounding landscape and meet the SIO. A computer generated perspective may be required as part of the visual impact assessment.

**On the lands described below:**
On portions (or all, whichever is applicable) of the lands as shown on the attached SIO map.

For the purpose of:

Protecting the scenic resources and the character of the landscape. Protecting the scenic, social, historic and cultural resource values associated with the Scenic Byway. Noticeable deviations must remain visually subordinate to the landscape character being viewed and meet the Scenic Integrity Objectives (SIO).

Rationale:

Forest Plan Scenery Standard No. 154: Prohibit management activities that are inconsistent with the scenic integrity objectives unless a decision is made to change the scenic integrity objective. A decision to change the SIO will be documented in a project-level NEPA decision document. See Amendment No. 9 of the Forest Plan for definitions of scenic integrity objective levels. Another source is the USDA, FS. 1995. Landscape Aesthetics, A Handbook for Scenery Management, USDA, Agricultural Handbook #701.

Waivers, Exceptions or Modifications (WEMS):

WEMs to this stipulation will be subject to the Forest Land and Resource Management Plan in effect at the time of consideration, and will be subject to applicable regulatory and environmental compliance requirements. WEMs will only be considered if it can be demonstrated that the resource of specific concern would be protected. In such situations that a WEM may be granted, the activity would be subject to additional Conditions of Approval (COAs) and reclamation standards to ensure resource values are protected. Granting of a WEM is a discretionary action which the operator should not routinely expect.

Direct Effects

Extraction of subsurface resources requires the construction of a well pad. Oil and gas well pads may be 12 acres in size during initial construction (short term) and may be reduced to 1.5 acres after reclamation has been completed. Modification of vegetation and soils cannot be avoided and may have minor to moderate adverse effects to the naturally monochromatic landscape.

Well pads will usually include vertical constructed features such as storage tank batteries, separators, and may include a pump jack and associated gas-powered generator. These constructed features introduce lines, forms and textures that are not naturally occurring on the landscape. These deviations do appear visually subordinate to the valued landscape character when being viewed from greater distances. An active well will remain in production on average 30 to 50 years resulting in long term minor to moderate adverse effects to scenery.
Road and pipeline construction would likely result in a minor to moderate adverse effects to the valued landscape. Effects would include minor color contrasts between the imported lighter colored road gravel and other areas of disturbance compared to the surrounding vegetation. Long and linear features such as roads and pipelines can be seen and identified in some view-sheds across the Grassland.

A temporary adverse effect is the presence of heavy construction equipment and increased large vehicle traffic on Analysis Area roads. The increased heavy vehicle traffic will probably lead to more dust present in the atmosphere which would reduce the distance to which visitors can see and would likely reduce the level of detail they can see in these valued vistas. The additional dust present in the view sheds would likely have a minor to moderate adverse effect on scenic quality.

Indirect Effects

Drilling rigs would likely introduce moderate to major line and form contrasts and may dominate the valued landscape character and may not borrow from valued landscape attributes, such as the vast low lying prairie and unique geological formations. The relatively tall structures may be seen from miles away and are immediately identified as a part of oil and gas operations. The adverse scenic impacts of drilling rig operations would be greater in areas visible from Concern Level 1 travel routes or viewpoints such as Hwy. 14, the Scenic Byway, and the Pawnee Buttes Trailhead and associated trails. Most of these moderate adverse effects would be temporary, lasting from approximately two to three months per well pad (BLM/USFS 2011).

Oil and gas operations may have moderate adverse effects on night time scenic characteristics. Flares from some well sites would have moderate adverse effects and be a major contrast and intrusion on the natural evening and nighttime horizon line. Night time lighting on the drilling rigs may be controlled to reduce the night time visibility of the derrick from a distance. Drilling rigs and compressor station’s lighting may have some adverse effects on the vast darkness of the Grassland by introducing non-natural light sources that could interrupt the night time scenic qualities. Night time oil and gas lighting may be visible from long distances if not properly mitigated. The Colorado Oil and Gas Conservation Commission (COGC), which regulates oil and natural gas activities in Colorado, has direction on lighting, Rule 803 states “To the extent practicable, site lighting shall be directed downward and internally so as to avoid glare on public roads and building units within seven hundred feet.”

Cumulative Effects

Oil and gas development (constructed features) and wind energy development (wind turbines) on adjacent private lands with their associated increased vehicles on roads and power lines all add to the direct and indirect effects of Alternative 2. This may result in
major adverse effects to High SIO areas, moderate adverse effects to Moderate SIO areas, and minor adverse effects to Low SIO areas.

Summary of Effects

High SIO has 6,728 acres of NSO (see Table B) in the Project Area for this alternative. Oil and gas operations would likely adversely affect high quality scenic resources if surface development was to occur on NFS lands with 100% private mineral rights within High SIO acres. The impacts to High SIO acres may be short-term to long-term with major adverse effects and may not meet the SIO as stated in the 1997 Forest Plan.

The potential scenery impacts to Moderate SIO acres in areas without NSO are 137,475 acres and may not meet the SIO as stated in the 1997 Forest Plan, this would be a minor to moderate adverse effect.

Low SIO applies to 2,171 acres of the Project Area without NSO. Oil and gas operations within Low SIO will likely have negligible to minor adverse effects to scenery resources.

Alternative 2 would have the greatest adverse effects on the scenic resources in the Project Area. It would be in compliance with 2,171 acres of Low SIO, and may or may not be in compliance with 144,203 acres of Moderate and High SIOs within the Project Area (See Table 2).

Alternative 3 – No Surface Occupancy on all PNG Lands

Alternative 3 would make 146,374 new acres available for leasing but with NSO stipulations applied to all available lands.

Design Features and Mitigation Measures

There would be no design features or mitigation measures necessary for this alternative.

Direct Effects

The beneficial effects of Alternative 3 are the fact that there will be no modification of vegetation or soils associated with well pad construction, there will be no constructed features present on PNG lands, and there would be no drilling operations present on PNG lands.

Indirect Effects

A moderate adverse effect on scenery of this NSO alternative would likely be the increased surface development on private lands within the Analysis Area. Another minor to moderate adverse effect of this increased private land development would be the
increased heavy vehicle use of Analysis Area roads which will likely increase the amount of dust present in view-sheds.

Cumulative Effects

Adverse cumulative effects of Alternative 3 would likely be less than Alternative 1 based on BLM research that states that this alternative would require approximately 10% less surface disturbance or development on private lands than Alternative 2.

Based on current research and findings, Alternative 3, no surface occupancy stipulation applied to all newly available PNG lands would be the preferred alternative in regards to maintaining or improving scenic integrity and quality (See Table 3)

Regulatory Framework

Forest Plan

Goals

The first goal of the LRMP (pg. 4) states “Manage the Forests and Grassland to assure productive, healthy ecosystems, blending social, physical, economic, and biological needs and values.” There is one “Standard” and one “Goal” (pg. 38) that pertain to Scenery resources:

- Standard 154 – Prohibit management activities that are inconsistent with the scenic integrity objective unless a decision is made to change from the scenic integrity objective (SIO).
- Guideline 157 – Design and implement management activities to meet the adopted scenic integrity objective for the area as shown on the LRMP SIO map.

Management Areas

6.6 – MID-COMPOSITION – LOW STRUCTURE: GRASSLAND RESOURCE PRODUCTION

Theme: Lands classified for grassland resource production are managed to provide healthy and sustainable plant communities dominated by herbaceous and grass species.

Social

Contacts with other people are infrequent, with more common contacts occurring on roads. Recreational activities include hunting, fishing, wildlife viewing, dispersed recreation… driving for pleasure…
6.4 – MID COMPOSITION – HIGH STRUCTURE: NATIVE SHORTGRASS PRAIRIE

Theme: Management emphasis is on providing representative native shortgrass prairie ecosystems as habitat for associated plant and animal species.

Desired Conditions

Social
Contacts with other people are infrequent, with more common contacts occurring on roads. Recreational activities include hunting, fishing, wildlife viewing, dispersed recreation… driving for pleasure…

3.1 – SPECIAL INTEREST AREAS

Theme: Special Interest Areas (SIA) are managed for public education, interpretation, recreation or development while protecting or enhancing areas with unusual characteristics.

Desired Conditions

Physical/Biological
These areas are managed to maintain their special interest values. Typically, SIAs have been designated as botanical, geological, historical, paleontological, scenic, and zoological areas. SIAs can be designated to protect and manage… or for their scenic values, or public popularity. SIAs can vary from small to fairly large areas. In addition, places such as… significant views…, could be considered for SIAs.

Standards and Guidelines
1. (ST) Withdraw this area from mineral entry in conformance with Section 204 of Federal Land Policy and Management Act of 1976 (PL 94-579) when withdrawal is necessary to protect the values for which the SIA was designated.

Pawnee Buttes SIA
The Pawnee Buttes on the Grassland were designated as an SIA because of the area’s unique combination of characteristics. Management emphasis is on protecting and interpreting the special wildlife, recreational, scenic, and geological features.

4.2 – SCENERY

Theme: Areas are managed to protect or preserve scenic values and recreational uses of designated scenic byways and other heavily used scenic travel corridors.

Desired Condition

Physical/Biological
Maintain a variety of successional stages, plant communities… Maintain or improve the communities to provide a pleasing appearance for visitors and to complement the recreational values. Emphasize the health and appearance of these communities to maintain their important scenic qualities. Vegetation alterations may be carried out to enhance viewing opportunities and to maintain long-term vigor and health of the vegetation. Vegetation management activities are, however, kept visually subordinate to the surrounding landscape.
Vegetation varies from background areas which appear natural to foreground and middle-ground areas where modifications may be noticed but do not attract attention. Improve areas to restore the desired appearance. Design new vegetation modifications to resemble natural patterns or to reflect less intrusion on the landscape. Other ecological changes may affect the appearance.

**Social**
Opportunities exist to view high-quality scenery that represents the natural character of the Forests and Grassland. Opportunities also exist for viewing a variety of wildlife…

**Administrative**
Facilities may be present to enhance viewing or recreational opportunities. Improvements such as improved roads, primitive roads, trails, bridges, fences, shelters, overlooks, signs or water diversions will blend into the landscape where feasible, be removed if no longer needed, or will be designed to be minimally intrusive into the landscape…

**2.2 – RESEARCH NATURAL AREAS**

**Theme:** Research Natural Areas (RNAs) form a long-term network of ecological reserves designated for non-manipulative research…

**Desired Conditions**

**Physical/Biological**
Maintain natural (relatively pristine or pre-settlement) conditions by allowing ecological processes to prevail with minimal human intervention…

**Administrative**
Allow no surface extractive uses except those arising from existing federal leasing and private subsurface mineral rights.

**3.61 – PRAIRIE WOODLANDS**

**Theme:** Prairie woodlands are managed to maintain or enhance woody vegetation.

**Desired Conditions**

**Physical/Biological**
Enhance and maintain a full range of natural compositional and successional stages of woody draws and shrubs to provide biologically diverse habitats…

**4.3 – DISPERSED RECREATION**

**Theme:** Dispersed recreation areas are managed to provide recreational opportunities in natural or nearly natural-appearing landscapes.

**Desired Condition**

**Physical/Biological**
Maintain or improve biological communities to provide a pleasing appearance for visitors… Emphasize the health and appearance of these communities to maintain their desirability for recreational use…

**Social**
Undeveloped areas appear to be relatively natural. Blend existing improvements such as improved roads, primitive roads, trails, bridges, fences, shelters, signs or water diversions into the landscape where feasible or remove them if no longer needed. Design new improvements to resemble natural patterns. On-site regimentation and controls are noticeable, but harmonize with natural environment…

8.21 – DEVELOPED RECREATIONAL COMPLEXES

_Theme:_ Areas are managed to provide a variety of recreational opportunities in highly developed, multiple-site recreational complexes.

_Desired Conditions_

_Physical/Biological_  
Maintain or improve biological communities to provide a pleasing appearance for visitors… Emphasize the health, sustainability, and appearance of these communities to maintain their desirability for recreational use… Manage habitat in and around recreational complexes to provide a variety of “watchable” wildlife species… Evidence of disturbance and human use may be present, but a healthy and attractive appearance of these ecosystems is maintained because of their desirability for recreational use. There is little visible evidence of undesirable plant species…

_Social_  
Provide access to and parking for sites, natural attractions…, and scenic driving. Onsite regulations and controls are obvious but harmonize with the natural setting to the extent possible…

_Compliance with Forest Plan and Other Relevant Laws, Regulations, Policies and Plans_  

Forest Plan compliance for scenic resources is essentially determined by compliance with the _Landscape Aesthetics_ Handbook (Agriculture Handbook 701) and the 1997 ARP Forest Plan, which requires projects “maintain or improve” scenic quality. As part of this leasing decision, no specific ground disturbing activities are approved, so no direct effects to scenic resources would occur.

Post leasing activities for Alternative 3 would likely be in compliance with the High and Moderate SIO areas in the Potential Development Area because there would be no surface development on NFS lands. Alternative 1 would likely be in compliance with all SIO areas in the Potential Development Area because there would be no surface development on NFS lands.

_Summary of Effects_  
Scenery Resources would be least impacted by Alternative 3 and second least impacted by Alternative 1, with Alternative 2 having the greatest risk for impacts to scenic resources. The effects for SIOs are summarized in _Table 4_.

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Tables

Table 1. Scenic Integrity Objective Acreage Summary for Alternative 1

<table>
<thead>
<tr>
<th>SIO</th>
<th>With NSO</th>
<th>Without NSO</th>
<th>% of Leasable Acres</th>
<th>Total Acres for Potential Disturbance</th>
</tr>
</thead>
<tbody>
<tr>
<td>High SIO</td>
<td>0</td>
<td>0</td>
<td>0%</td>
<td>0</td>
</tr>
<tr>
<td>Moderate SIO</td>
<td>0</td>
<td>0</td>
<td>0%</td>
<td>0</td>
</tr>
<tr>
<td>Low SIO</td>
<td>0</td>
<td>0</td>
<td>0%</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>0</td>
<td>0</td>
<td>0%</td>
<td>0</td>
</tr>
</tbody>
</table>

Source: PNG GIS data

Table 2. Scenic Integrity Objective Acreage Summary for Alternative 2

<table>
<thead>
<tr>
<th>SIO</th>
<th>With NSO</th>
<th>Without NSO</th>
<th>% of Leasable Acres</th>
<th>Total Acres for Potential Disturbance</th>
</tr>
</thead>
<tbody>
<tr>
<td>High SIO</td>
<td>6,728</td>
<td>0</td>
<td>4.59%</td>
<td>0</td>
</tr>
<tr>
<td>Moderate SIO</td>
<td>0</td>
<td>137,475</td>
<td>93.92%</td>
<td>137,475</td>
</tr>
<tr>
<td>Low SIO</td>
<td>0</td>
<td>2,171</td>
<td>1.48%</td>
<td>2,171</td>
</tr>
<tr>
<td>Total</td>
<td>6,728</td>
<td>139,646</td>
<td>100%</td>
<td>139,646</td>
</tr>
</tbody>
</table>

Source: PNG GIS data

Table 3. Scenic Integrity Objective Acreage Summary for Alternative 3

<table>
<thead>
<tr>
<th>SIO</th>
<th>With NSO</th>
<th>Without NSO</th>
<th>% of Leasable Acres</th>
<th>Total Acres for Potential Disturbance</th>
</tr>
</thead>
<tbody>
<tr>
<td>High SIO</td>
<td>6,728</td>
<td>0</td>
<td>4.59%</td>
<td>0</td>
</tr>
<tr>
<td>Moderate SIO</td>
<td>137,475</td>
<td>0</td>
<td>93.92%</td>
<td>0</td>
</tr>
<tr>
<td>Low SIO</td>
<td>2,171</td>
<td>0</td>
<td>1.48%</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>146,374</td>
<td>0</td>
<td>100%</td>
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</tr>
</tbody>
</table>

Source: PNG GIS data

Table 4. Scenic Integrity Objective Compliance by Alternative

<table>
<thead>
<tr>
<th>SIO Compliance by Alternative</th>
<th>Alternative 1 No New Lands</th>
<th>Alternative 2 No Action</th>
<th>Alternative 3 NSO</th>
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</thead>
<tbody>
<tr>
<td>High SIO</td>
<td>Meets</td>
<td>May Not Meet</td>
<td>May or May Not Meet</td>
</tr>
<tr>
<td>Moderate SIO</td>
<td>Meets</td>
<td>May Meet</td>
<td>May or May Not Meet</td>
</tr>
<tr>
<td>Low SIO</td>
<td>Meets</td>
<td>Would Likely Meet</td>
<td>Meets</td>
</tr>
</tbody>
</table>
References
