AGENDA

Montana Sage Grouse Oversight Team (MSGOT)

October 4, 2018: 12:30 p.m. – 2:00 p.m.

DNRC Headquarters, Montana Room

12:30: Call to Order, John Tubbs, Chair and DNRC Director

- Administrative Matters:
  - Affirm Final Meeting on December 18, 2018: 11:00 – 2:30

12:35 – 12:45: Reports: Implementation of Executive Order 12-2015 and the Stewardship Act

- Reports from Individual MSGOT Members
- Program Report
- MSGOT Discussion, if any

12:45 – 12:55: Application of the 3% Discount Method to Re-Calculate American Colloid Company's Contribution to the Stewardship Account for the Daun West Mitigation Plan

- Introduction: Carolyn Sime, Program Manager
- Public Comment
- MSGOT Discussion and Potential Executive Action

12:55 – 1:50: Proposed Administrative Rules to Adopt the October 2018 v1.0 Habitat Quantification Tool Technical Manual and the October 2018 v1.0 Policy Guidance Document

- Introduction: Carolyn Sime, Program Manager; Danna Jackson, DNRC Chief Legal Counsel
- Public Comment
- MSGOT Discussion and Potential Executive Action to Initiate Formal Rulemaking

1:50 – 2:00: Public Comment on Other Matters

NOTE: Agenda item times are approximate. Actual times may vary by up to one hour. Attendees who may need services or special accommodations should contact Carolyn Sime (406-444-0554 or csime2@mt.gov) at least 5 working days before the meeting.

MONTANA SAGE GROUSE OVERSIGHT TEAM AGENDA ITEM BRIEF SHEET
OCTOBER 4, 2018

AGENDA ITEM: APPLICATION OF THE 3% DISCOUNT METHOD TO RE-CALCULATE AMERICAN COLLOID COMPANY'S CONTRIBUTION TO THE STEWARDSHIP ACCOUNT FOR THE DAUN WEST MITIGATION PLAN

ACTION NEEDED: REVIEW AND APPROVE APPLICATION OF THE 3% DISCOUNTING METHOD TO RE-CALCULATE AMERICAN COLLOID'S CONTRIBUTION TO THE STEWARDSHIP ACCOUNT ASSOCIATED WITH THE DAUN WEST PERMIT AMENDMENT TO PERMIT 670 SAGE GROUSE MITIGATION PLAN

SUMMARY:

MSGOT approved American Colloid Company's (ACC) Daun West Permit Amendment to Permit 670 Sage Grouse Mitigation Plan on September 14, 2018. The mitigation plan included a contribution to the Stewardship Account in lieu of ACC undertaking permittee responsible mitigation projects or working with third party credit providers. MSGOT's approval occurred prior to the Program's presentation and MSGOT's discussion of the Mitigation Policy Guidance September 2018 v1.0 document.

The September 2018 v1.0 Policy Guidance revised the method for calculating the credit price (and thus total cost) for developers who choose to make a contribution to the Stewardship Account instead of undertaking permittee-responsible projects or working with third party credit providers (e.g., conservation bankers, habitat exchange administrators, or individual private landowners) Under the new method, the annual cost per credit would be discounted annually at a rate of 3% per year for the life of a project. The initial starting price was $13.00.

The fixed cost method of $13.00 per credit yields a total cost of $44,734.61 over the life of the project. This was the amount included in ACC's mitigation plan reviewed and approved by MSGOT on September 14. If the 3% discounting method were applied, the total cost would be $28,002.44 for the life of the project. Application of the discount method would save American Colloid Company $16,732.17. See Figure 1.

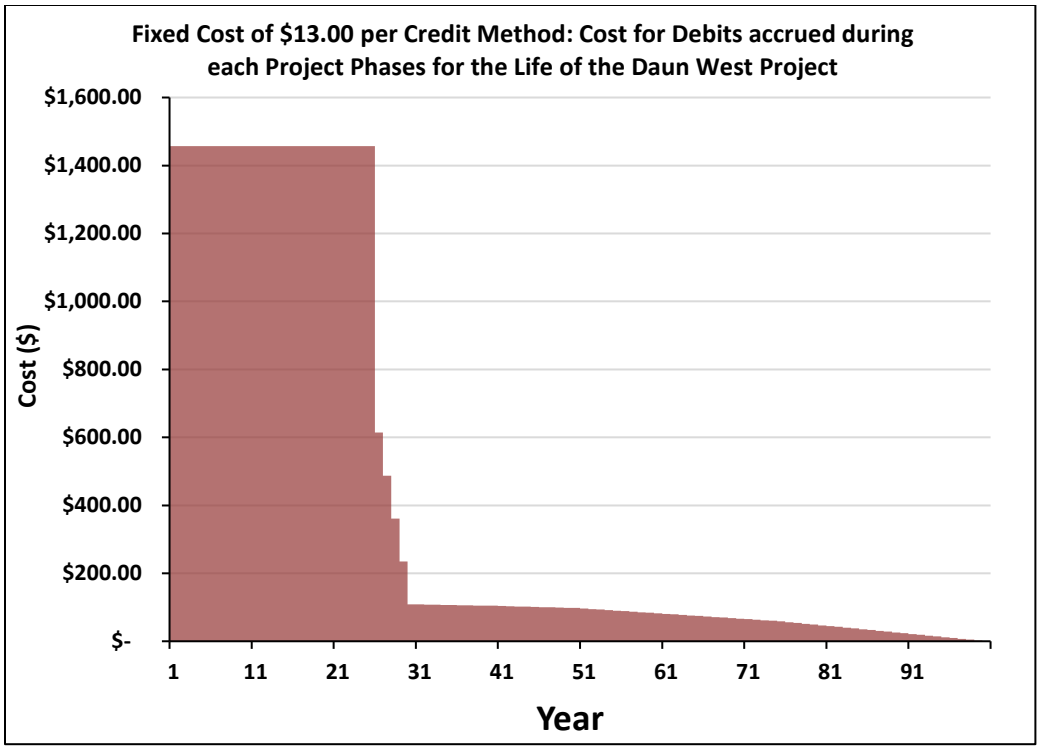
The Program contacted American Colloid Company representatives after the September 14 MSGOT to discuss the potential savings as a gesture of good faith. Together, American Colloid Company and the Program seek MSGOT's approval to apply the 3% discounting method and re-calculate the amount of the contribution, fully recognizing that MSGOT has not yet adopted final mitigation policy.

Inclusion of the 3% discount method in the September and October 2018 Policy Guidance document, respectively, affords another means to address concerns expressed by the bentonite industry about costs even while still applying the HQT to estimate the number of functional acres lost.

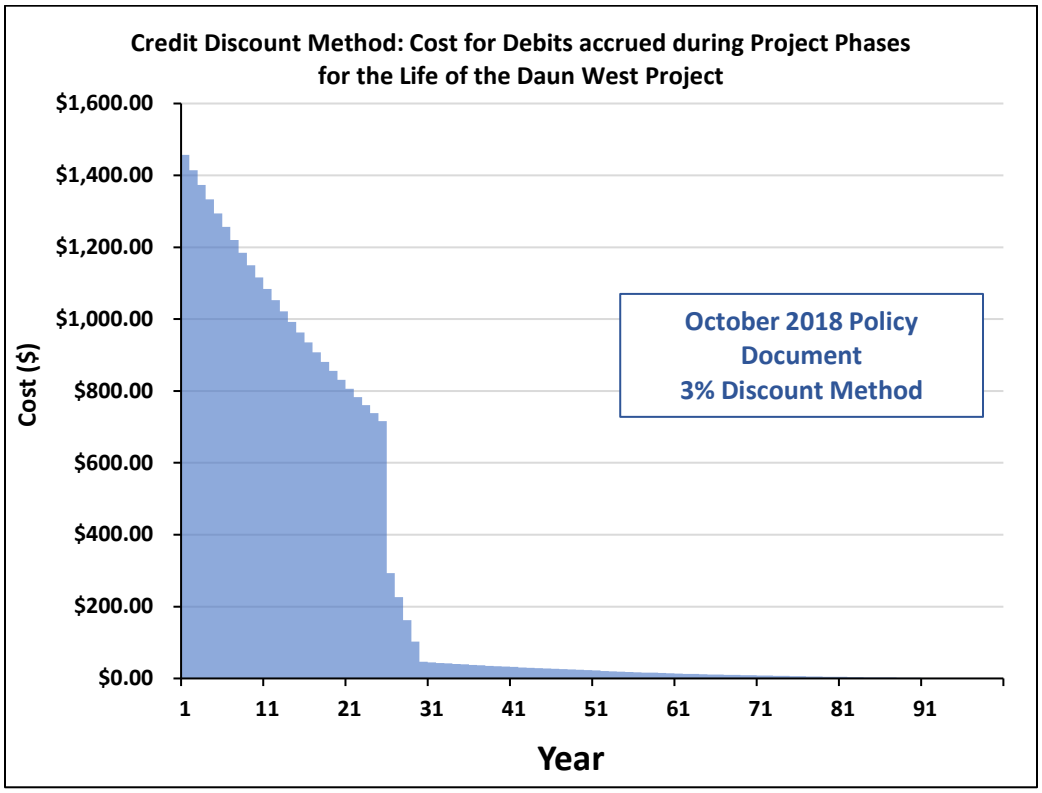
If MSGOT were to approve moving forward with the re-calculation, the Program would work with American Colloid to revise the mitigation plan that was approved on September 14 and incorporate this method. The revised contribution amount ($28,002.44) would be reflected in the amended mitigation plan. See the attached table taken from the initially-approved plan. All other facets of the plan remain the same.

Funds would still be deposited in the Stewardship Account in conjunction with the permitting process and prior to construction. MSGOT would still award these funds through the Stewardship Account grant process to conserve habitat and sage grouse populations in southeast Montana.

PROGRAM RECOMMENDATION:
The Program Manager recommends MSGOT approve application of the 3% discounting method to re-calculate American Colloid's contribution to the Stewardship Account associated with the Daun West Permit Amendment to Permit 670 Sage Grouse Mitigation Plan.



Total Fixed Cost, Life of the Project: $44,734.61



Total Credit Discount Method Cost, Life of the Project: $28,002.44 ($16,732.17 savings)

ACC Daun West Mitigation Obligation Breakdown

Debit Component	**Compensatory Mitigation Obligation**
Raw HQT Score	2361
Reserve Account	472.2
Site-Specific EO Stip. DDCT >5%	185.9
Advance Payment[1]	236.1
Site-Specific EO Stipulation: Vegetation Removal[2]	185.9
Total Debit Obligation	**3441.1**
~~**Total Cost at $13 per Debit**~~	~~$44,734.61~~
Total Cost after applying Credit Discount Method	**$28,002.44**

MONTANA SAGE GROUSE OVERSIGHT TEAM AGENDA ITEM BRIEF SHEET
OCTOBER 4, 2018

AGENDA ITEM: PROPOSED ADMINISTRATIVE RULES TO ADOPT THE *MITIGATION HQT TECHNICAL MANUAL OCTOBER 2018 V1.0* AND THE *MITIGATION POLICY GUIDANCE DOCUMENT OCTOBER 2018 V1.0*

ACTION NEEDED: TAKE EXECUTIVE ACTION ON WHETHER TO INITIATE ADMINISTRATIVE RULEMAKING TO DESIGNATE THE HABITAT QUANTIFICATION TOOL (HQT), ADOPT THE *HABITAT QUANTIFICATION TOOL TECHNICAL MANUAL OCTOBER 2018 V1.0,* ADOPT THE *POLICY GUIDANCE DOCUMENT OCTOBER 2018 V1.0*, AND TO PROMULGATE OTHER MISCELLANEOUS RULES NECESSARY TO FULFILL OTHER STATUTORY DUTIES RELATED TO THE STEWARDSHIP ACCOUNT AND MITIGATION

SUMMARY:

The 2015 Montana Legislature passed the Montana Greater Sage-Grouse Stewardship Act (Act). Executive Order 12-2015 complements the Act. Taken together, they establish that Montana will observe the mitigation hierarchy (avoidance, minimization, reclamation, and compensation) for activities requiring agency review, approval, or authorization in habitats designated as Core Areas, General Habitat, and Connectivity Area.

The Act specifically sets forth that: (1) project developers can offset the loss of resource functions or values at an impact or project site through compensatory mitigation to incentivize voluntary conservation measures for sage grouse habitat and populations; (2) a habitat quantification tool (HQT) will be designated to evaluate vegetation and environmental conditions related to the quality and quantity of sage grouse habitat and to calculate the value of credits and debits when compensatory mitigation is required; (3) there shall be a method to track and maintain the number of credits and debits available and used; and (4) there shall be a method to administer review and monitoring of projects funded through the Stewardship Account. MSGOT has authority to adopt administrative rules to implement these provisions.

MITIGATION: HQT DESIGNATION, *HQT TECHNICAL MANUAL*, AND *POLICY GUIDANCE DOCUMENT*

The proposed rules would have MSGOT, the Program, and all parties engaged in the mitigation system implement the *Mitigation Habitat Quantification Tool Technical Manual October 2018 v1.0* and the *Mitigation Policy Guidance October 2018 v1.0* documents. The *Technical Manual* describes the methods and processes used to evaluate the quality and quantity of habitat affected by development or conservation actions, respectively. If ultimately adopted, rules pertaining to the *Technical Manual* would have the effect of designating the Habitat Quantification Tool (HQT).

The proposed rules would also direct implementation of the *Policy Guidance* document. The *Policy Guidance* document describes the methods and processes for how the HQT results are applied by MSGOT, the Program, developers, private landowners, and others participating in Montana's mitigation market place. Together, the HQT and accompanying policies create a market-based approach to mitigation, along with incentives, consistent with legislative findings and direction.

More specifically, the proposed rules describe the process that MSGOT, the Program, and all mitigation participants will use for continuous improvement through time. Adaptive management is a core principle, along with transparency. Both the proposed rules and the documents contain sections about how MSGOT will manage the review and update of the HQT, the *Habitat Quantification Tool Technical Manual* and the *Mitigation System Policy Guidance* and how these revisions will be tracked through time.

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The *HQT Technical Manual* and the *Policy Guidance* document will each undergo an annual review involving stakeholders, agency partners, and others participating in the mitigation system. A report will be provided to MSGOT, including findings and recommendations for improvements.

Routine changes anticipated on an annual basis include: updating spatial data layers to the HQT base map (e.g., update anthropogenic disturbance layer and incorporate new credit site data) and editorial changes to improve clarity. MSGOT and the Program could also consider major revisions to incorporate new science or address new findings learned through adaptive management reviews. These are expected to prompt rulemaking, but MSGOT always has discretion about whether to initiate rulemaking.

Every five years, a substantive review will occur. Methods and data sources will be thoroughly evaluated. The five-year review could yield significant changes. If so, the outcome would be development of the next major version of the *HQT Technical Manual* and *Policy Guidance*, which triggers new rulemaking. Changes would only be undertaken after notice and comment through publicly-announced MSGOT meetings and in a collaborative spirit with participants engaged in mitigation.

The approach and how the documents were developed: Both the *Technical Manual* and the *Policy Guidance* draw heavily from outcomes of a diverse stakeholder process that included many meetings, conference calls and webinars, opportunities for review and comment beginning in September 2016. Sequential drafts of each document were provided to stakeholders for review and comment. As early as June 2, 2017, MSGOT received a copy of each document. Additionally, MSGOT was provided with copies of stakeholder comments and a summary table identifying the remaining key, unresolved stakeholder issues related to the *Policy Guidance* document and the spectrum of opinion as it existed at that time.

The Program conducted additional individual outreach with stakeholders to solicit ideas after the PowerPoint presentations, discussion, and public comment during MSGOT meetings held on December 15, 2017 and January 30, 2018.

From the beginning, the stakeholder process benefited greatly by the involvement of professional collaborators who worked directly with mitigation stakeholders. Professional collaborators provided sequential drafts of both the *Policy Guidance* document and *HQT Technical Manual* and facilitated discussion during the meetings. Professional collaborators provided their final drafts to the Program in July and October 2017, respectively. Between October and December 2017, the DNRC Office of Information Technology (OIT) staff worked with the Program to write the actual computer code to run the HQT model, which heretofore had only been described in a narrative way in the October 2017 draft *Technical Manual*.

Both the Program and mitigation stakeholders believed and agreed that it would be prudent to test the HQT using a variety of hypothetical projects. Testing the HQT using hypothetical projects proved valuable. DNRC OIT staff could more clearly understand what the HQT is supposed to do, determine about how best to write the computer code, incorporate automation to avoid human error, and suggest improvements. Additionally, the Program was spurred to think more deeply about the unresolved issues by studying the results.

The results were shown to MSGOT and others during MSGOT meetings held on December 15, 2017 (HQT focused) and January 30, 2018 (how HQT and the *Guidance* document work together). Some suggestions to resolve issues were presented and discussed during the January 30, 2018 MSGOT meeting.

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Stakeholders and the general public were invited to provide written comment on the documents, other meeting materials, and the PowerPoint presentations shown during the December 15, 2017 and January 30, 2018 MSGOT meetings, respectively. Comments were provided to MSGOT by separate postal mailing. They were also included in the Meeting Notes archive on MSGOT's webpage. The Program reviewed the comments and made further refinements. These were reflected in the May 2018 draft documents.

Proposed administrative rules and the May 2018 draft *Technical Manual* and the May 2018 draft *Policy Guidance* were presented at the May 4, 2018 MSGOT meeting, along with a Program presentation. Ultimately, MSGOT elected to have another stakeholder meeting prior to initiating concurrent public comment and independent scientific peer review. The meeting occurred on May 16, 2018. Additional hypothetical examples were shown and discussed during the May 2018 stakeholder meeting.

The May 2018 stakeholder meeting proved valuable to further refine technical elements and identify areas needing greater editorial clarity in both mitigation documents. It also served as a learning opportunity for attendees to better understand the HQT, data sources, and how calculations are made.

The Program undertook further refinements and editorial changes after the May 18, 2018 stakeholder meeting. The July 2018 *Draft Habitat Quantification Tool Technical Manual* and the July 2018 *Policy Guidance* document were published to MSGOT's webpage on July 5, 2018.

The Program initiated concurrent public comment and peer review on July 5, 2018. The Program announced the availability of the documents and invited public comment through a media release, an announcement using the Program's "opt in" electronic mailing list, and by placing legal ads in newspapers. The public comment period closed on August 9, 2018, after one deadline extension (total of 5 weeks). Peer review comments were due August 16, 2018, after two deadline extensions (total of 6 weeks).

About 140 individual public comments were received. Some public comments represented more than one individual or organization. Some public comments were nearly identical or substantively similar. Comments often addressed similar points and touched on both the *Technical Manual* and the *Policy Guidance*, allowing the Program to aggregate common themes for MSGOT's consideration. As expected, differences among stakeholders still linger. The stakeholders have long recognized that MSGOT will ultimately have to decide issues on which they themselves could not agree and emphasized the importance of transparent adaptive management. A summary table of the main themes, along with copies of all comments received are provided to MSGOT and made available to the public on MSGOT's webpage.

Peer review comments were received from 11 individuals. The Program had sent invitations to participate to 18 individuals (those originally identified and all other suggested individuals). Reviewers were provided with a copy of the July 2018 *Technical Manual* and the July 2018 *Policy Guidance*. Peer review comments indicate the HQT methods are technically sound, with no fatal flaws. Suggestions for improvement were offered. Copies of all peer review comments received are provided to MSGOT and made available to the public on MSGOT's webpage.

The Program has reviewed and carefully considered all public comments and peer reviews. The Program conducted additional analyses and studied approaches taken to mitigation elsewhere. Additional refinements have been made, along with clerical and editorial changes to improve readability and comprehension or better explain something that was confusing.

MSGOT met on September 14, 2018 to review and discuss the September 2018 documents as an information item. MSGOT heard public comment after a presentation by the Program that emphasized identification of revisions between the July and September versions and that the Program made in response to both public comment and peer review.

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The Program's presentation was followed by public comment and a robust MSGOT discussion. MSGOT decided to allow additional time for public to review meeting materials and provide written comment. The comment deadline was September 26, 2018 at 5:00 p.m.

A total of 38 comments were received, including duplicate comments and individual comment letters that represented more than one individual or group. All comments received are included in the meeting materials.

The Program revised the September 2018 documents in consideration of the September 14, 2018 MSGOT meeting and additional public comment. Both documents have been retitled to October 2018 v1.0. An overview for each document follows.

HQT Technical Manual:

- clerical edits to correct typographical errors or improve readability;
- inclusion of a more robust and detailed discussion of the underlying body of science that supports the approach to analyzing newly-proposed tall structures (Appendix C);
- inclusion of a more robust and detailed discussion of the underlying body of science that supports the approach to analyzing newly-proposed transmission lines in (Appendix D);
- no changes were made to the mathematical equations, analytic approach, GIS methods, buffers, or anthropogenic scores.

Policy Guidance:

- clerical edits to correct typographical errors or improve readability;
- addition of industry-related economic considerations in the adaptive management (Section 4.4); revisions highlight the importance of having reliable data and meaningful collaboration with industry to more fully understand how mitigation obligations affect them;
- addition of explicit consideration of how Montana is balancing conservation with the economics of mitigation (both debit and credit side) and the broader public interest (Section 4.4); and
- addition of policy-based tools to address economic feasibility constraints when mitigation obligations are high using financial and/or credit-matching approaches (Section 3.6.1).

The meeting materials contain only those pages where substantive revisions were made. New language is underlined and ~~deleted language appears as a strike-out~~.

The documents, in their entirety with all revisions incorporated, are available on MSGOT's webpage under the heading "Mitigation" at: https://sagegrouse.mt.gov/Team. The October 2018 v1.0 documents are the current and operative documents that would be implemented by MSGOT, the Program, and all participants in the mitigation system under the proposed rules. The rules describe the process MSGOT, the Program and mitigation participants would undertake to revise and update the mitigation documents. The rules clearly contemplate that through adaptive management there will be revisions and that those revisions are undertaken through publicly-noticed MSGOT meetings and transparent deliberations. The proposed rules should be considered in tandem with the adaptive management sections in each document, respectively.

OTHER MISCELLANEOUS PROPOSED RULES OR AMENDMENTS

MSGOT has previously promulgated some administrative rules for oversight and administration of the Stewardship Account. Some definitions have also been adopted. Here, amendments are proposed to incorporate new definitions and to amend Rule 14.6.102 to clarify that MSGOT shall give greater priority

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for funding to applications for conservation activities that would be implemented in Core Areas, which the Legislature has already defined in the Act as having "the highest conservation value for sage grouse." MCA § 76-22-104(3).

Under the proposed amendment, MSGOT could still consider funding conservation activities in General Habitat or the Connectivity Area where high sage grouse habitat values exist and credits could be generated. MSGOT is already statutorily directed to prioritize proposals that maximize the amount of credits generated per dollars of funds awarded and that the majority of the Stewardship Account must be awarded to proposals that generate credits available for compensatory mitigation. The proposed amendments clarify and implement statutory direction.

A new rule is proposed that addresses the statutory requirement to track and maintain the number of credits and debits available from projects funded with Stewardship Account funds and that are available for purchase. MCA § 76-22-104(3).

Lastly, a new rule is proposed that addresses methods to administer the review and monitoring of MSGOT-funded projects. MCA § 76-11-104(5).

PROCEDURES AND NEXT STEPS

The October 2018 v1.0 *Technical Manual* and the *Policy Guidance* documents are before MSGOT after having gone through two years of development, review, refinement, and public deliberation. With the strong emphasis on transparent adaptive management, a commitment to inclusive dialogue with all stakeholders, and measurable objectives, MSGOT can be confident in moving forward at this time.

Further delays will result in more habitat loss and fragmentation through unmitigated development. A status assessment of Greater Sage-Grouse is still scheduled for 2020. The State's documented track record of implementing its conservation strategy, population status and trends, and changes in habitat must all be reported and will be all be considered.

If MSGOT elects to initiate rulemaking for the proposed rule amendments and newly-proposed rules today, the Program, with assistance from the DNRC Legal Unit, would file them with the Montana Secretary of State's Office at the next available filing opportunity on Oct. 9. Publication in the Montana Administrative Register would occur two weeks later on Oct. 19. The public comment process would begin upon publication in the Montana Administrative Register.

A public hearing would be held in Helena on Nov. 9, 2018. Written public comment will be accepted through the postal mail or by fax. The public can also submit comments through the public comment web application tool located on the MSGOT webpage at https://sagegrouse.mt.gov/msgot.html. The public comment period on the proposed rules would close Nov. 19, 2018 at 11:59 p.m.

MSGOT would be poised to consider whether to adopt final rules during the December 18, 2018 meeting.

PROGRAM RECOMMENDATION:

The Program Manager recommends MSGOT take executive action to initiate administrative rulemaking. Proposed rules would designate the Habitat Quantification Tool, adopt the *Habitat Quantification Tool (HQT) Technical Manual October 2018 v1.0*, adopt the *Policy Guidance Document October 2018 v1.0*, describe the process and methods MSGOT would use to adaptively manage the mitigation system, and address other miscellaneous statutory duties related to the Stewardship Account grants and mitigation.

BEFORE THE GOVERNOR'S OFFICE
OF THE STATE OF MONTANA

In the matter of the amendment of ARM 14.6.101 and 14.6.102 and adoption of New Rules I, II, III, and IV, pertaining to implementation of the Greater Sage-Grouse Stewardship Act	))))))	NOTICE OF PUBLIC HEARINGS ON PROPOSED AMENDMENT AND ADOPTION

TO: All Concerned Persons

1. The Sage Grouse Habitat Conservation Program will hold one public hearing at the following date and time to consider the proposed amendment and adoption of the above-stated rules:

November 9, 2018, 2:00 p.m., DNRC Headquarters Montana Room, 1539 11th Ave, Helena, MT

2. The Governor's Office will make reasonable accommodations for persons with disabilities who wish to participate in this rulemaking process or need an alternative accessible format of this notice. If you require an accommodation, contact the Governor's Office no later than 5:00 p.m. November 1, 2018 to advise us of the nature of the accommodation that you need. Please contact Carolyn Sime, Sage Grouse Habitat Conservation Program Manager, Montana Sage Grouse Oversight Team, c/o Department of Natural Resources and Conservation, P.O. Box 201601, Helena, MT 59620-1601; telephone (406) 444-0554; fax (406) 444-6721.

3. The rules proposed to be amended are as follows:

14.6.101 DEFINITIONS Unless the context clearly requires otherwise, to aid in the implementation of the Montana Greater Sage-Grouse Stewardship Act and as used in these rules:

(1) and (2) remain the same

(3) "HQT" means Habitat Quantification Tool, a geo-spatial based application designed to implement 76-22-103(9), MCA, as documented in the Montana Mitigation System Habitat Qualification Tool Technical Manual for Greater Sage-Grouse.

(3) remains the same but is renumbered (4)

(5) "Mitigation Hierarchy or Sequence" means taking steps to:

(a) avoid impacts by not taking a certain action or parts of an action;

(b) minimize impacts by limiting the degree or magnitude of the action and its implementation;

(c) rectify impact by repairing, rehabilitating, or restoring the affected environment;

(d) reduce or eliminate the impact over time by preservation and maintenance operations during the life of the action; and

(e) compensate for impact by replacing or providing substitute resources or environments.

(6) "Mitigation System" means implementation of the mitigation hierarchy, as defined by (5) and as directed by (7) the Montana Habitat Quantification Tool Technical Manual for Greater Sage-Grouse and (8) the Montana Mitgation System Policy Guidance for Greater Sage-Grouse.

(7) "Montana Mitigation System Habitat Qualification Tool Technical Manual for Greater Sage-Grouse" describes the scientific methods used to evaluate vegetation and environmental conditions related to the quality and quantity of sage grouse habitat.

(8) "Montana Mitigation System Policy Guidance for Greater Sage-Grouse" describes the policies, procedures, and methods of the Mitigation System to quantify and calculate the value of credits and debits.

(4) and (5) remain the same but are renumbered (9) and (10)

(11) "Major Version" is a means to track revisions to the Montana Mitigation System Habitat Quantification Tool Technical Manual for Greater Sage-Grouse or Montana Mitigation System Policy Guidance for Greater Sage-Grouse. Major Versions are identified as 1.x, 2.x, 3.x etc.

(12) “Minor Version” is a means to track routine inputs to the HQT made by the program to the Montana Mitigation System Habitat Quantification Tool Technical Manual for Greater Sage-Grouse or Montana Mitigation System Policy Guidance for Greater Sage-Grouse. Minor Versions are identified as x.1, x.2, x.3, etc. Examples of routine inputs include updates to Geographic Information System layers used in the HQT and editorial changes.

AUTH: 76-22-104, MCA
IMP: 76-22-105, 76-22-109, 76-22-110, 76-22-112, 76-22-118, MCA

REASONABLE NECCESITY: Compliance with the requirements of SB 261 (Session Laws of Montana 2015, Chapter No. 445, Section 2, codified at 76-22-101, et seq. MCA) requires MSGOT to adopt additional rules regarding compensatory mitigation. Additional definitions are needed to clarify terms in these additional rules. In particular, the terms related to the mitigation system and the documents describing the technical function of the Habitat Quanitification tool and policy for application of its outputs and how changes to those are managed through time are new introductions to administrative rules.

14.6.102 GRANTS (1) through (8) remain the same.

(9) MSGOT will give greater priority to applications for conservation activities eligible for funding under 76-22-110, MCA, which would be implemented in core areas. MSGOT may still consider funding conservation activities in general habitat and connectivity areas where high resource values for sage grouse exist and credits could be generated consistent with 76-22-109, MCA.

AUTH: 76-22-104, MCA
IMP: 76-22-105, 76-22-109, 76-22-110, 76-22-112, 76-22-118, MCA

REASONABLE NECCESITY: Compliance with the requirements of SB 261 (Session Laws of Montana 2015, Chapter No. 445, Section 2, codified at 76-22-101, et seq. MCA) required MSGOT to adopt rules to "administer . . . the eligibility and evaluation criteria for grants distributed pursuant to 76-22-110." This amendment provides flexibility for MSGOT by allowing MSGOT to consider funding projects in areas outside of core if high resource values for sage grouse can be protected.

4. The rules proposed to be adopted provide as follows:

NEW RULE I HABITAT QUANTIFICATION TOOL DESIGNATION

(1) Designation of major versions of the Montana Mitigation System Habitat Quantification Tool Technical Manual for Greater Sage-Grouse shall prompt the initiation of rulemaking to incorporate the new major version by reference.

(2) MSGOT shall review all proposed changes to major versions of its designated Montana Mitigation System Habitat Quantification Tool Technical Manual for Greater Sage-Grouse after a publicly announced MSGOT meeting and after accepting written and oral public comment.

(3) Minor versions of the Montana Mitigation System Habitat Quantification Tool Technical Manual for Greater Sage-Grouse shall be recorded by the program.

(4) Once the current Montana Mitigation System HQT has been applied to calculate the credits of a proposed mitigation site, or the debits of a proposed development site; the Program has completed its review; and the Project developer obtains the necessary state or federal permits, any subsequent versions of the HQT will not apply to the project except as provided in 4(b).

(a) Once the HQT has been applied to calculate credits or debits, the number of calculated credits or debits will not be changed without written approval from all affected parties, including, but not limited to:

(i) MSGOT;

(ii) the project developer;

(iii) the credit provider; and

(iv) any affected third parties.

(b) Permit amendments will be subject to the current version of the HQT to calculate debits resulting from new activites associated with the amendment.

(c) Amendments to credit sites will be subject to the current version of the Montana Mitigation System Habitat Quantification Tool Technical Manual for Greater Sage-Grouse at the time of the proposed amendment.

(5) The current version of the MSGOT designated Montana Mitigation System Habitat Quantification Tool Technical Manual for Greater Sage-Grouse is the version made available to the public on the Program's web site. Past versions of HQT will be blocked from further use except as allowed in (4)(a) and preserved in archive by the Program.

(6) MSGOT or any other third party must apply the current version of the Montana Mitigation System Habitat Quantification Tool Technical Manual for Greater Sage-Grouse to calculate credits and debits as provided on the Program’s website for the following:

(a) a conservation bank;

(b) participation in a habitat credit exchange approved by U.S. Fish and Wildlife Service (USFWS);

(c) making a financial contribution to the Sage Grouse Stewardship Account if sufficient credits are not available;

(d) implementing stand-alone mitigation actions to offset impacts to sage grouse habitat;

(e) calculating credits created by funding from the Greater Sage-Grouse Stewardship special revenue account; or

(f) calculating credits through stand-alone efforts to create mitigation credit sites.

AUTH: 76-22-104, MCA
IMP: 76-22-105, 76-22-109, 76-22-110, 76-22-111, 76-22-112, 76-22-113, 76-22-114, 76-22-118, MCA

REASONABLE NECESSITY: This rule is reasonably necessary for MSGOT to comply with the requirements of SB 261 (Session Laws of Montana 2015, Chapter No. 445, Section 2, codified at 76-22-104, et seq. MCA) which requires MSGOT to: "adopt rules to administer…the designation of a habitat quantification HQT." This rule partially implements the requirements of that bill and describes the ordered process for enumerating major and minor versions and distinguishing routine operational elements of the HQT from changes that trigger rulemaking.

NEW RULE II Compensatory Mitigation System (1) The mitigation sequence is applicable to all activities within sage grouse core areas, general habitat and connectivity habitat subject to agency review, approval, or authorization including temporal impacts that are later rectified through reclamation and restoration activities, unless exempted by MSGOT.

(2) Designation of major versions of the Montana Mitigation System Policy Guidance for Greater Sage-Grouse shall prompt the initiation of rulemaking to incorporate the new major version by reference.

(3) MSGOT shall review major proposed changes to its designated Montana Mitigation System Policy Guidance for Greater Sage-Grouse after a publicly announced MSGOT meeting, and after accepting written and oral public comment.

(4) Minor versions of the Montana Mitigation System Policy Guidance for Greater Sage-Grouse shall be recorded by the program.

(5) The current version of Montana Mitigation System Policy Guidance for Greater Sage-Grouse is the version made available to the public on the Program's website. Past versions of the Montana Mitigation System Policy Guidance for Greater Sage-Grouse will be archived by the Program.

(6) Once the current Montana Mitigation System Policy Guidance for Greater Sage-Grouse has been applied to calculate the credits of a proposed mitigation site, or the debits of a proposed development site; the Program has completed its review; and the Project developer obtains the necessary state or federal permits, any subsequent versions of the Montana Mitigation System Policy Guidance for Greater Sage-Grouse will not apply.

(7) Once the current Montana Mitigation System Policy Guidance for Greater Sage-Grouse has been applied to calculate credits or debits:

(a) the number of calculated credits or debits will not be changed without written approval from all affected parties, including, but not limited to:

(i) MSGOT;

(ii) the project developer;

(iii) the credit provider; or

(iv) any affected third parties; and

(b) Permit amendments will be subject to the current version of the Montana Mitigation System Policy Guidance for Greater Sage-Grouse to calculate debits resulting from new activites associated with the amendment.

(c) amendments to credit sites will be subject to the current version of the Montana Mitigation System Policy Guidance for Greater Sage-Grouse at the time of the proposed amendment.

(8) MSGOT or any other third party shall use the current Montana Mitigation System Policy Guidance for Greater Sage-Grouse provided on the Program's web site for the following:

(a) a conservation bank;

(b) participation in a habitat credit exchange approved by USFWS;

(c) making a financial contribution to the Sage Grouse Stewardship Account if sufficient credits are not available;

(d) implementing stand-alone mitigation actions to offset impacts to sage grouse habitat;

(e) calculating credits created by funding from the Greater Sage-Grouse special revenue account; or

(f) calculating credits through stand-alone efforts to create mitigation credit sites.

(9) MSGOT will approve compensatory mitigation plans that involve sage grouse habitat restoration, habitat enhancement, or habitat preservation through participation in one or more of the following:

(a) a conservation bank;

(b) participation in a habitat credit exchange;

(c) making a financial contribution to the sage grouse stewardship account if sufficient credits are not available; or

(d) funding stand-alone mitigation actions to offset impacts to sage grouse habitat.

(10) All compensatory mitigation plans involving habitat restoration, enhancement, or preservation, and approved by MSGOT, must:

(a) meet the applicable standards provided in Montana Mitigation System Policy Guidance for Greater Sage-Grouse;

(b) be in consideration of applicable USFWS Greater Sage-Grouse policies; and

(c) apply the current version of the HQT that implements the Montana Mitigation System Habitat Quantification Tool Technical Manual for Greater Sage-Grouse designated by MSGOT.

(11) Research or education shall not be used to fulfill mitigation sequence obligations.

AUTH: 76-22-104, MCA

IMP: 76-22-105, 76-22-109, 76-22-110, 76-22-111, 76-22-112, 76-22-113, 76-22-114, 76-22-118, MCA

REASONABLE NECESSITY: This rule is reasonably necessary for MSGOT to comply with the requirements of SB 261 (Session Laws of Montana 2015, Chapter No. 445, Section 2, codified at 76-22-101, et seq. MCA) which requires MSGOT to: "adopt rules to administer…methods of compensatory mitigation available…" This rule partially implements the requirements of that bill and describes the ordered process for enumerating major and minor versions and distinguishing routine operational elements from changes that trigger rulemaking.

NEW RULE III METHOD TO TRACK AND MAINTAIN THE NUMBER OF CREDITS AND DEBITS AVAILABLE AND USED (1) MSGOT or its designee wll assign a unique identifier for each credit created through funds disbursed from the Sage Grouse Stewardship special revenue account.

(2) MSGOT or its designee shall assign a unique identifier for each credit created through conservation activities funded or implemented independently from the Sage Grouse Stewardship special revenue account.

(3) MSGOT or its designee shall assign a unique identifier for each debit created by a project developer.

(4) MSGOT or its designee shall establish a database and tracking system that contains, but is not limited to:

(a) the number of credits generated by conservation activities funded, at least in part, by funds disbursed from the Sage Grouse Stewardship special revenue account;

(b) the number of credits generated by conservation activities not funded through the Sage Grouse Stewardship special revenue account and approved by MSGOT for use as compensatory mitigation by project developers;

(c) the number of debits attributed to a development project;

(d) the location of all credits generated and debits generated; and

(e) credit transactions between parties.

(5) The information within the tracking system will be available to the public on the Program's web site.

AUTH: 76-22-104, MCA
IMP: 76-22-104, 76-22-105, 76-22-109, 76-22-110, 76-22-111, 76-22-112, 76-22-118, MCA

REASONABLE NECESSITY: This rule is reasonably necessary for MSGOT to comply with the requirements of SB 261 (Session Laws of Montana 2015, Chapter No. 445, Section 2, codified at 76-22-101, et seq. MCA) which requires MSGOT to: (1) "adopt rules to administer…a method to track and maintain the number of credits attributable to projects funded . . . that are available to a project developer to purchase for compensatory mitigation to offset debits under 67-22-111;" (2) "adopt rules to administer . . . review and monitoring or projects funded pursuant to [Part 1]; (3) "review compensatory mitigation plans proposed under 76-22-111. If the plan includes a financial contribution to the sage grouse stewardship account established in 76-22-109, MCA, the oversight team will, using the HQT, determine how to secure enough credits with the financial contribution to offset the debits of a project." This rule partially implements the requirements of that bill.

NEW RULE IV METHOD TO ADMINISTER THE REVIEW AND MONITORING OF MSGOT FUNDED PROJECTS (1) MSGOT, through the Program, will establish a database and tracking system to review and monitor projects funded by MSGOT using the Sage Grouse Stewardship special revenue account.

(2) The database and tracking system shall contain information including, but not limited to:

(a) the name of the Stewardship Fund grant recipient(s);

(b) the amount awarded;

(c) the date the state funds were transferred to the grant recipient(s) if a one-time lump sum grant, or

(d) the dates state funds were transferred to the grant recipient(s) if the award was a reimbursable grant;

(e) a description of characteristics of the project including, but not limited to:

(i) type of project;

(ii) number of acres; and

(iii) land ownership;

(f) the duration of the project;

(g) any expected conservation benefits of the project;

(h) the geospatial location where the project was implemented;

(i) the number of credits generated, and their characteristics;

(j) the unique identifier assigned to each of those credits;

(k) transactions of credits created;

(l) progress and final reports submitted by the grant recipient(s);

(m) annual monitoring reports;

(n) sage grouse leks on and in the vicinity of the project area, and trend data on the number of breeding males on those leks; and

(o) the grant agreement number assigned by the Program and any amendments to the original grant.

AUTH: 76-22-104, MCA
IMP: 76-22-104, 76-22-105, 76-22-109, MCA

REASONABLE NECESSITY: This rule is reasonably necessary for MSGOT to comply with the requirements of SB 261 (Session Laws of Montana 2015, Chapter No. 445, Section 2, codified at 76-22-101, et seq. MCA) which requires MSGOT to: (1) "adopt rules to administer…the review and monitoring of projects funded." This rule partially implements the requirements of that bill.

5. Concerned persons may submit their data, views, or arguments either orally or in writing at the hearing. Written data, views, or arguments may also be submitted to: Carolyn Sime, Sage Grouse Habitat Conservation Program Manager, Montana Sage Grouse Oversight Team, c/o Department of Natural Resources and Conservation, P.O. Box 201601, Helena, MT 59620-1601; telephone (406) 444-0554; fax (406) 444-6721; or through the public comment web application located on the MSGOT web page at https://sagegrouse.mt.gov/msgot.html. All comments must be received no later than 11:59 p.m. November 19, 2018.

6. Carolyn Sime, Sage Grouse Habitat Conservation Program Manager, Montana Sage Grouse Oversight Team, has been designated to preside over and conduct these hearings.

7. The Governor's Office maintains a list of interested persons who wish to receive notices of rulemaking actions proposed by this agency. Persons who wish to have their name added to the list must make a written request that includes the name, e-mail, and mailing address of the person to receive notices and specifies for which program the person wishes to receive notices. Notices will be sent by e-mail. Such written request may be mailed or delivered to the Natural Resource Policy Advisor, P.O. Box 200801, 1301 East Sixth Avenue, Helena, MT 59620; fax (406) 444-4151; or may be made by completing a request form at any rules hearing held by the Governor's Office.

8. The bill sponsor contact requirements of § 2-4-302, MCA, apply and have been fulfilled. The primary bill sponsor was contacted by e-mail and postal mail on October 4, 2018.

9. With regard to the requirements of 2-4-111, MCA, the department has determined that the amendment and repeal of the above-referenced rules may directly impact small businesses. Documentation of the MSGOTs above-stated determination is available upon request to, Sage Grouse Habitat Conservation Program Manager, Montana Sage Grouse Oversight Team, c/o Department of Natural Resources and Conservation, P.O. Box 201601, Helena, MT 59620-1601, or to csime2@mt.gov.

/s/
RAPHAEL GRAYBILL
Rule Reviewer

/s/
PATRICK HOLMES
Natural Resource Policy Advisor
Governor's Office

Certified to the Secretary of State October 9, 2018

Montana Mitigation System Policy Guidance Document For Greater Sage-Grouse

Version 1.0

~~September~~ October 2018

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principles. Ultimately, mitigation obligations will be the lowest when developers site projects in low quality habitat or on top of existing disturbance in the first instance and when the project and all of its features are consistent with the EO for the entire duration of the project.

Applying multipliers to the Raw HQT Score provides clear policy signals to incentivize voluntary actions which conserve habitat and cause the least amount of impact. The total mitigation obligation is determined after applying the policy modifiers.

Development projects will usually be subject to more than one multiplier. Each individual multiplier is only applied to the Raw HQT Score (either the total or only the indirect impact portion). For example, a Raw HQT Score of 100 functional acres lost is the equivalent of 100 debits and the initial score prior to the application of multipliers. A project located in a Core Area that is consistent with EO 12-2015 or federal plans in all respects and does not deviate from stipulations (i.e., no site-specific multipliers apply), a 20% reserve account contribution would require a total of 120 credits or [100 initial score + (100 x 0.20)].

The following multipliers are calculated using the Raw HQT Score. In some cases, the adjustment is based on the direct footprint plus the indirect impact. In other cases, the adjustment is based only on the portion of the Raw HQT score attributed to a project's indirect impacts when some or all of a project is located on top of existing surface disturbance.[57]

Reserve Account Contribution: A reserve account is a pool of credits to timely replace lost or impaired credits lost in unforeseen events such as wildfire (i.e., unavoidable loss or force majeure or "Acts of God"). Because this risk is shared among all participants in the Mitigation System, it functions as a common insurance pool. This helps insure against the potential failure of projects due to unavoidable causes, such as fire or extreme weather and that no single Mitigation System participant is overly affected.

Developers will be required to contribute 20% of the Raw HQT Score (direct footprint plus indirect effects for the full life of the project) to the reserve account, regardless of the mechanism to obtain credits selected by developer. MSGOT will set aside 5% of each individual contribution to establish a pool of credits that it may use, at its discretion, to address economic feasibility constraints, as described more fully in Section 3.6.1. Contributions to the reserve account allow: (1) project developers to transfer responsibility for remedying credit project impairment or failure to the credit provider through the reserve account; and (2) credit providers to avoid responsibility for unavoidable or force majeure credit failure. The reserve account assures there is a ready supply of credits to achieve the mitigation standard of no net loss of habitat in the face of random, unforeseen events.

Reserve account credits will be included in the statewide registry. The Service Area will also be noted. Transferring credits from the reserve account to replace credits lost due to unforeseen circumstances must be approved by MSGOT. The Program will revisit the predicted and actual rate of project failure as part of regular adaptive management reviews. MSGOT may adjust the reserve account contribution requirement or adopt other tools for managing uncertainty and risk, pending the outcome of periodic adaptive management reviews.

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[57] The HQT will report a value of zero for each pixel of a development project located on top of existing anthropogenic disturbance. For all or portions of a development project located on top of existing surface disturbance, those pixels will not contribute to the Raw HQT Score and will also not be included in multiplier calculations.

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3.5 Duration and In-Kind Definition

As described in Section 2, compensatory mitigation for impacts to sage grouse habitat must be durable – that is, the period of time that mitigation is effective must be equal or greater in duration to the impacts being offset.

Permanent credits are preferred and are acceptable for offsetting impacts of any duration. Term credits may be used where development projects have a known fixed duration or term (e.g., permit duration). If a development project is renewed through a permit amendment and the nature and extent of the project changes, new mitigation obligations will be calculated using the HQT and the policy modifiers, as applicable.

For impacts lasting less than 15 years, the minimum acceptable duration of term credit projects is 15 years, to ensure that habitat benefits provided are actually meeting the needs of sage grouse, given site fidelity and other unique habitat needs of the species. All impacts lasting longer than 15 years can be offset by one static credit contract that is equal to (or greater than) the debit (e.g., a 35-year debit could be offset by a 35-year credit contract), or using dynamic credits (credits purchased in sequence over time to offset a longer-term impact, limited to minimum 30-year renewable term contracts).

Projects that have permanent impacts (and thus debits) will require permanent credits. However, the State's approach to demonstrating durability will allow dynamic permanent mitigation projects to offset up to 25% of permanent impacts at the individual Service Area level. This incorporates a degree of flexibility that allows developers to fulfill 25% of a total permanent credit requirement with sequential credits projects. The remaining 75% of the permanent credit requirement must be fulfilled using permanent credits. Use of dynamic mitigation will require MSGOT approval.

Dynamic permanent mitigation projects may be created by renewable term contracts of no less than 30 years, with an obligation in contract or permit to replace expired credits through the term of the impact. This approach creates more opportunities for the Program to respond to emerging threats and target mitigation actions to the areas in which they can be most effective, while ensuring that credit projects remain long enough in duration to provide expected benefits to the species.

Project developers using dynamic permanent credits will be responsible for demonstrating durability for the life of the impact by purchasing or creating additional credits as needed and having them in place and approved by the time term credits expire. The use of dynamic permanent mitigation will be evaluated through the adaptive management process and may need to be adapted in the future to ensure mitigation goals are being met, as new science emerges, and as local limiting factors for sage grouse become better understood.

In-kind mitigation is the replacement or substitution of resources or values that are of the same type and kind as those replaced. To be considered in-kind, crediting actions must be for the same species (Greater Sage-grouse) and evaluated using the Montana HQT. Replacement of seasonal habitat types is not specifically required (but can be considered and discussed between the developer, the Program, and a potential credit provider), because the function of different seasonal habitat types is assessed and combined within the HQT. A case-by-case approach will be taken.

3.6 Purchasing or Creating Credits

Based on the total credit requirement, project developers will identify the intended path and timeline for obtaining the necessary mitigation credits. Mechanisms include purchasing credits

from private entities (e.g., landowner, bank or exchange), creating credits by taking permittee-responsible actions (e.g., removing obsolete infrastructure), making a financial contribution to the Stewardship Account, or some combination of the above. The developer is in the best position and in fact, the appropriate entity to determine where and how to obtain credits. The state will not require one mechanism over another, so long as credits adhere to and are consistent with this Policy Guidance and were calculated in accordance with the HQT Technical Manual.

Developers are free to select a single credit mechanism or utilize a combination. For example, a developer may opt to remove obsolete infrastructure such as transmission line and poles from the landscape. The HQT can calculate the number of functional acres gained by removing the line and poles using the same equations and data as if they were being installed for the first time. The number of functional acres gained would then be converted at a 1:1 ratio to credits. The number of credits is then subtracted from the total number of debits. If additional debits remain, the developer can implement additional permittee-responsible actions, purchase credits from other entities, or make a contribution to the Stewardship Account.

Developers should also indicate whether accelerated reclamation methods will be implemented. Implementing accelerated reclamation methods affects the HQT Raw Score and additional calculations are required. Accelerated reclamation methods (or accelerated success due to a particular project type's minimal nature of surface disturbance) will decrease the total number of debits that must be offset because habitat returns to pre-project baseline functionality sooner. Ultimately, this decreases the total mitigation obligation and potentially the total cost depending on the mitigation mechanism selected by a developer.

Developers should also indicate whether a phased credit purchase schedule is desired. Phasing the purchase of credits allows developers to avoid significant upfront costs that may otherwise negatively affect a project's economic ledger to the point that it is no longer feasible. Developers who chose to phase credit purchases can synchronize payments with different phases of the projects life span and plan ahead. This should be reflected in the plan.

A very simple mitigation plan could indicate a plan for credit purchase or payment to the Stewardship Account. Alternatively, a more detailed plan may be needed for larger, more complicated projects having the potential for greater impacts, permittee-responsible creation of credits, including all associated credit-side requirements outlined in Section 2. The mitigation plan may also be developed for and incorporated within an environmental analysis document pursuant to MEPA or NEPA.[71]

Developers should review the USFWS Policy Regarding Voluntary Prelisting Conservation Actions.[72] Consistency with this policy is voluntary in Montana's Mitigation System, and, as such, credits from individual projects are unlikely to be recognized under the prelisting policy unless/until Montana voluntarily elects to achieve consistency with the policy in the future. However, developers may choose to seek compensatory mitigation options that are consistent with the prelisting policy so that actions undertaken prior to listing would be recognized afterward in the event sage grouse are

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[71] Federal agencies conduct environmental analyses pursuant to the National Environmental Policy Act. State agencies conduct environmental analyses pursuant to the Montana Environmental Policy Act. Both statutes allow for environmental assessments or environmental impact statements.

[72] U.S. Fish and Wildlife Service. 2018. Part 735, U.S. Fish and Wildlife Service Manual, Chapter 1. Policy Regarding Voluntary Prelisting Conservation. Available at: https://www.fws.gov/policy/735fw1.html.

listed under ESA in the future and Montana elected to become consistent in the future. The Program and MSGOT will require an affirmative decision and commit to working with developers to ensure that the benefits are recognized should they seek to implement compensatory mitigation to satisfy the requirements of the voluntary prelisting policy.

The Program notifies state and/or federal permitting agencies and the project developer when a compensatory mitigation plan has been approved by MSGOT, after the Program has worked with the developer and preliminarily concluded that the plan meets the requirements outlined in this Policy Guidance document and other State policies, rules or law. The Program may also brief and request guidance from MSGOT while developing more complex mitigation plans. The project developer must then purchase or create the needed credits within the designated timeframe, usually prior to habitat impacts. Proposed projects may also be subject to other agency-specific permitting requirements.

Once project developers have secured credits, the Program should be provided with documentation to show the credit location, duration, and any other information required to update the credit registry. The price of credits secured from independent third parties (where Stewardship Account funds are not involved) need not be disclosed.

The Program or its designee will maintain a registry to track debiting (development) and crediting actions (conservation) affecting sage grouse habitat, including all permittee-responsible and other mechanisms of compensatory mitigation projects. ~~The Program and/or interagency review team may also be able resources.~~

Credits created by MSGOT through Stewardship Account fund grants will be assigned serial numbers and included in the statewide registry. As credits are utilized by project developers for specific projects, the credits will be withdrawn from the pool of available credits and the registry will be updated.

Credits must be released before they are available to offset an impact, although some credits may be released in advance of a project being fully implemented, as described in Section 2.3.3.

3.6.1 Consideration of Economic Feasibility Constraints when Mitigation Obligations are High

Montana's Conservation Strategy seeks to balance economic development activity that may impact sage grouse habitat and populations with conservation. In 2013-2014, the original Governor's Advisory Council acknowledged that there will be impacts to sage grouse habitat even if all recommendations of Executive Order 12-2015 are followed. The Council viewed mitigation as an integral tool to offset impacts so that Montana can continue to issue permits for economic development, resource extraction, and infrastructure projects, even in Core Areas. Mitigation was viewed as a viable alternative to denying permits.

Executive Order 12-2015 stems from the work of the original Governor's Advisory Council and incorporates development stipulations, as well as the mitigation hierarchy. Importantly, Executive Order 12-2015 also acknowledged that questions of economic feasibility may be presented.

especially for utility-related and communications infrastructure in rural and historically underserved areas.[73]

For example, communications (cellular) towers and rural transmission lines provide essential services that are foundational to local rural communities and especially in remote agricultural settings. Executive Order 12-2015 specifically recognizes the economic feasibility of siting these new features. These utility services are provided by non-profit cooperatives, which are classified as 501(c)(12) organizations in the federal tax code. Depending on the project type, its duration, and location, the mitigation obligations associated with a project could pose socioeconomic hardships to individual coop members when costs cannot be fully attributed to and passed along to new industrial users. Likewise, small businesses that are privately owned, for-profit entities may find the economic feasibility of a development project affected by mitigation obligations, even when undertaking permittee-responsible actions to create credits to offset their debits.

Policy-based tools can help address and alleviate economic feasibility constraints when the current HQT and application of policy modifiers results in high mitigation obligations and economic infeasibility, while at the same time ensuring that development projects move forward and mitigation is timely and effective. Policy-based tools could also be applied when a developer uses a combination of mitigation mechanisms (i.e., permittee-responsible and/or in-lieu fee contribution to the Stewardship Account). Policy-based tools stand for the premise that the state has a responsibility to share in efforts to offset impacts of development and create flexible policy approaches that are responsive to economic feasibility constraints.

To avail themselves of these additional policy tools, developers work with the Program initially to determine the overall mitigation obligation. The developer then works with the Program, MSGOT, and possibly other third parties to develop a mitigation plan that provides relief when economic feasibility constraints are demonstrated. As discussed in Section 3, MSGOT retains discretion to approve mitigation plans.

The policy tools are described more fully below, along with an overview of the process and criteria MSGOT would consider when making its decision. They could be categorized as: (1) financial; (2) credit-based; or (3) waiver. Each situation is unique and MSGOT encourages creativity on the part of developers to find innovative ways to mitigate impacts. MSGOT seeks to provide the greatest degree of flexibility to developers so they can determine the best way of fulfilling mitigation obligations. Policy-based tools can be used individually, or in combination. Each is described below. See Section 4.2 for closely related information concerning MSGOT credits.

3.6.1.1 Financial Approaches: Phased Contributions or Adjusting the Discount Percentage

The Stewardship Act allows developers to opt out of taking permittee-responsible actions to offset impacts and instead work with a third-party credit provider or make a contribution to the Stewardship Account. If the developer decides to contribute to the Stewardship Account, two financial policy-based tools could be used to alleviate economic feasibility constraints:

1. **Phased Contributions to the Stewardship Account or Phased Payments to Third Party Credit Providers.**

[73] Executive Order 12-2015, Attachment D Core Area Stipulations, paragraph 6, page 14.

Contributions could be phased or made periodically, rather than as a lump sum payment up-front. Phased payments were previously discussed in Section 3.3.2 with respect to accelerated reclamation. However, the concept could also be applied to any phase of a development project: construction, operations, or reclamation (even when not employing accelerated reclamation methods). A payment schedule could be devised on other intervals.

For each phase (or year) throughout the life span of a development project, the HQT can calculate the number of functional acres lost. After application of the multipliers, the total mitigation obligation for each phase (or individual year) can be determined. Each project has a unique number of years of construction, operations, and reclamation. Detailed results from the HQT can inform business decisions by developers, in consideration of the project type, its duration, and other the economic or operational factors associated with the project.

While observing the requirement that offsets be in place for each project phase prior to its initiation, developers could make a contribution immediately prior to the beginning of each project phase or at some interval identified in the mitigation plan approved by MSGOT. The 3% discounting method would be applied (see Section 4.2). Once negotiated, the phased payment schedule would lock-in the amount of each payment and when it was due. An agreement would be developed and would be binding on the parties.

Alternatively, a developer could work directly with an independent third party to obtain the number of credits needed. The third party could be an individual private landowner, a habitat exchange administrator, a conservation banker, or another developer. The state is not a party to the transaction. The third party and the developer are free to negotiate the terms of the credit transaction, including phased payments. The state will seek documented assurances that the phased payments are still consistent with other parameters of this Policy Guidance, particularly the requirement that the offsets are in place prior to the impact or initiation of the next project phase. This requirement could be met if the third-party credit provider shows that unused credits are presently available and would immediately offset the number of credits needed to offset the next project phase.

Ultimately, any phased Stewardship Account contribution or third-party payment approach would be described in the mitigation plan and approved by MSGOT. See Section 4.2.

2. Adjusting the Discount Percentage Rate for Contributions to the Stewardship Account.

Section 4.2 describes a 3% discounting method to determine the cost of credits in future years, which accounts for the time value of money. The initial credit price is determined by the cost of creating the credit, respectively, whether restoration, enhancement, or preservation. Statutorily, the average cost of the credits created through Stewardship Account is the starting price. The percentage discount applied to the cost for each future year is set at 3% initially. This is considered a more relevant figure given currently low yields on U.S. Treasury Notes and concurrently low inflation.

MSGOT may exercise its discretion to increase the discount percentage rate to more closely synchronize the duration of a project (and its impacts) with the time value of money. For above-ground projects with particularly long durations and high HQT scores (i.e., high number of functional acres lost), such as transmission lines or wind facilities, economic feasibility constraints are more likely to manifest. While still a true and proportionate accounting of the functional acres lost due to the project, how the obligation is fulfilled financially and/or through

credit purchases can be addressed through policy, so long as the functional acres lost are fully offset with an equivalent number of functional acres gained.

MSGOT could increase the discount rate to lower the overall total cost, while at the same time assuring that the overall mitigation obligation is met. Developers seeking to apply this policy tool should consider what an appropriate modified discount percentage might be and provide a rationale supporting it, along with any additional information and facts specific to the particular project for which a higher discount rate is requested.

Under this scenario, MSGOT will remain mindful of the solvency of the Stewardship Account and the capability to continue to create new credits through Stewardship grants to replace those that are tapped and retired.

3.6.1.2 MSGOT Credits: a Credit-Matching Approach

The State of Montana has taken the initiative to implement the Conservation Strategy to preclude the need for federal Endangered Species Act protections. By taking an "all hands" approach, Montana enlists industry, private landowners, federal land management agencies, land trust organizations, conservationists, and others to work collaboratively to balance development with conservation through the mitigation hierarchy, creating incentives for private land stewardship, and other aspects of the Strategy. This ensures the best outcomes for all Montanans.

MSGOT has credits at its disposal that could be used to match and help fulfill the total number of credits a developer must secure. MSGOT can exercise its discretion to dedicate some of its credits to match those secured by a developer. MSGOT will take a case by case approach and work with individual development project proponents.

Sources of credits that developers could use to match those secured of their own accord are:

1. Credits created through Stewardship Account Grants.

A foundational purpose of Stewardship Account grants is to create credits which can then be used to offset impacts of development. Credits can be transferred to a third-party habitat exchange operator or can remain on the registry as "available" until a developer chooses to make a contribution to the Stewardship Account in lieu of implementing their own permittee-responsible conservation actions or seeking credits from third parties. At that time, MSGOT would accept a contribution to the Stewardship Account and retire the appropriate number of credits for that particular project.

Through the grant process, MSGOT will have a supply of credits from prior Stewardship Account grant awards. These will be included in the registry. MSGOT has discretion to allocate credits it created and could allocate some it its own credits to match credits secured by a developer when economic feasibility constraints are demonstrated.

Under this scenario, MSGOT could allocate credits it expects to develop through future grants. Through subsequent adaptive management reviews, MSGOT can consider whether it is meeting is adaptive management objectives, and particularly the standard of no net loss, net gain preferred. Through time, this ensures that mitigation offsets are timely and in place prior to the start of a development project.

2. Credits Set Aside in the Reserve Account.

As discussed previously in Section 3, developers will be required to contribute 20% of the Raw HQT Score (direct footprint plus indirect effects for the full life of the project) to the reserve account, regardless of the mechanism to obtain credits selected by the developer. Contributions to the reserve account allow: (1) project developers to transfer responsibility for remedying credit project impairment or failure to the credit provider through the reserve account; and (2) credit providers to avoid responsibility for unavoidable or force majeure credit failure.

The reserve account ledger in the statewide registry will be managed so that 5% of each individual contribution is set aside and available as a source of matching credits for other developers where economic feasibility constraints are demonstrated. MSGOT can exercise its discretion to allocate some of the credits set aside in the reserve account so they can be matched with what a developer secures and the mitigation obligation as a whole is fulfilled.

The remaining 15% of the reserve account contribution will be managed separately. It will remain segregated and available to replace lost or impaired credits, as described in Sections 2.4.3 and 3.3.1.

3.6.1.3 Waiver

MSGOT may exercise its discretion to waive some or all of the mitigation obligations for a particular development project. In seeking a waiver, a developer should give careful consideration to its capacity to contribute towards fulfilling the obligation. MSGOT will expect some contribution on the part of developers so any waivers granted can legitimately show a meaningful public-private partnership in achieving the twin aims of: (1) adequate conservation and effective mitigation to avoid a listing; and (2) economic development and the sustaining the viability of rural communities consistent with the "all hands" approach.

3.6.1.4 Process to Take Advantage of Policy-Based Tools

Developers first work with the Program to determine the overall mitigation obligation using the HQT and other facets of the Policy Guidance. For example, a project could have very high mitigation obligations because a very high number of functional acres would be lost. This would be the case for large projects that are located above ground, have a long duration, and are located in very high quality habitat. Additional impacts could accrue due to close proximity to active sage grouse leks and deviations from the stipulations of Executive Order 12-2015 for some or all of the project's life span. In these types of situations, mitigation obligations provide clear market-based signals to developers, the Program, and MSGOT to weigh and balance the economic feasibility of a project with the potential for significant and long-term impacts.

The developer then works with the Program and possibly other third parties to develop a request for relief through policy-based tools where economic feasibility constraints are demonstrated. Preliminary consultation with MSGOT may occur during the development process. Once the developer has finalized the request for relief, the Program will refer the request to MSGOT. MSGOT will exercise its discretion to consider and approve the incorporation of policy-based tools into individual mitigation plans.

Developers seeking relief from economic feasibility constraints will be expected to explicitly consider and show MSGOT that:

- no alternative sites are practicable or economically feasible;

- there is an economic need for relief from compensatory mitigation obligations;
- the cost of the total mitigation obligation poses a disproportionate economic impact;
- all available tools in the Policy Guidance have been exhausted or are unsuitable;
- there is some capacity to fulfill some portions of the mitigation obligation, either in credits or as a financial contribution to the Stewardship Account to match with one or more policy-based tools (e.g. financial tools, credit-matching tools, and/or waiver) so that fulfilling the entire mitigation obligation because a joint public-private endeavor;
- all relevant tools in the Policy Guidance have been considered; and
- other steps in the mitigation hierarchy have been observed and incorporated into the mitigation plan, including avoidance, minimization, and reclamation measures.

In addition to information provided by the developer, MSGOT can also consider, for example, whether the project provides an essential public benefit, utility, or service in historically underserved rural areas that support the majority of Montana's sage grouse.

MSGOT will review the information provided. Upon demonstration by the developer that there are no other alternatives, that the mitigation obligations for a particular project pose a disproportionate economic impact, other public benefits accrue as a result of the project that outweigh impacts to sage grouse or habitats or allocation of matching credits, and that there is a need to apply one or more of the policy-based tools to alleviate the feasibility constraints, MSGOT may approve the request.

Application of these policy tools fall within MSGOT's discretion and ensures that MSGOT will make decisions in light of the Mitigation System provisions as a whole and all specific parameters, with particular attention paid to achieving the overall policy goal of no net loss, net gain preferred and Service Areas to ensure that mitigation is timely, ecologically meaningful in space and through time, and effectively balances economic development and conservation. Attention must also be paid to the trends in sage grouse populations and other adaptive management metrics and objectives.

MSGOT will also remain mindful and vigilant to discern circumstances where mitigation obligations are legitimately very high because impacts and deviations from Executive Order 12-2015 are significant.

MSGOT may apply various policy-based tools, with flexibility commensurate with its considerable discretion. MSGOT may approve incorporation of policy-based tools independent of the availability of Stewardship Account credits. Through the adaptive management review process, MSGOT will consider the track record of when and how the policy-based tools are exercised with respect to solvency of the Stewardship Account, specific adaptive management objectives related to habitat and populations, and other considerations related to rural communities, economics, and the broader public interest.

3.7 Enforcement

Permitting agencies, in conjunction with MSGOT, are responsible for enforcing the mitigation obligations associated with debiting projects consistent with applicable law and regulations. If the debit project developer fails to comply with mitigation obligations, permitting agencies may, consistent with applicable law and regulations, suspend or terminate permit authorization. Additional information is available in agency-specific policy and guidance. Sections 2.4.3, 3.7, and 3.8 further describe how mitigation obligations are monitored through time.

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4.4 Adaptive Management

Adaptive management is a fundamental principle of the Montana Mitigation System. When it comes to conserving GRSG populations, much is known about the species' habitat preferences and population responses to the loss and fragmentation of sagebrush habitats. However, less is known about how GRSG populations respond to some specific anthropogenic disturbance types and more generally to mitigation measures which are intended to offset anthropogenic disturbance. Furthermore, Montana's Mitigation System includes assumptions in both the Policy Guidance and the HQT Technical Manual in the absence of perfect knowledge or experience in implementation. For these reasons and others, the Montana Mitigation System implements an adaptive management approach to periodically evaluate whether mitigation effectively offsets impacts in space and through time, sage grouse populations are sustained, and to assure Montana achieves the standard of no net loss of habitat.

As importantly, implementation of mitigation presents both new opportunities for conservation, as well as a new way of approaching development and economic activity in sage grouse habitats. Montana has historically not required mitigation for habitat impacts to aid conservation of sensitive species. Adaptive management principles are particularly well suited to considering the how mitigation affects regulated industries.

This Section describes a process for transparent, science-based, and inclusive adaptive management of the Policy Guidance, HQT Technical Manual, and associated products. Adaptive management is fundamental to making sure that the Montana Mitigation System is effective and successful, as is the broader conservation strategy. Adaptive management is also fundamental to making sure that Montana is effectively balancing conservation needs with its economic development goals and the broader public interest.

Adaptive management is a systematic, but dynamic approach for improving natural resource management, with an emphasis on learning from management outcomes and incorporating what is learned into ongoing management. Uncertainty in management outcomes is addressed through the incorporation of procedures that seek to periodically review, revise, and update tools, strategies, and approaches in response to changing conditions or new information.

Adaptive management strategies allow for changes to the overall conservation strategy to occur in response to changing conditions or new information, including those identified through monitoring. The power of adaptive management lies in its ability to provide a viable path forward for management when information is lacking. By recognizing that management or implementation questions initially remain unanswered, information may be gained through this cyclical process of continuous evaluation and improvements with the goal to resolve outstanding questions and uncertainties through time through transparent processes based on the best available science. By definition, adaptive management requires a commitment to change approaches when appropriate and necessary in response to the previous cycle's acquisition of new information.

To ensure Montana meets the goals outlined in Section 1.1 of this document and specific measurable objectives that arise from those goals, an adaptive management review will occur annually. Adaptive management will require consideration of both habitat outcomes and population status and trends over time, in concert and at multiple spatial scales. The Program will focus on habitat outcomes, while sage grouse population monitoring, population estimation and

reporting, and harvest management will remain the purview of MFWP.[86] The Program will collaborate with MFWP and others as described more fully below.

Specific habitat-based objectives can be stated as follows:

- Meet the mitigation standard of no net loss, net gain preferred.
  - The number of functional acres created should be equal to or greater than the number of functional acres lost (i.e., HQT results prior to application of modifiers).
  - The number credits created should be greater than or equal to the number of debits.
- Maintain sufficient credits in the reserve account to replace lost or impaired credits.
  - The reserve account should have a sufficient number of reserve credits to replace lost or impaired credits listed and already used and assigned to offset debits.
- Produce and maintain an adequate credit supply, regardless of the entity who creates them.

Specific metrics that will be summarized include: (1) the number of functional acres gained compared to the number of functional acres lost; (2) the number of credits created compared to number of debits created; (3) the number of credits available in the reserve account to replace impaired or lost credits; and (4) the supply of credits already developed and available in the registry, as well as those that could potentially be developed. Sources of data for habitat metrics can include: the registry, development projects reviewed by the Program, data contributed by other participants in the Mitigation System, other state and federal agencies, universities, non-governmental organizations, and conservation projects funded using funds from the Stewardship Account.

Consideration of population trends at multiple scales and through time with respect to conservation habitat efforts, development, and mitigation will enhance Montana's understanding about how populations at multiple scales are doing and may be influenced by changes in habitat quality and quantity (both development and conservation).

Specific population-based objectives are listed below. It is recognized that populations will vary naturally over time and across regions.

- Maintain a stable population within the range of natural variation.
- Reverse or stabilize negative population trends.
- Maintain a performance standard of 6.9 – 18.78 males / active lek, based on the number of displaying males determined by a statistically-valid analysis over a 10 year-period, as required by EO 12-2015.
- Maintain at least as many active sage grouse leks as documented in 2015 when the Strategy was first implemented.

Sources of sage grouse population and lek information include the FWP lek database, the Montana Greater Sage-grouse Population Report prepared annually by MFWP, data contributed by participants in the Mitigation System, and other state and federal agencies, universities, private landowners, and non-governmental organizations.

Habitat and population metrics will be analyzed, summarized and reported at several scales, including: statewide, Western Association of Fish and Wildlife Management Zones, each respective Mitigation System Service Area, MFWP harvest management zones, within and among Core Areas,

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[86] *See* Mont. Code Ann. 87-1-201(11) (2017) (requiring MFWP to report sage grouse population numbers, including number of leks on an annual basis, seasonal and historic population data).

and between Core Areas and non-Core Areas, and any report unit relevant to BLM and USFS managers and land use plans. Site-specific, project-level scale analyses may also be conducted.

Human dimensions and social science metrics may also be considered for inclusion in adaptive management reviews in the future. For example, obtaining feedback directly from participating private landowners regarding their experience, interest, and satisfaction with the Mitigation System should also inform adaptive management changes since the primary source of credits is expected to be private lands.

Industry participation in the annual review process will be solicited. Information regarding the number of projects, mitigation costs relative to capital costs, or other business-oriented economic metrics will be specifically requested. While the Program can glean some basic information from its consistency review database (e.g. number of mining projects reviewed and associated mitigation vs. number of pipeline projects), the Program and MSGOT lack the economic and fiscal insights for specific industries and particularly how mitigation obligations may be affecting businesses. MSGOT will need data to determine whether Montana is appropriately considering public benefits and public safety in its efforts to balance conservation and development. Absent that data and industry insights, MSGOT cannot fully or properly assess whether or not mitigation is posing excessive hardships and if so, what revisions may be warranted.

Similarly, participation by individual landowners or third party credit providers will be solicited. Their information and suggested economic metrics will provide useful insights into how effectively Montana is incentivizing private land stewardship. Recognizing that the state is not a party to these types of private credit transactions, data availability may be limited.

Future adaptive management reviews will also focus on other areas of this Policy Guidance where there was specific uncertainty, where assumptions were made or stakeholders disagreed, and where public comment or peer review identified potential areas for future improvement. Examples include:

- more explicit incorporation of full cost accounting methods;
- baseline for perpetual preservation credits and whether it significantly and/or negatively skews credit supply too high or too low and whether there should be a baseline adjustment for term leases or easements;
- multipliers and whether they are too high, too low, or present disparate enough policy incentives to encourage or discourage development and/or conservation actions in Core Areas vs. General Habitat appropriately;
- the initial price of $13.00 for perpetual preservation credits given the uncertainty about whether this price will provide a sufficient revenue stream that is adequate to set an initial price signal to incentivize private landowners to voluntarily participate; and
- the discounting method and percentage discount where the cost of a credit is discounted into the future for each year of a development project corresponding to the total number of years for the life of the project.

The Program will host ~~an~~ adaptive management workshops to gather information and to present results and discuss ideas with stakeholders, Mitigation System Participants, and interested publics.

The Program will prepare an adaptive management report, assessing whether the Program is meeting goals and objectives, including, as a part of fulfilling its other reporting requirements:[87]

- a report of performance and operational findings, including a synthesis of monitoring and tracking of pre-project and post-project conditions for both crediting and debiting projects based on the Program's own experience and those of others engaged in the Mitigation System;
- identification of any overarching lessons learned;
- a quantification of the total debit impacts and credit project benefits provided by mitigation projects in terms of functional habitat acres;
- a summary of sage grouse monitoring information and populations at multiple spatial scales;
- a summary of economic metrics and more specifically about the economic impacts of mitigation by industry type;
- a summary of economic metrics associated with private credit activity, commensurate with available data;
- consideration of how Montana is balancing conservation with the economics of mitigation and incentivizing private land stewardship (i.e., both debit and credit side) and the broader public interest;
- a list of recommended changes to the Policy Guidance and HQT Technical Manual and associated documents, processes, and tools needed to meet (or continue to meet) program goals and objectives;
- a list of monitoring and research findings and needs to better guide mitigation efforts, developed in collaboration with MSGOT, scientific experts, and stakeholders; and
- a prioritized list of recommendations.

On an annual basis, the MSGOT will review the adaptive management report at a publicly noticed meeting to share the results of the adaptive management review and report, describe suggested changes, processes, or tools, and receive stakeholder feedback. There will be an assessment of whether major or minor changes to the approach are needed, and the recommendations will be prioritized. Progress towards meeting goals and objectives will be considered.

Changes deemed to be necessary or beneficial should be considered for possible adoption by MSGOT. MSGOT must provide public notice of any major or minor changes it is contemplating and provide the opportunity for written and oral comment prior to making final decisions. MSGOT has discretion to initiate rulemaking at any time.

Within five years, the Program and MSGOT will review progress towards meeting the objectives and determine whether significant changes to the mitigation approach are needed. This review would be more thorough and recommendations for more substantive changes may emerge. Because changes at the five-year mark are likely to be more substantive and material, MSGOT will be required to undertake new administrative rulemaking to formally update the Policy Guidance Document and the HQT Technical Manual to subsequent versions.

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[87] For example, see the State of Nevada Conservation Credit System 2017/2018 Findings and Improvement Recommendations Report, March 13, 2018, available at: https://www.enviroaccounting.com/NVCreditSystem/News/Display/1077.

DRAFT

Montana Mitigation System
Habitat Quantification Tool Technical Manual
For Greater Sage-Grouse

Version 1.0

~~**September**~~ **October 2018**

Appendix C. ANTHROPOGENIC VARIABLE: TALL STRUCTURES (COMMUNICATION TOWERS, COOLING TOWERS, AND WEATHER TOWERS)

When a new Tall Structure project is proposed, all infrastructure for the proposal is overlain on the Montana HQT Basemap. Other infrastructure for the proposed project may include roads, transmission/distribution lines, etc. Specific Anthropogenic Scores are calculated to generate the Total Anthropogenic Score for the new Tall Structure project (Figure C. 1). This project- specific score is multiplied by the Montana HQT Basemap Total to produce a project-specific Raw HQT Score (Section 3.2.3).

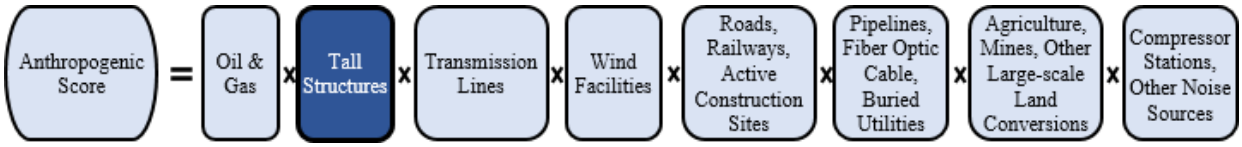

Figure C. 1. Equation for calculating the Anthropogenic Score for Tall Structure projects and any additional infrastructure.

SUPPORTING LITERATURE

While research is needed to fully assess the effects of tall structures (e.g., communication towers, cooling towers, weather towers), there is a growing body of evidence that Tall Structures impact GRSG, with recent studies providing support for earlier studies that found impacts are primarily from increased predation risks and fragmentation of habitat (Hanser 2018). Here, we consider impacts distinct to Tall Structures on the landscape that could provide avian perching or nesting subsidies. See Table C. 1 for a brief overview of the scientific literature relevant to the specific impacts for Tall Structures.

Anthropogenic structures such as cooling towers, communication towers, and weather stations provide perching and nesting subsidies for avian predators. Ravens have demonstrated a preference for nesting on anthropogenic structures over natural features (e.g., trees, cliffs; Coates 2014a, Howe et al. 2014). In western Wyoming and southeast Idaho, Bui (2010) and Howe et al. (2014) found resident territorial ravens were responsible for the majority of GRSG nest predation. Howe et al. (2014) reported breeding raven foraging was greatest within 0.57-km (0.35-miles) of their nests while Coates et al. (2014b) found concentrated raven foraging occurred out to 2.2-km (1.4-miles).

Tall Structures provide improved avian predator hunting efficiency in an otherwise relatively flat open landscape (Connelly 2004, Coates et al. 2014a, Dinkins et al. 2014a). Researchers have noted predator impacts on GRSG were reduced where habitat was contiguous and provided canopy cover (Bloomberg and Sedinger 2009, Braun 1998, Coates et al. 2014b, Coates and Delehanty 2010, Kolada et al. 2009). Avian predator impacts are a common mechanism of indirect impacts on GRSG between Tall Structures and Transmission/Distribution Structures (pers. comm. J. Kehmeier, SWCA, 18 September 2018), as both structures are capable of providing optimal raven nesting substrate. The advantages for ravens nesting on tall anthropogenic structures in areas otherwise void of tall features (e.g., trees) include increased visibility of potential prey and potential terrestrial predators with overall potential decreased predation due to nests being unreachable by terrestrial mammal predators.

Negative lek trends were detected within 18.0-km (11.8-miles) of communication towers with most of the negative impacts occurring within approximately 13.0 to 15.0-km of a given tower (Johnson et

al. 2011). Lek Trends are based on year and the maximum number of males observed and range from –1, indicating lek counts consistently declined over time, to +1, indicating lek counts consistently increased over time. The impact of 13.0 to 15.0-km is indicated from Figure 17.20 in Johnson et al. (2011) where Lek Trends increase with increasing distance to a given communication tower out to the inflection point of the curve (i.e., point along a curve where the curvature changes) occurring at approximately 13.0-km from a given tower (i.e., the inflection point; pers. comm. S. Hanser, USGS, 19 September 2018; pers. comm. M. Holloran, Operational Conservation LLC, 20 September 2018). While positive Lek Trends occur at distances less than 13.0-km, this does not mean the impacts from the communication tower cease prior to 13.0-km. A Lek Trend value of 0.0 is the mean value relative to this particular dataset. Thus, impacts are shown to continue beyond approximately 4.0 to 5.0-km where the upper confidence limit and the mean curves cross the y-axis at 0.0 and extend out to approximately 13.0 to 15.0-km.

Johnson et al. (2011) also reported negative impacts with the density of communication towers on GRSG Lek Trends at two spatial scales: 5-km (25-km^2) and 18-km (324-km^2). Leks experienced negative impacts with 1 or more towers located within 5-km of the lek. Additionally, recognizing the scale of the figures and accounting for the logarithmic transformation of the explanatory variables, there were negative impacts on Lek Trends when tower densities exceeded 1 tower within 18-km of a lek (pers. comm. M. Holloran, Operational Conservation LLC, 20 September 2018).

Knick et al. (2013), which corroborates findings from Johnson et al. (2011), found leks were absent where communication towers exceeded 0.08-towers/km^2 (this result is expressed as 0.08-km/km2 in the publication but expressing the communication tower impact as a linear density estimate was a typographical error and is correctly reported as “towers/km2”; pers. comm. Dr. Steve Hanser, 19 September 2018). Knick et al. (2013) also found that active leks had a mean density of 0.001-tower/km2 within 5-km of the lek, whereas historic/extirpated leks (or extirpated) had a mean tower density of 0.183-tower/km2 within 5-km of the lek. These results suggest that active leks remain on average further than 5-km of any communication tower and historic leks were within 5-km of ≥1 communication tower. Overall, negative impacts exist with very low densities of communication towers (≥0.0127 towers/km^2 [≥ 1 communication tower/25-km^2]) on the landscape (pers. comm. S. Hanser, USGS, 19 September 2018; pers. comm. M. Holloran, Operational Conservation LLC, 20 September 2018).

Wisdom et al. (2011) detected GRSG extirpated ranges within 12.0-km (7.5-miles) of communication towers, which was 2-times shorter than the distance between active leks and communication towers. The authors suggest the strong correlation between distance to communication towers and extirpated range of GRSG may be due in part because these structures are typically near human development and major highways. GRSG select nest sites and brood rearing habitat farther away from Tall Structures, partially based on a perceived risk of predation (Braun 1998, Dinkins et al. 2012, Dinkins et al. 2014b).

It is important to note that potential confounding effects that may exist should be put in context of the dataset and study area. The lek count dataset used for the analyses conducted in the Johnson et al. (2011) and Knick et al. (2013) studies was from 1997-2008. The majority of anthropogenic structures (e.g., roads, buildings) were in place well before the lek data collection began, which the authors suggest that the impacts from those structures on GRSG had already occurred on the landscape. In comparison, communication towers began appearing on the study area during the same time as the lek dataset, which suggests that GRSG were responding to presence of communication towers during the timeframe of the data collection. Therefore, the authors assert

that the impacts from communication towers revealed through the analysis are valid and not likely confounded with other anthropogenic features (pers. comm. M. Holloran, Operational Conservation LLC, 20 September 2018).

Table C. 1. Variables pertinent and specific to the indirect impacts of Tall Structures documented in scientific peer-reviewed literature[1].

Variable	Metric for Consideration	Reference	Conclusion
Greater Sage-Grouse Responses to Tall Structures			
Negative GRSG Lek Trends			
Distance from structure	< 15.0-km of a cellular tower[2]	Johnson et al. 2011 (Figures 17.20, 17.21)[3]	GRSG leks are negatively impacted within 15.0-km of a communication tower.
Density of structures	> 1 tower within 5-km of lek		GRSG leks experience negative impacts when 1 or more towers are located within 5-km of the lek.
Mean Tower Density			
Active leks	$\bar{x}$ = 0.001-towers/km^2 (0.025-tower/25-km^2)	Knick et al. 2013 (Table 2)[3]	Most active leks are located beyond 5-km of a communication tower.
Historic leks (i.e., extirpated)	$\bar{x}$ = 0.183-towers/km^2 (4.5-towers/25-km^2)		Most historic/extirpated leks have at least 1 communication tower within 5-km of the lek location.
Areas void of active leks	0.08-towers/km^2 (2-towers/25-km^2) footnote 4		Active leks were absent from areas with communication tower densities greater than 2-towers/25-km^2.
Highest habitat suitability	< 0.010-towers/km^2 (density of 0.25-towers/25-km^2)		Habitat quality for GRSG was greatest in areas with tower densities less than 0.25-towers/25-km^2.
Mean Distance to Communication Tower			
Leks in occupied range	21-km	Wisdom et al. 2011 (Figure 18.4)	Active GRSG leks were located twice as far from communication towers than historical leks.
Historical leks in extirpated range	12-km		
Common Raven (and other avian predators) Ecology in Relation to Tall Structures			
Territorial Breeding Raven Behavior			
Territorial breeding raven foraging	< 0.57-km	Howe et al. 2014	Ravens utilize tall anthropogenic structures for nesting subsidies with that majority of their predation impact occurring within 2.2-km of the structure.
Concentrated raven foraging	< 2.2-km	Coates et al. 2014b	

[1] While the mechanism (e.g., raven predation) of indirect impacts on GRSG is common between Tall Structures and Transmission/Distribution Structures suggesting results reported for one structure type can be extrapolated to the other structure type (pers. comm. J. Kehmeier, SWCA, 18 September 2018), the Program has endeavored to reference literature in this section specific to Tall Structures. Note that Knick et al. (2013) and Wisdom et al. (2011) are referenced in both Tall Structures and Transmission/Distribution Structures sections because the authors of the two papers assessed impacts specific to each structure type.

[2] The inflection point shown in Figure 17.20 suggests negative impacts to GRSG Lek Trends out to approximately 13.0 to 15.0-km from the cellular tower (pers. comm. S. Hanser, USGS, 19 September 2018; pers. comm. M. Holloran, Operational Conservation LLC, 20 September 2018).

[3] The lek count dataset used for the analyses conducted in the Johnson et al. (2011) and Knick et al. (2013) studies was from 1997-2008. The majority of anthropogenic structures (e.g., roads, buildings) were in place well before the lek data collection began, which the authors suggest that the impacts from those structures on GRSG had already occurred on the landscape. In comparison, communication towers began appearing on the study area during the same time as the lek dataset, which suggests that GRSG were responding to presence of communication towers during the timeframe of the data collection. Therefore, the authors assert that the impacts from communication towers revealed through the analysis are valid and not likely confounded with other anthropogenic features (pers. comm. M. Holloran, Operational Conservation LLC, 20 September 2018).

[4] In Knick et al. (2013), a typographical error appears in the statement "…communication towers exceeded 0.08 km/km^2." This statement should read "…communication towers exceeded 0.08 towers/km^2" (pers. comm. S. Hanser, USGS, 19 September 2018).

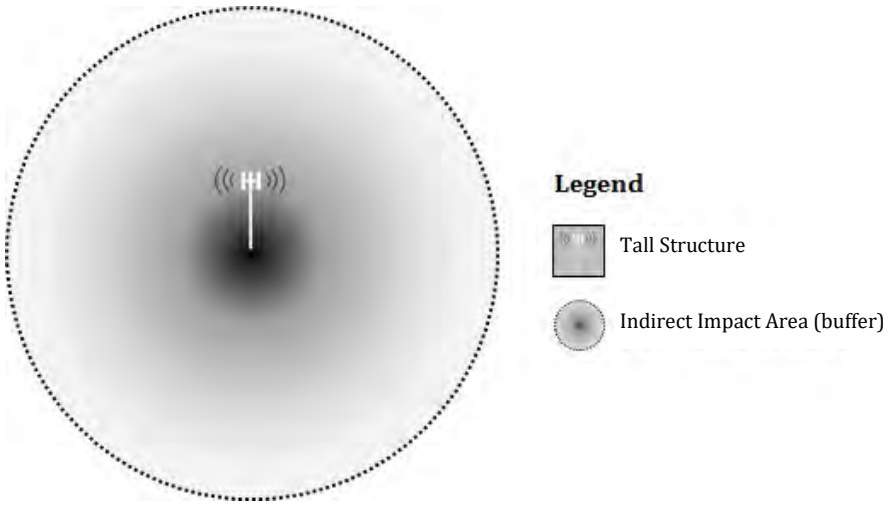

Figure C. 2. Conceptual diagram of the 8.0 or 6.0-km radius buffer applied to Tall Structures to establish the Indirect Impact area.

NEST VS. NON-NEST FACILITATING STRUCTURES

Anthropogenic structures can support avian predator nesting and contribute to increased risk to GRSG. Tall structures may be designed and maintained as non-nest facilitating. Tall structures that do not facilitate nesting will be given an adjusted Anthropogenic Score (Figure C. 3). It is anticipated that the structural composition of communication towers would render these project types to be considered nest facilitating structures. However, proponents may endeavor to commit to certain actions that would keep these types of structures nest-free and thus receive the non-nest facilitating benefit in their Raw HQT Score calculation.

EXECUTIVE ORDER 12-2015

Executive Order 12-2015 provides specific guidance related to communication towers. Communication towers should be sited to minimize negative impacts on sage grouse or their habitats and should be located a minimum of 4-miles from active sage grouse leks. The Indirect Impact Area will be decreased from 8.0-km to 6.0-km for tall structures sited beyond 4-miles of an active sage grouse lek (Figure C. 3).

HOW THE TOTAL ANTHROPOGENIC SCORE IS CALCULATED

Land cover, topography, and cumulative human activity contribute to the level of impacts from Tall Structures. Avoidance is modeled as loss of habitat that decreases linearly from 0.0 to 2.2-km (1.4-miles) to account for localized impacts from Tall Structures to GRSG. Population affects are modeled as loss of habitat functionality that decreases linearly from 2.2 to 8.0-km from the structure for Tall Structures located within 4-miles of an active sage grouse lek that are considered nest facilitating (Table C. 2, Figure C. 4). Population affects are modeled from 2.2 to 6.0-km from the structure for Tall Structures located > 4-miles from any sage grouse lek that are considered nest facilitating (Table C. 3, Figure C. 5). Tall Structures considered non-nest facilitating that are located within 4-miles of an active sage grouse lek will receive a 50% decrease in pixel scores (Table C. 4, Figure C. 6). Tall Structures considered non-nest facilitating that are located > 4-miles from any active sage grouse lek will receive a 75% decrease in pixel scores (Table C. 5, Figure C. 7).

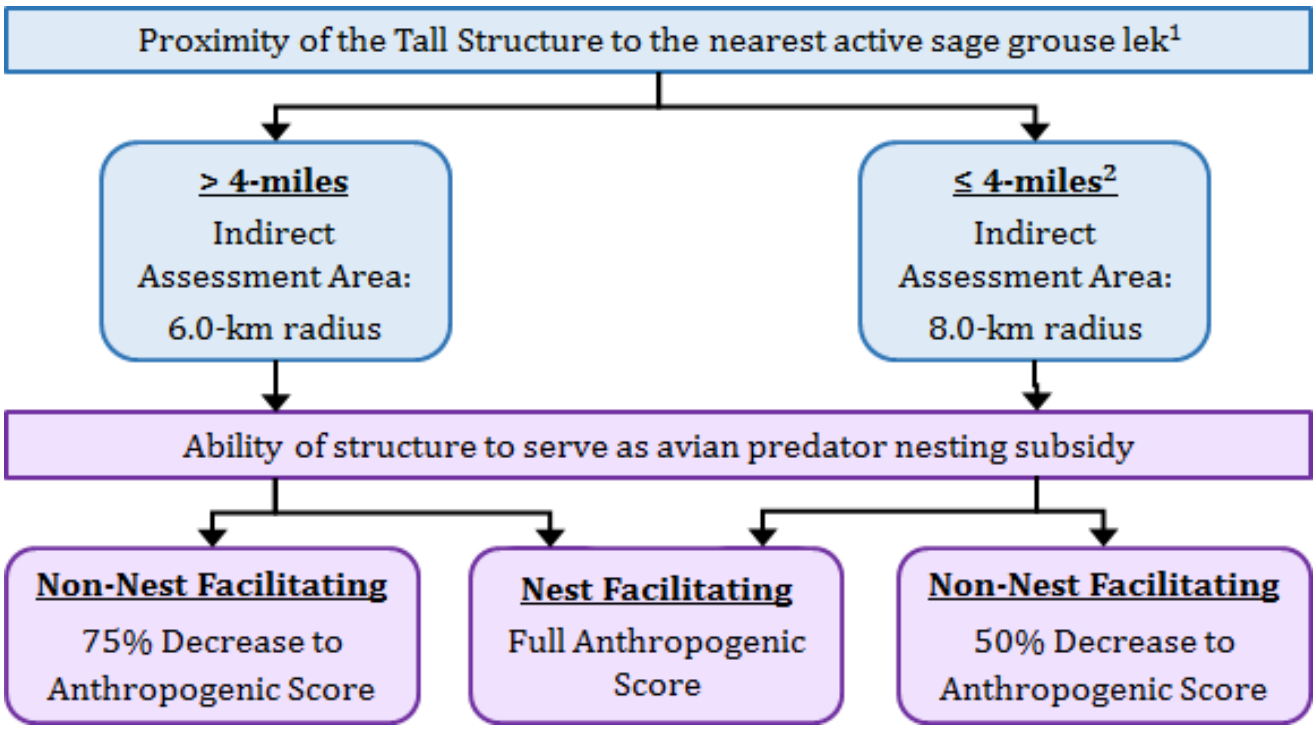

Figure C. 3. Flowchart for defining the Indirect Assessment Area for Tall Structures based on proximity to the nearest sage grouse lek and the application of a decrease to Anthropogenic Scores based on the structure design.

[1] The EO states that "communication towers should be located a minimum of 4 miles from active leks."

[2] If structure is ≤ 2-miles of an active sage grouse, see the Policy Guidance Document for how the EO would apply to the Raw HQT Score.

Table C. 2. Anthropogenic Scores for Tall Structures located within 4-miles of an active sage grouse that are considered nest facilitating structures for computing the Distance to Tall Structures Anthropogenic Variable.

Distance (km)	Anthropogenic Score
0 – <0.3	19
0.3 – <0.6	29
0.6 – <0.8	39
0.8 – <1.1	49
1.1 – <1.4	58
1.4 – <1.7	68
1.7 – <2.0	78
2.0 – <2.3	87
2.3 – <3.6	87
3.6 – <7.2	97
7.2 – <8.0	99
≥8.0	100

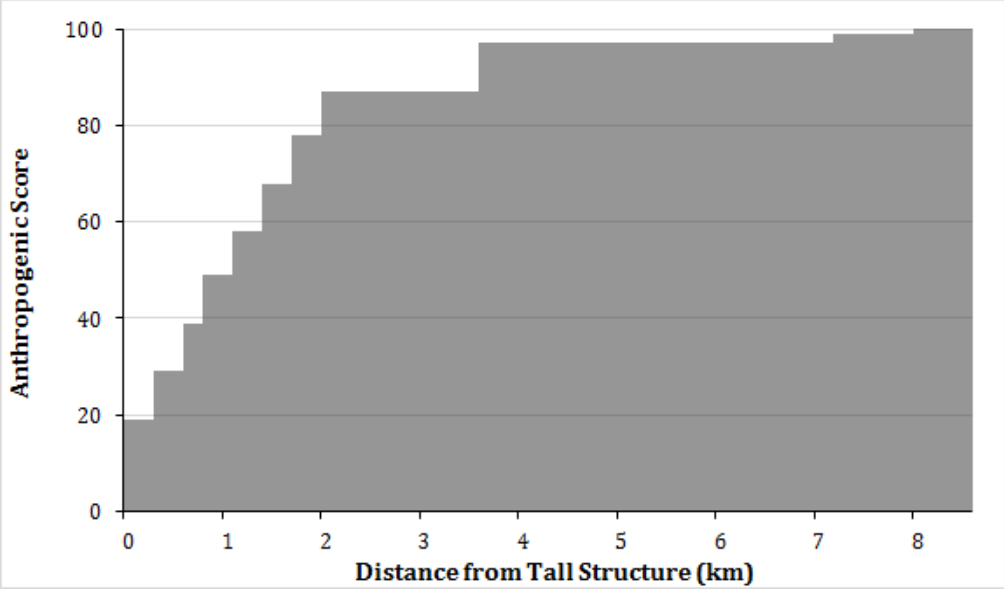

Figure C. 4. The Anthropogenic Score for Tall Structures located within 4-miles of an active sage grouse that are considered nest facilitating structures for computing the Distance to Tall Structures Anthropogenic Variable.

Table C. 3. Anthropogenic Scores for the Tall Structures located > 4-miles of an active sage grouse that are considered nest facilitating structures for computing the Distance to Tall Structures Anthropogenic Variable.

Distance (km)	Anthropogenic Score
0 – <0.3	19
0.3 – <0.6	29
0.6 – <0.8	39
0.8 – <1.1	49
1.1 – <1.4	58
1.4 – <1.7	68
1.7 – <2.0	78
2.0 – <2.3	87
2.3 – <3.6	87
3.6 – <6.0	97
≥6.0	100

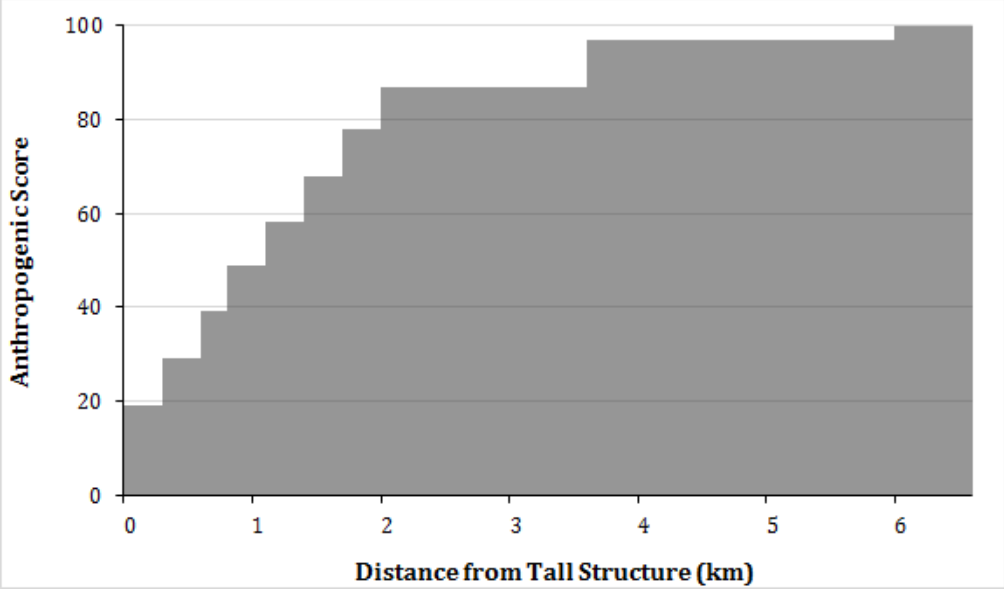

Figure C. 5. The Anthropogenic Score for Tall Structures located > 4-miles of an active sage grouse that are considered nest facilitating structures for computing the Distance to Tall Structures Anthropogenic Variable.

Table C. 4. Anthropogenic Scores for the Tall Structures located within 4-miles of an active sage grouse that are considered non-nest facilitating structures for computing the Distance to Tall Structures Anthropogenic Variable.

Distance (km)	Anthropogenic Score
0 – <0.3	19
0.3 – <0.6	29
0.6 – <0.8	39
0.8 – <1.1	49
1.1 – <1.4	58
1.4 – <1.7	68
1.7 – <2.0	78
2.0 – <2.3	87
2.3 – <3.6	93.5
3.6 – <7.2	98.5
7.2 – <8.0	99.5
≥8.0	100

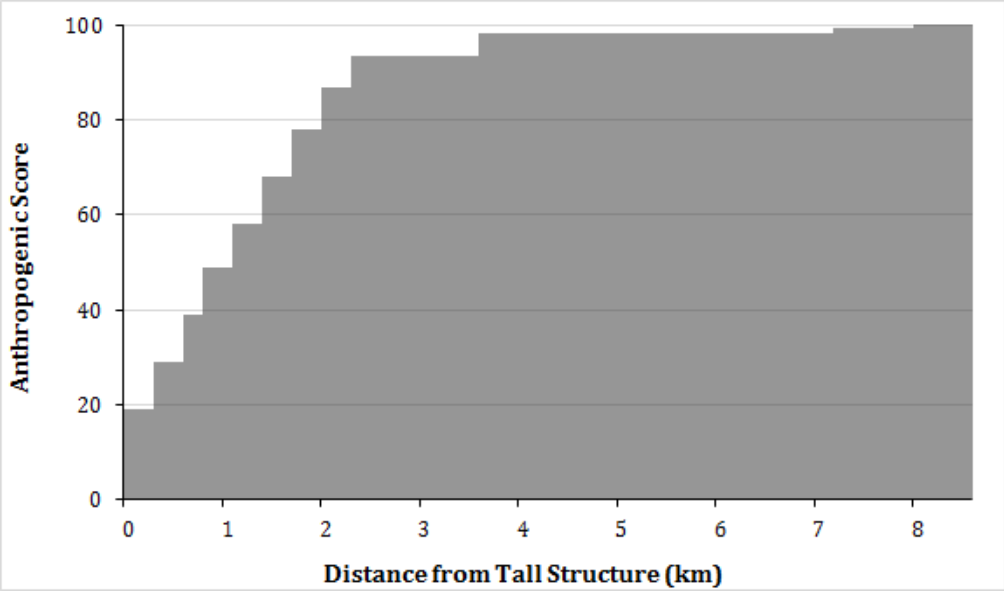

Figure C. 6. The Anthropogenic Score for Tall Structures located within 4-miles of an active sage grouse that are considered non-nest facilitating structures for computing the Distance to Tall Structures Anthropogenic Variable.

Table C. 5. Anthropogenic Scores for the Tall Structures located > 4-miles of an active sage grouse that are considered non-nest facilitating structures for computing the Distance to Tall Structures Anthropogenic Variable.

Distance (km)	Anthropogenic Score
0 – <0.3	19
0.3 – <0.6	29
0.6 – <0.8	39
0.8 – <1.1	49
1.1 – <1.4	58
1.4 – <1.7	68
1.7 – <2.0	78
2.0 – <2.3	87
2.3 – <3.6	96.75
3.6 – <6.0	99.25
≥6.0	100

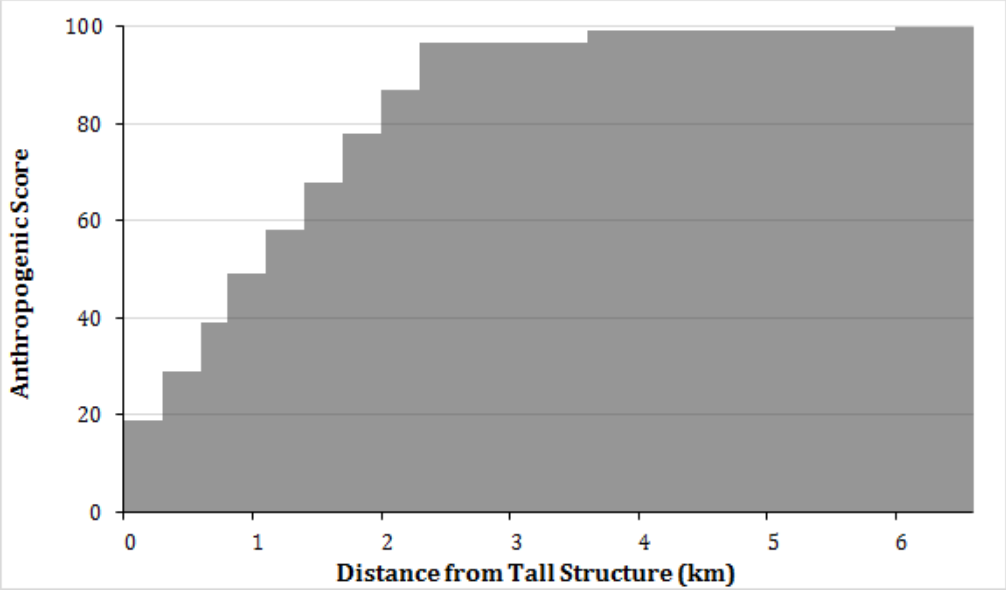

Figure C. *7*. The Anthropogenic Score for Tall Structures located > 4-miles of an active sage grouse that are considered non-nest facilitating structures for computing the Distance to Tall Structures Anthropogenic Variable.

Data Layers: Proposed Tall Structure Project Spatial Data (submitted by proponent)

GIS Steps for Anthropogenic Variable and Score Creation:

1. Create the Project Assessment Area:
    a. Direct Footprint: this is the exact shape and area of the submitted Proposed Tall Structure Project.
    b. Indirect Impact: Create the Indirect Impact area by buffering the Direct Footprint of the Proposed Tall Structure Project by 8,000-m for Tall Structures located within 4-miles of an active sage grouse lek and 6,000-m for Tall Structures located > 4-miles of any active sage grouse lek.
    c. Project Assessment Area (PAA): This is the Direct Footprint *and* the Indirect Impact areas.
2. Run the Euclidean Distance Tool on the PAA layer with a maximum distance of 8,000-m for Tall Structures located within 4-miles of an active sage grouse lek, specifying the previous buffer as the extent in the environments settings to create an output Euclidean Distance Tall Structure Near Lek raster. Repeat this step for Tall Structures located > 4-miles of any active sage grouse lek using 6,000-m as the maximum distance and for the extent to create an output Euclidean Distance Tall Structure Far Lek raster.
3. Reclassify the pixel values in the Euclidean Distance Tall Structure Near Lek raster to the associated Anthropogenic Score in Table C. 2 to create the Distance to Tall Structure Near Lek Nest Anthropogenic Score raster. If the Tall Structure is considered non-nest facilitating, reclassify the pixel values in the Euclidean Distance Tall Structure Near Lek raster to the associated Anthropogenic Scores in Table C. 4 to apply the 50% decrease to pixel scores and create the Distance to Tall Structures Near Lek Non-Nest Anthropogenic Score raster. If the Tall Structure is located > 4-miles from an active sage grouse lek and considered nest facilitating, reclassify the Euclidean Distance Tall Structure Far Lek raster to the associated Anthropogenic Score in Table C. 3 to create the Distance to Tall Structure Far Lek Nest Anthropogenic Score raster. If the Tall Structure is located > 4-miles from an active sage grouse lek *and* considered non-nest facilitating, reclassify the Euclidean Distance Tall Structure Far Lek raster to the associated Anthropogenic Score in Table C. 5 to apply the 75% decrease to pixel scores and create the Distance to Tall Structures Far Lek Non-Nest Anthropogenic Score raster.
4. If a given project contains additional disturbance types (e.g., roads, transmission lines), refer to the associated appendix for creation of additional Anthropogenic Score rasters.
5. Once all disturbance types for the proposed project have an Anthropogenic Score raster created, all relevant Anthropogenic Score rasters are multiplied together to create the Total Anthropogenic Score for the Project Assessment Area for the proposed Tall Structure project.
6. See Section 5 for the complete calculation of the Raw HQT Score for Debit Projects.

OPTIONAL THIRD LEVEL ASSESSMENT

Debit projects may have the option of performing Third Level Assessment surveys to collect site-specific data to inform the final HQT scores. This assessment must follow the peer-reviewed standards set forth in this document to ensure all such assessments are comparable, complete, and collect data useable within the Montana HQT framework.

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Appendix D. ANTHROPOGENIC VARIABLE: TRANSMISSION/ DISTRIBUTION STRUCTURES (Lines, Structures/ Poles, and/or Substations)

When a new Transmission/Distribution Structure project is proposed, all infrastructure for the proposal (including the lines and associated structures/poles and/or substation) is overlain on the Montana HQT Basemap. Other infrastructure for the proposed project may include roads, tall structures, etc. Specific Anthropogenic Scores are calculated to generate the Total Anthropogenic Score for the new Transmission/Distribution Structure project (Figure D. 1). This project-specific score is multiplied by the Montana HQT Basemap Total to produce a project-specific Raw HQT Score (Section 3.2.3).

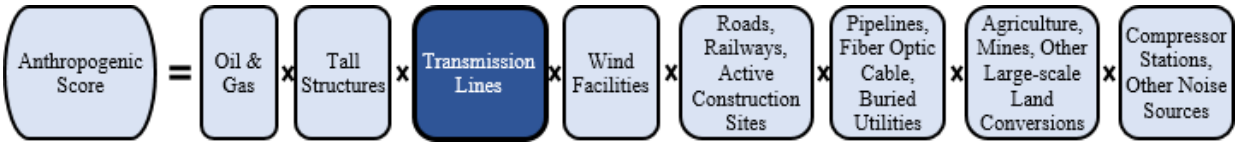

Figure D. 1. Equation for calculating the Anthropogenic Score for Transmission/Distribution Structure projects and any additional infrastructure.

SUPPORTING LITERATURE

Transmission/Distribution Structures are composed of lines and associated structures (i.e., poles, towers) and may also include substations. The linear characteristics of Transmission Structures result in both Direct and Indirect Impacts to GRSG populations through habitat fragmentation and increased predation. The effects of Transmission Lines on GRSG have been considered in several recent studies of habitat use and lek attendance (e.g., Walker et al. 2007, Dinkins et al. 2014b, Knick et al. 2013, LeBeau 2012, Johnson et al. 2011, Hanser et al. 2011, Gillan et al. 2013, Shirk et al. 2015, Gibson et al. in press, Hanser et al. 2018). Most of these studies grouped larger Transmission Structures with smaller Distribution Structures and telephone lines. See Table C. 1 for a brief overview of the scientific literature relevant to the specific impacts for Tall Structures.

Transmission Lines

A spatial analysis of GRSG telemetry data from west-central Idaho detected significantly fewer occurrences of GRSG within 600-m of lines than was predicted by the null model (Gillan et al. 2013); however, the change in the magnitude of use was not evaluated (J. Gillan, New Mexico State University, personal communication with A. Widmer, SWCA, 7/7/2015). Models of GRSG habitat use derived from the locations of GRSG scat (i.e., pellets) in the Wyoming Basin Ecoregional Assessment areas considered biotic, abiotic, and anthropogenic effects and identified distance to transmission line to be a significant predictor (Hanser et al. 2011). The results of the study indicate an avoidance effect that decreases with distance from the line. However, the size, number, location, and configuration of transmission lines evaluated were not described by Hanser et al. (2011). Expert opinion-based models of GRSG movement developed in Washington State predicted that transmission lines would significantly reduce GRSG movement to distances greater than 500-m; spatial patterns in gene flow and lek activity were consistent with model predictions (Washington Wildlife Habitat Connectivity Working Group [WHCWG] 2012; Shirk et al. 2015). These results provide evidence of Transmission Line impacts suggesting that avoidance behavior has the potential to result in a population-level effect.

Gibson et al. (*in press*) quantified the effects of the Falcon-to-Gondor 345 kV Transmission Line in Nevada on two GRSG populations over 10 years of operation. This study provides strong evidence of Transmission Line effects to GRSG demographic parameters (female survival, nest site selection and

success, and brood survival), largely in part because of the long-term duration of the study, the large sample (GRSG locations and habitat measurements), and the statistical analysis that isolated the effects of the Transmission Line from the effects of habitat quality and other covariates (e.g., roads). The authors identified several demographic parameters that were affected by the Transmission Line, and variation in the magnitude of the effect was largely explained by raven abundance. The authors also took the analysis a step further to estimate the impact that Transmission Lines have on females, nests, and chicks at the population level through assessing individual vital rates (e.g., survival rates, success rates). Individual vital rates varied markedly with response to transmission and distribution structures, including with responses to fluctuation in raven abundances (Table C. 1). Overall, Gibson et al. (2018) suggests that negative impacts to GRSG exist out to 10.0-km from a Transmission Line and out to 7.5-km for all power lines (including Distribution Lines).

Using lek attendance as a surrogate for population size, the authors estimated that population growth was reduced by 3% directly below the Transmission Line and the effect decreased linearly with distance to 0% at 10-km from the Falcon-to-Gondor Transmission Line. Population growth was reduced by 8% directly below "all power lines" (Transmission Lines and Distribution Lines grouped) and the effect decreased linearly with distance to 0% at 7.5-km.

Two Indirect Impact zones were defined for the Transmission/Distribution Structure Anthropogenic Score:

- Avoidance (0-m to 600-m for all line sizes)
- Decreased Population Growth (lines >115 kV: 0-m to 8,000-m; lines ≤115 kV: 0-m to 6,000-m)

Avoidance is a behavioral response by individual GRSG that has been documented in proximity to Transmission/Distribution Structures. Avoidance results in decreased use of habitat in areas within 600-m of a Transmission/Distribution Structure. The Avoidance effect increases proportionally with the number of Transmission/Distribution Structures, where the structures are sited less than 1,000-m apart.

Decreased Population Growth does not describe individual behavioral characteristics, but instead is a result of changes in population demographics (e.g., nest success, brood survival, female survival) that lead to a population level impact described in Gibson et al. (*in press*). Based on this study, Decreased Population Growth effects occur up to 10-km on either side of a Transmission Line. Raven abundance was the primary mechanism identified for the Decreased Population Growth effect in Gibson et al. (*in press*). However, Transmission Lines may also increase hunting efficiency for mammalian predators due to the edge effect created by removing sagebrush in the corridor. Where Decreased Population Growth effect zones overlap or where one zone overlaps with an Avoidance effect zone, the larger effect value is modeled.

Avoidance and Decreased Population Growth effects occur across all seasons, apply to all GRSG age- sex classes (e.g., adult females, juvenile males, chicks), and occur for the Construction and Operation phases of a project. The magnitude of the Indirect Impact is described for each zone below in the "How the Total Anthropogenic Score is Calculated" section.

Transmission Structures/Poles

Anthropogenic structures such as Transmission Structures/Poles (includes lattice structures) provide perching and nesting subsidies for avian predators. Ravens have demonstrated a preference for nesting on anthropogenic structures over natural features with Transmission Structures the most common structure utilized for nesting (Coates 2014a, Howe 2014, Knight and Kawashima, 1993). Raptor nests built on Transmission Structures are protected from mammalian predators affording greater nest success (Steenhof et al. 1993).

Transmission structures and poles support raven colonization by providing an anthropogenic nesting substrate in areas where natural elevated features are limited (Coates et al. 2014a, Howe et al. 2014, Knight and Kawashima 1993, Steenhof et al. 1993). Raptors begin nesting on Transmission Structures within one year of construction and will return to the same area each year (termed nest-site fidelity; (Steenhof et al. 1993). Highly territorial, breeding ravens exploit anthropogenic features common to transmission corridors and are more likely to predate sage grouse nests more often than migrant raven (Bui et al. 2010). Territorial breeding ravens forage within an average of 570.0 to 707.3-m (0.35 to 0.44-mi) of their nests (Howe et al. 2014) while Coates et al. (2014b) found concentrated raven foraging occurred out to 2.2- km (1.4-mi). Increased raven abundance has been detected near transmission facilities and probability of raven occurrence was detected out to 27.0-km (16.78-mi; Coates et al. 2014b).

Avian predator impacts are a common mechanism of indirect impacts on GRSG between Transmission/ Distribution Structures and Tall Structures (pers. comm. J. Kehmeier, SWCA, 18 September 2018), as both structures are capable of providing optimal raven nesting substrate. The advantages for ravens nesting on tall anthropogenic structures in areas otherwise void of tall features (e.g., trees) include increased visibility of potential prey and potential terrestrial predators with overall potential decreased predation due to nests being unreachable by terrestrial mammal predators.

Substations

Substations are included in the Transmission Structure section because they share similar height and structural components with other transmission features (e.g., Lines and Poles/Lattice) that have effects on GRSG documented in literature as discussed above. Such aspects of Substations make them attractive perching and nesting structures for predatory avian species. Because there is wide variation in substation size, composition, and noise production, the Anthropogenic Score specifically for Substations may be adjusted on a project-specific basis while the Program completes the development for Substations.

All Transmission/Distribution Structures (Lines, Structures/Poles, & Substations)

Transmission Lines and Substations are included in the digitized Existing Anthropogenic Surface Disturbance layer incorporated into the HQT Basemap and compose the Transmission Structure Anthropogenic Variable. Structures are included where visible from aerial imagery and captured through heads-up digitizing at a scale of 1:4,000-m (DNRC 2017). At this scale, Transmission Lines of ≥115-kV may be included in the digitized Existing Anthropogenic Surface Disturbance layer incorporated into the HQT Basemap. Transmission/Distribution Lines and associated structures/poles and Substations are the features included in the debit calculations where these features would be new disturbance and are part of a debit project.

Burton and Mueller (2006) and Ratcliffe (1997) found raven nests up to 1-km apart. For the purposes of this document, Transmission/Distribution Structures will be considered as co-located if they are within 1-km of each other.

Nesting vs non-nesting facility

Anthropogenic structures can support avian predator nesting and contribute to increased risk to GRSG. Transmission/Distribution Structures/Poles may be designed and maintained as non-nest facilitating. Transmission/Distribution Structures/Poles that do not facilitate nesting activities of avian predators will be given an adjusted Anthropogenic Score (Figure D. 2).

Executive Order 12-2015

Executive Order 12-2015 provides specific guidance related to Transmission/Distribution Structures should be buried to minimize negative impacts on sage grouse or their habitats and should be located a minimum of 4-miles from active GRSG leks. The Anthropogenic Score will be discounted where Transmission/Distribution Structures/poles are non-nest facilitating (Figure D. 2).

Table C. 1. Variables pertinent and specific to the indirect impacts of Transmission/ Distribution Structures documented in scientific peer-reviewed literature[1].

Variable	Metric for Consideration	Reference	Conclusion
Greater Sage-Grouse Responses to Transmission/Distribution Structures			
GRSG Avoidance Responses			
⬇ GRSG pellet count	< 0.5-km of power lines	Hanser et al. 2011	GRSG either avoided or showed decreased use in areas within 0.6-km of power lines (depending on study, may or may not include distribution lines).
GRSG avoidance	< 0.6-km of transmission lines	Gillan et al. 2013	
GRSG infrequent use	0.6-km of power lines	Braun 1998	
Areas void of leks	< 1.0-km of distribution lines (approx. 12-kV)	Stonehouse et al. 2013	Leks were absent from areas within 1.0-km of distribution lines (~ 12-kV) and from areas within 6.0-km of transmission lines (115-kV).
	< 6.0-km of transmission line (115-kV)	Stonehouse et al. 2015	
Lek extirpation	< 6.0-km of transmission lines	Wisdom et al. 2010 (Figure 18.4)	Extirpated leks were on average 6.0-km from a transmission line, which was 2.5 times shorter than the average distance (15.0-km) for active leks. Active leks are located further from transmission lines than extirpated leks.
GRSG occurrence	Greatest at distances >10.0-km from transmission line	Shirk et al. 2015	GRSG presence increased with increasing distance from transmission lines. Maximum presence occurred in areas > 10.0-km from transmission lines.
Habitat function	Habitat function ⬆ with distance to 230-kV Transmission line	LeBeau et al. 2018	Within 2-km of 230-kV transmission line, habitat function (mean relative probability of use and survival) increased with increasing distance to the line.
Transmission Line (includes 115-kV lines)			
GRSG re-nest probability	Probability ⬆ with ⬇ distance from transmission line out to 10-12.5-km	Gibson et al. 2018 (Table 18, Figure 4)	GRSG are more likely to re-nest closer to transmission lines. Re-nesting propensity decreases with increasing distance to transmission lines.

GRSG nest-site selection	Selection ↑ with ↑ distance to transmission line out to 3-km	Gibson et al. 2018 (Table 18, Figure 6)	GRSG select areas further from transmission lines for nesting and brood-rearing activities.
Brood-site habitat selection	Selection ↑ with ↑ distance to power line out to 5.0-km	Gibson et al. 2018 (Table 18, Figure 8)	
All Power Lines (includes transmission lines and distribution lines)			
GRSG nest-site selection	Selection ↑ with ↑ distance to power line out to 10-km or greater	Gibson et al. 2018 (Table 18, Figure 6)	GRSG select areas further from any power line sizes for nesting and brood-rearing activities.
Brood-site habitat selection	Selection ↑ with ↑ distance to power line out to 7.5-km	Gibson et al. 2018 (Table 18, Figure 8)	
Individual GRSG Vital Rates			
Transmission Line (>115-kV)			
GRSG nest survival	↑ linearly with ↑ distance to transmission line out to 12.5-km	Gibson et al. 2018 (Table 18, Figure 7)	Nest survival increased with increasing distance from transmission lines
Age-sex class survival rates			
Pre-fledging chick	Chick survival ↓ with ↑ distance to transmission line out to 10-km	Gibson et al. 2018 (Table 18, Figure 11)	Chick survival was positively associated with transmission lines. Adult female and adult male survivals increased with increasing distance from transmission lines.
Adult female	Female survival ↑ with ↑ distance to transmission line out to 7.5-km		
Adult male	Male survival ↑ with ↑ distance to any power line out to 5.0-km		
All Power Lines (includes Distribution Lines)			
Age-sex class survival rates			
Pre-fledging chick	Chick survival ↓ with ↑ distance to transmission line out to 5.0-km	Gibson et al. 2018 (Table 18, Figure 11)	Chick survival was positively associated with any power lines. Adult female and adult male survivals increased with increasing distance from any power lines.
Adult female	Female survival ↑ with ↑ distance to transmission line out to 2.5-km		
Adult male	Male survival ↑ with ↑ distance to any power line out to 5.0-km		
Impacts to Population Growth Rates			
Transmission Line (>115-kV)			
Annual population growth rate	Growth rate ↑ with ↑ distance to power line out to 5.0-km	Gibson et al. 2018 (Table 18, Figures 13, 14)	GRSG population growth rate increased with increasing distance from any power line with overall impacts detected out to 10-km of transmission lines 115-kV.
Overall impacts	< 10-km of the structures		

All Power Lines (includes Distribution Lines)			
Annual GRSG recruitment	Growth rate ⬆ with ⬆ distance to power line out to 5.0-km	Gibson et al. 2018 (Table 18, Figure 14)	GRSG population growth rate increased with increasing distance from any power line with overall impacts detected out to 7.5-km of any power line size.
Overall impacts	< 7.5-km of the structures		
Mean Power Line Density Impacts			
Active leks	$\bar{x}$ = 0.025-km/km^2	Knick et al. 2013 (Table 2)	Active leks were located in areas with lower power line densities than extirpated leks. GRSG habitat quality was highest in areas with power line densities < 1.5-km/25-km^2.
Historic leks (i.e., extirpated)	$\bar{x}$ = 0.144-km/km^2		
Areas void of active leks	≥ 0.20-km/km^2		
Highest habitat suitability	< 0.06-km/km^2		
Common Raven (and other avian predators) Ecology in Relation to Transmission/Distribution Structures			
Raven Foraging/Predation			
Territorial breeding raven foraging	< 0.57-km	Howe et al. 2014	Territorial breeding ravens foraged within 0.57-km of their nest.
Raven disturbance of GRSG leks (e.g., raven presence at leks)	⬆ linearly at 50% chance disturbance with ⬇ distance at 20-km from transmission line	Gibson et al. 2018 (Figure 15)	The probability of ravens disturbing a GRSG lek was greater for leks closer to the transmission line than leks further away. Leks ≤20-km of the transmission line had at least a 50% chance greater disturbance risk than leks >20-km of the transmission line.
GRSG nest survival rates			
High raven abundance	Nest survival ⬆ by 0.014/km from transmission line	Gibson et al. 2018 (Figure 9)	As raven abundance increases, nest survival decreases at higher rates with decreasing distance to transmission lines.
Average raven abundance	Nest survival ⬆ by 0.006/km from transmission line	Gibson et al. 2018 (Figure 9)	
Raven predation risk	1 individual raven/10-km results in 26% ⬆ in risk of raven predation	Coates et al. 2010 (Table 3, Figure 2)	For every 1 individual raven increase per 10-km stretch of transmission line, there is a 26% increase in raven predation risk for GRSG.
Raven Probability of Presence/Occurrence (e.g., territorial nesting pairs, perching individuals, transient individuals)			
Raven selection probability	Selection detected out to 11.7-km from power lines	Coates et al. 2014b (Figure 2)	Raven selection probability was greatest within 11.7-km of power lines with the highest probability of selection within 2.2-km of power lines. Within 2.2-km of a power line, raven probability of presence
	Highest probability of selection occurred < 2.2-km of power lines		

Within 2.2-km of power line	Raven occurrence ↓ by 12.2% for every 1.0-km from power lines		decreased by 12.2% for every 1.0-km from the power line. From 2.2-km to 11.7-km, raven probability of presence decreased by 1.9% for every 1.0-km from power lines.
From 2.2-km to 11.7-km	Raven occurrence ↓ by 1.9% for every 1.0-km from power lines		
Raven probability of occurrence	Raven occurrence ↓ by 8.9% for every 1.0-km from a GRSG lek	Coates et al. 2016	Ravens preferred areas near GRSG leks with an almost 9% decrease in probability of raven presence for every 1.0-km away from leks.
Territorial Breeding Raven Behavior			
Average distance between raven nests	1.0-km	Ratcliffe 1997	Territorial ravens nest approximately 1.0-km away from the next nearest raven nest. This supports the co-location concept for transmission/distribution structures when the indirect impact mechanism is based on raven predation.
	0.85-km (± 0.17-km)	Burton & Mueller 2006	

[1] While the mechanism (e.g., raven predation) of indirect impacts on GRSG is common between Transmission/ Distribution Structures and Tall Structures suggesting results reported for one structure type can be extrapolated to the other structure type (pers. comm. J. Kehmeier, SWCA, 18 September 2018), the Program has endeavored to reference literature in this section specific to Transmission/Distribution Structures. Note that Knick et al. (2013) and Wisdom et al. (2011) are referenced in both Transmission/Distribution Structures and Tall Structures sections because the authors of the two papers assessed impacts specific to each structure type, individually.

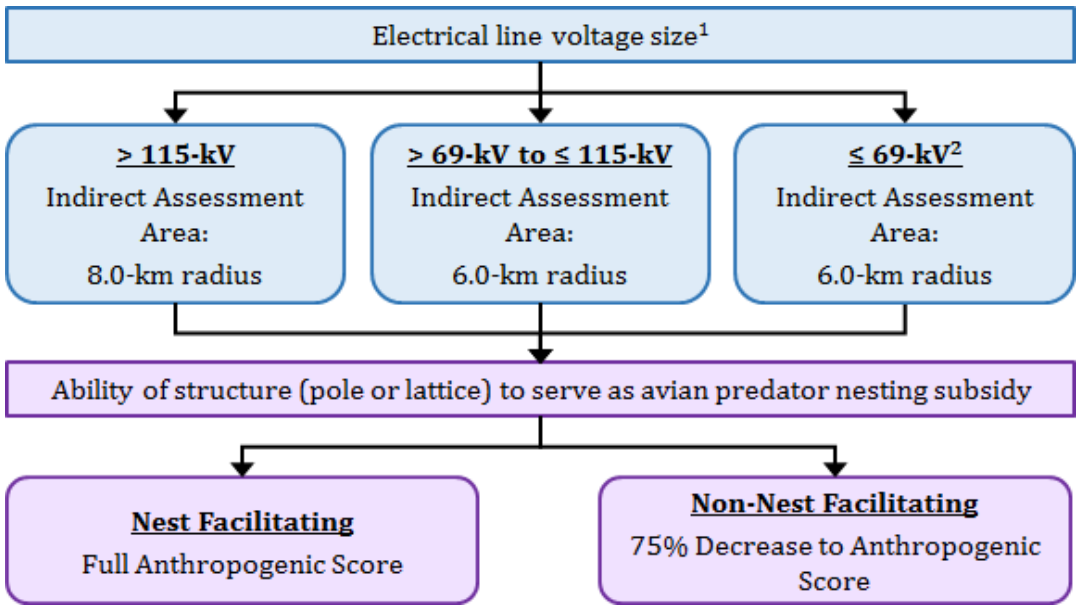

Figure D. 2. Flowchart for defining the Indirect Assessment Area for Transmission/Distribution projects based on electrical line voltage size and the application of a decrease to Anthropogenic Scores based on the structure design.

[1] If the Line is 4-miles or less of an active sage grouse lek, the line should be buried. Regardless of location and proximity to active sage grouse leks, buried electrical lines will receive no impact for the project's Operation Phase.

[2] Electrical lines with voltage sizes < 35-kV may be exempt from the EO and would not receive a Raw HQT Score.

HOW THE ANTHROPOGENIC SCORE IS CALCULATED

Avoidance (0-m to 600-m; applied to all Transmission/Distribution Structures)

Reduced use of habitat (i.e., avoidance) near Transmission/Distribution Structures is greatest directly under the line, decreasing out to 600-m based on peer-reviewed literature. Avoidance is modeled as a loss in habitat functionality that decreases linearly from 75% loss immediately below the line to 0% loss 600-m from the line.[15] The Anthropogenic Score is calculated as [1-1.25(0.6 - x)], where 'x' is the distance from the Transmission/Distribution Structure (Figure D. 3).

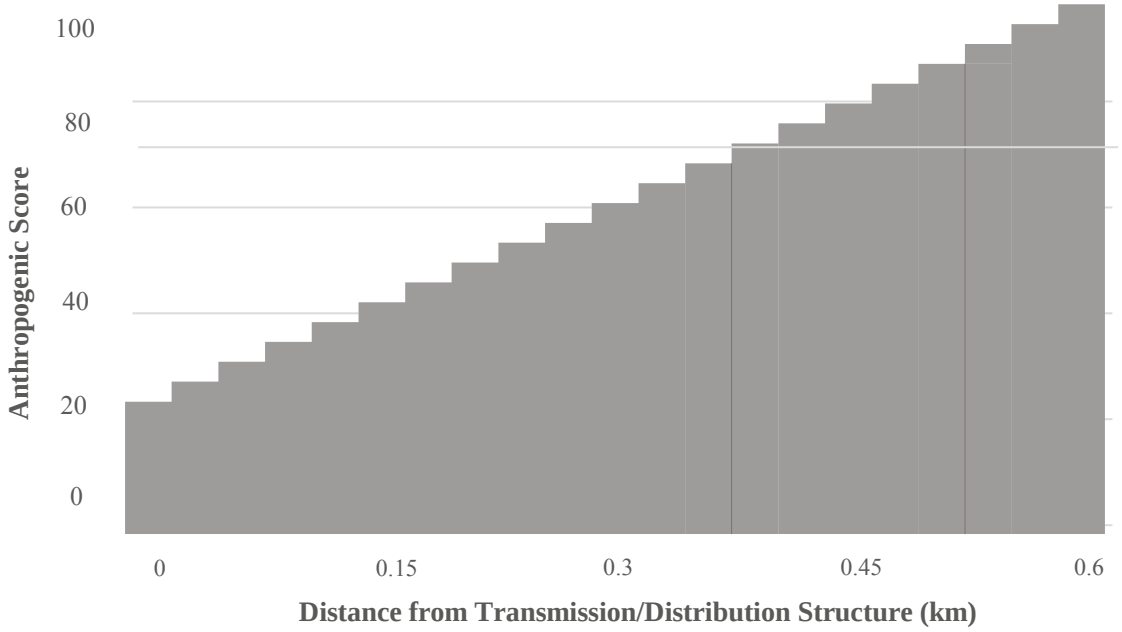

Figure D. 3. The Anthropogenic Scores for habitat avoidance with proximity (km) to the Transmission/Distribution Structure Anthropogenic Variable.

Decreased Population Growth (distance of effect dependent on line voltage)

Transmission Structure Voltages > 115-kV (0-m to 8,000-m)

Decreased Population Growth near Transmission Structures > 115-kV is modeled in all GRSG habitat as a loss of habitat functionality that decreases linearly from 3% directly below the line to 0% loss 8,000-m (8-km) from the line[16]. The Anthropogenic Score is calculated as [1-0.003(8-x)], where 'x' is the distance (km) from the structure.

For Transmission Structures considered non-nest facilitating, the pixel scores will decrease by 75% (Figure D. 2). This results in less impact calculated in the HQT and a lower Raw HQT Score.

[15] Professional judgment was used to develop the 75% reduction in use immediately below the line with the likelihood of use increasing with increasing distance from the transmission line.

[16] The effects of transmission lines are being modeled, not the effects of "all power lines". Distribution line data is not available for the entire analysis area. Without accurate and complete distribution line data, the baseline condition with existing power lines could not be accurately characterized and the baseline habitat scores would be inaccurate.

Transmission/Sub-Transmission Structure Voltages > 69-kV to ≤ 115-kV (0-m to 6,000-m)

Decreased Population Growth near Transmission/Sub-Transmission Structures > 69-kV to ≤ 115-kV is modeled in all GRSG habitat as a loss of habitat functionality that decreases linearly from 3% directly below the line to 0% loss 6,000-m (6-km) from the line. The Anthropogenic Score is calculated as [1-0.003(6-x)], where 'x' is the distance (km) from the structure.

For Transmission/Sub-Transmission Structures considered non-nest facilitating, the pixel scores will decrease by 75% (Figure D. 2). This results in less impact calculated in the HQT and a lower Raw HQT Score.

Sub-Transmission/Distribution Structure Voltages ≤ 69-kV (0-m to 6,000-m)

Decreased Population Growth near Sub-Transmission/Distribution Structures ≤ 69-kV is modeled in all GRSG habitat as a loss of habitat functionality that decreases linearly from 3% directly below the line to 0% loss 6,000-m (6-km) from the line. The Anthropogenic Score is calculated as [1-0.003(6-x)], where 'x' is the distance (km) from the structure.

For Transmission/Distribution Structures considered non-nest facilitating, the pixel scores will decrease by 75% (Figure D. 2). This results in less impact calculated in the HQT and a lower Raw HQT Score.

NOTE: The EO states that Distribution Structures with line voltages ≤ 35-kV may be exempt.

Data Layers: Proposed Transmission/Distribution Structure Project Spatial Data (submitted by proponent)

GIS Steps for Anthropogenic Variable and Score Creation:

1. Create the Project Assessment Area:
    a. Direct Footprint: this is the exact shape and area of the submitted Proposed Transmission/Distribution Structure Project.
    b. Indirect Impact: Create the Indirect Impact area by buffering the Direct Footprint of the Transmission/Distribution Structure by 8.0-km for structures with voltages > 115-kV and by 6.0-km for structures with voltages ≤ 115-kV.
    c. Project Assessment Area (PAA): This is the Direct Footprint *and* the Indirect Impact areas specific to the Transmission/Distribution Structure and associated features.
2. Run the Euclidean Distance Tool on the PAA Transmission/Distribution Structure layer with a maximum distance of 8.0-km for voltages > 115-kV and of 6.0-km for voltages ≤ 115-kV, specifying the previous corresponding buffer as the extent in the Environment Settings to create an output Transmission/Distribution Structure 8km raster and Transmission/ Distribution 6km raster, respectively.
3. Reclassify the pixel values in the Transmission/Distribution Structure 8km raster and Transmission/Distribution 6km raster to the associated Anthropogenic Scores in Table D. 2 (Figure D. 4) and Table D. 4 (Figure D. 6), respectively, for structures considered nest facilitating to create the Transmission/Distribution Structure 8km Nest Anthropogenic Score raster and Transmission/Distribution Structure 6km Nest Anthropogenic Score raster, respectively. For structures considered non-nest facilitating, reclassify the pixel values in the

the Transmission/Distribution Structure 8km raster and Transmission/Distribution 6km raster to the associated Anthropogenic Scores in Table D. 3 (Figure D. 5) and Table D. 5 (Figure D. 7), respectively, to create the Transmission/Distribution Structure 8km Non-Nest Anthropogenic Score raster and Transmission/ Distribution Structure 6km Non-Nest Anthropogenic Score raster, respectively. See Table D. 6 (Figure D. 8) for Anthropogenic Scores for nest facilitating Sub-Transmission/Distribution Structures and Table D. 7 (Figure D. 9) for non-nest facilitating Sub-Transmission/Distribution Structures.

4. If a given project contains additional disturbance types (e.g., roads, tall structures), refer to the associated appendix for creation of additional Anthropogenic Score rasters.
5. Once all disturbance types for the proposed project have an Anthropogenic Score raster created, all Anthropogenic Score rasters are multiplied together to create the Total Anthropogenic Score for the Project Assessment Area for the Proposed Transmission/ Distribution Structure project. See Section 5 for the complete calculation of the Raw HQT Score for Debit Projects.

OPTIONAL THIRD LEVEL ASSESSMENT

Debit projects may have the option of performing Third Level Assessment surveys to collect site-specific data to inform the final HQT scores. This assessment must follow the peer-reviewed standards set forth in this document to ensure all such assessments are comparable, complete, and collect data useable within the Montana HQT framework.

ANTHROPOGENIC SCORE & INDIRECT IMPACT AREAS FOR VARIOUS TRANSMISSION/ DISTRIBUTION STRUCTURE PROJECT

Nest Facilitating Transmission Structures > 115-kV

Table D. 2. Anthropogenic Scores for Transmission Structures > 115-kV that are considered nest facilitating structures for computing the Distance to Transmission/Distribution Structures Anthropogenic Variable.

Distance (km)	Anthropogenic Score
0 – 0.1	25
> 0.1 – 0.2	38
> 0.2 – 0.3	50
> 0.3 – 0.4	63
> 0.4 – 0.5	75
> 0.5 – 0.6	88
> 0.6 – 3.333	97
> 3.333 – 6.666	98
> 6.666 – 8.0	99
> 8.0	100

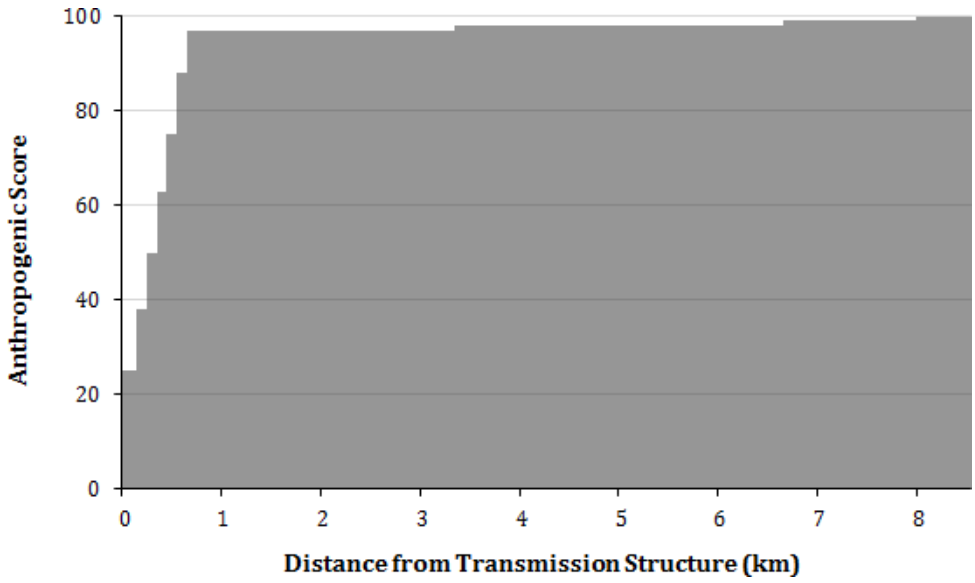

Figure D. 4. The Anthropogenic Score for Transmission Structures > 115-kV that are considered nest facilitating structures for computing the Distance to Transmission/ Distribution Structures Anthropogenic Variable.

NON-Nest Facilitating Transmission Structures > 115-kV

Table D. 3. Anthropogenic Scores for Transmission Structures > 115-kV that are considered non-nest facilitating structures for computing the Distance to Transmission/Distribution Structures Anthropogenic Variable.

Distance (km)	Anthropogenic Score
0 – 0.1	25
> 0.1 – 0.2	38
> 0.2 – 0.3	50
> 0.3 – 0.4	63
> 0.4 – 0.5	75
> 0.5 – 0.6	88
> 0.6 – 3.333	99.25
> 3.333 – 6.666	99.5
> 6.666 – 8.0	99.75
> 8.0	100

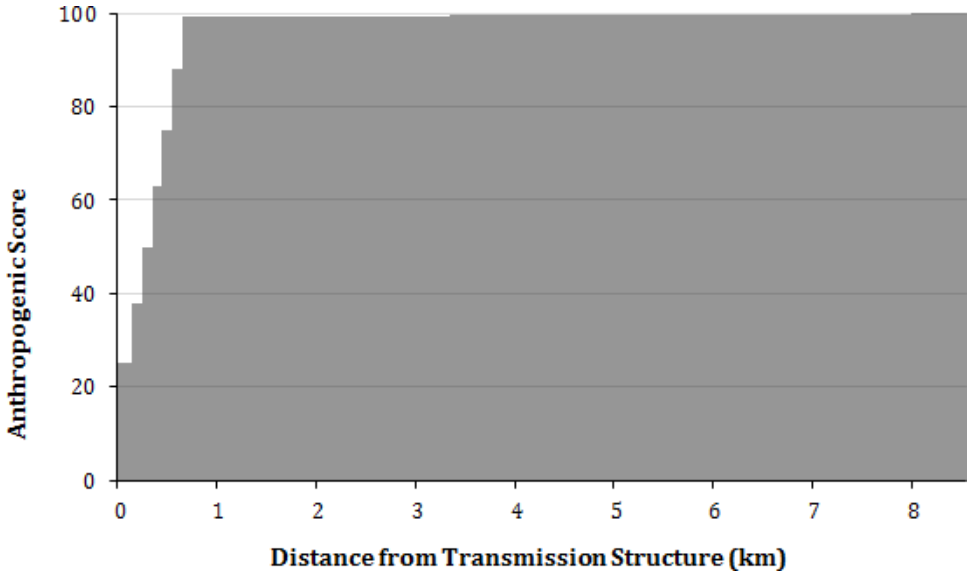

Figure D. 5. The Anthropogenic Score for Transmission Structures > 115-kV that are considered non-nest facilitating structures for computing the Distance to Transmission/ Distribution Structures Anthropogenic Variable.

Nest Facilitating Transmission Structures > 69-kV to ≤ 115-kV

Table D. 4. Anthropogenic Scores for Transmission/Sub-Transmission Structures > 69-kV to ≤ 115-kV that are considered nest facilitating structures for computing the Distance to Transmission/Distribution Structures Anthropogenic Variable.

Distance (km)	Anthropogenic Score
0 – 0.1	25
> 0.1 – 0.2	38
> 0.2 – 0.3	50
> 0.3 – 0.4	63
> 0.4 – 0.5	75
> 0.5 – 0.6	88
> 0.6 – 3.333	97
> 3.333 – 6.0	98
> 6.0	100

Figure D. 6. The Anthropogenic Score for Transmission/Sub-Transmission Structures > 69-kV to ≤ 115-kV that are considered nest facilitating structures for computing the Distance to Transmission/Distribution Structures Anthropogenic Variable.

NON-Nest Facilitating Transmission Structures > 69-kV to ≤ 115-kV

Table D. 5. Anthropogenic Scores for Transmission/Sub-Transmission Structures > 69-kV to ≤ 115-kV that are considered non-nest facilitating structures for computing the Distance to Transmission/Distribution Structures Anthropogenic Variable.

Distance (km)	Anthropogenic Score
0 – 0.1	25
> 0.1 – 0.2	38
> 0.2 – 0.3	50
> 0.3 – 0.4	63
> 0.4 – 0.5	75
> 0.5 – 0.6	88
> 0.6 – 3.333	99.25
> 3.333 – 6.0	99.5
> 6.0	100

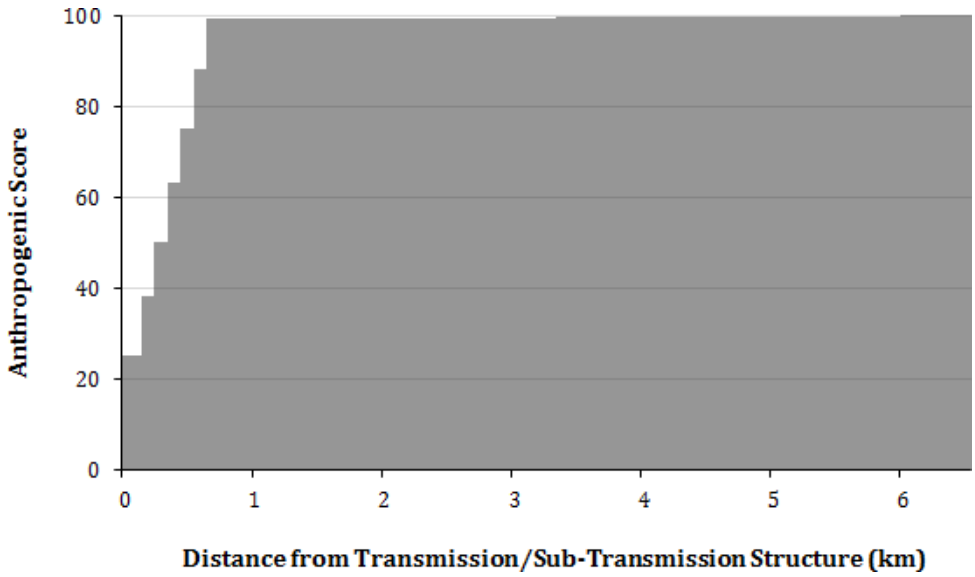

Figure D. 7. The Anthropogenic Score for Transmission/Sub-Transmission Structures > 69-kV to ≤ 115-kV that are considered non-nest facilitating structures for computing the Distance to Transmission/Distribution Structures Anthropogenic Variable.

Nest Facilitating Transmission Structures ≤ 69-kV

Table D. 6. Anthropogenic Scores for Sub-Transmission/Distribution Structures ≤ 69-kV that are considered nest facilitating structures for computing the Distance to Transmission/ Distribution Structures Anthropogenic Variable.

Distance (km)	Anthropogenic Score
0 – 0.1	25
> 0.1 – 0.2	38
> 0.2 – 0.3	50
> 0.3 – 0.4	63
> 0.4 – 0.5	75
> 0.5 – 0.6	88
> 0.6 – 3.333	97
> 3.333 – 6.0	98
> 6.0	100

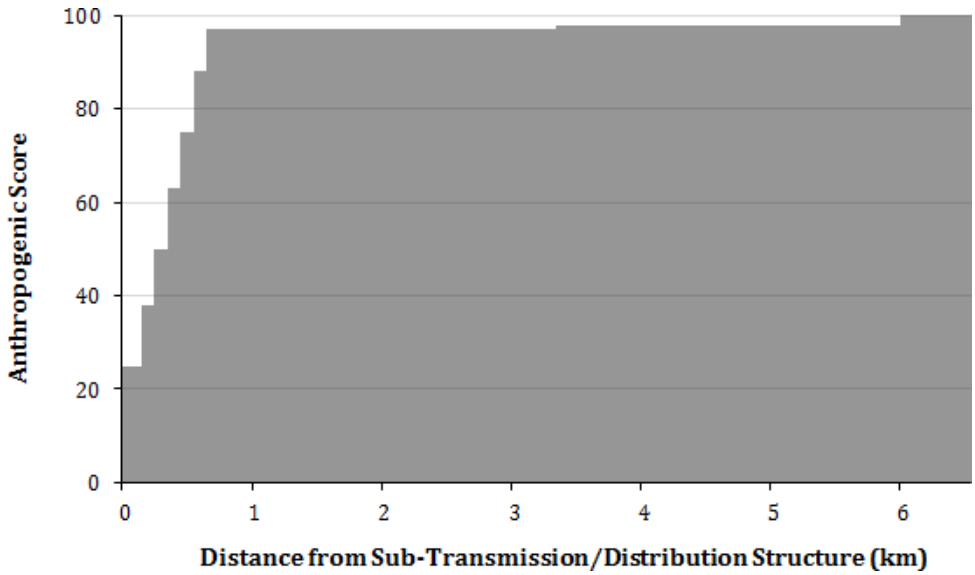

Figure D. 8. The Anthropogenic Score for Sub-Transmission/Distribution Structures ≤ 69-kV that are considered nest facilitating structures for computing the Distance to Transmission/ Distribution Structures Anthropogenic Variable.

NON-Nest Facilitating Transmission Structures ≤ 69-kV

Table D. 7. Anthropogenic Scores for Sub-Transmission/Distribution Structures ≤ 69-kV that are considered non-nest facilitating structures for computing the Distance to Transmission/ Distribution Structures Anthropogenic Variable.

Distance (km)	Anthropogenic Score
0 – 0.1	25
> 0.1 – 0.2	38
> 0.2 – 0.3	50
> 0.3 – 0.4	63
> 0.4 – 0.5	75
> 0.5 – 0.6	88
> 0.6 – 3.333	99.25
> 3.333 – 6.0	99.5
> 6.0	100

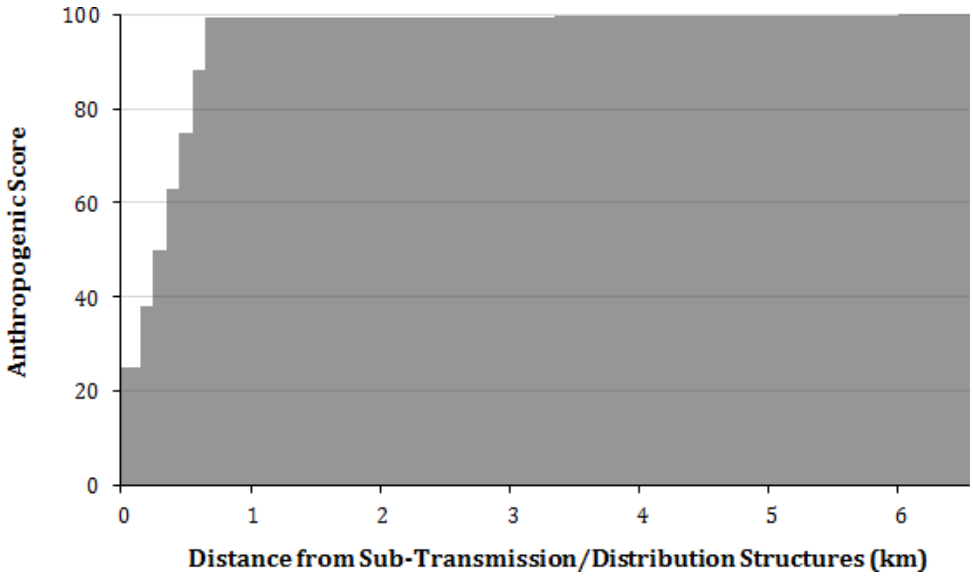

Figure D. 9. The Anthropogenic Score for Sub-Transmission/Distribution Structures ≤ 69-kV that are considered non-nest facilitating structures for computing the Distance to Transmission/Distribution Structures Anthropogenic Variable.

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	Comment #	Name or Association	City, State	Comment
400	1	Martinell, Allen	Dell, MT	I strongly oppose the September draft until there are some reliable cost-mitigation numbers. I am also very concerned about how this could devastate electric coops seeking to deliver affordable and reliable power to rural Montana. The comment period should be extended beyond September 25th to give time to uate the impacts. I am aware the governor's executive order on. Sage grouse specifically requires that mitigation be "economically feasible" for power lines and communication towers.
401	2	Crooks, Terry	Libby, MT	The September draft on sage grouse is not reliable. It does not present figures that realistically can depended upon without putting pressure on the electric coops of Montana. With such and important issue more time needs to be devoted to the problem and more advice and public comment opportunities. We do not want to fast shuffle something this important without more information. Is it not required by the governor to make sure that any undertaking should be "economically feasible" for the coops...Lets be responsible with this issue.
402	3	Miller, Rollie	Dillon, MT	1. I strongly oppose the September draft until we see some reliable cost-mitigation numbers; 2. I am gravely concerned about how this could devastate electric co-ops seeking to deliver affordable & reliable power to rural Montana. 3. I want the comment period extended beyond September 25 to give time to better uate the impacts; 4. I am aware the governor's executive order on sage grouse specifically requires that mitigation be economically feasible for power lines and communication towers.
403	4	Sokoloski, John	Wibaux, MT	See attached document
404	5	Birkenbuel, Brady	Dillon, MT	I strongly oppose the September draft until I see the cost of the project. Without knowing the cost this could effect how coops provide affordable and reliable power to there customers. Further more this is a short window to hear any comments on this important matter. With such a short time frame I fell they are trying to slip one by us. We need to make sure it is economically feasible for both power lines and communication towers.
405	6	Hammond, Kari	Malta, MT	Hello, I am a resident of Phillips County living in Malta. I work at Big Flat Electric Co-op. I strongly urge you to oppose the Sept. draft rules for sage grouse mitigation costs until we see reliable cost-mitigation numbers. The currently discussed mitigation costs are unacceptable and could devastate electric co-ops seeking to deliver affordable, reliable power to rural Montana. Big Flat Electric has just over 1,100 members. Asking our members to cover the possible high mitigation costs would impact them greatly, in a negative way. The governor's executive order on sage grouse specifically requires that mitigation be economically feasible for power lines and communication towers. We are very concerned that the mitigation costs won't be. Please extend the comment period beyond Sept. 25, so electric co-ops have more time to better uate the impacts.
406	7	Knick, Rick	Medicine Lake, MT	Please consider the governor's executive order on sage grouse specifically requiring that mitigation be economically feasible for power lines and communication towers. It is essential to Montana's rural economy that affordable and reliable electricity is available to these area.
407	8	Solberg, Roger	Malta, MT	I strongly oppose the September draft until we can see some reliable numbers on cost-mitigation. I am aware that Governor Bullock's executive order on sage grouse specifically requires that mitigation be economically feasible for power lines and communication towers built in sage grouse areas. I have grave concerns that mitigation costs could be up to half the cost of a power line or tower actual construction cost. This would be devastating to electric co-ops who seek to deliver affordable and reliable power to rural Montana. I am a director on the Big Flat Electric cooperative board and it gravely concerns me that highly excessive mitigation expenses could cost our co-op members more than $6000 apiece on a new transmission line that we are presently planning to build! Please extend the comment period beyond September 25 so that we can better understand the impacts that this will have on our cooperative members.

408	9	Owens, Kevin	Red Lodge, MT	Thank you for the opportunity to comment on your proposed rulemaking for Montana Sage Grouse. As the General Manager of a small rural electric cooperative in SW Montana I have the obligation to serve members in a safe, reliable and affordable manner. It is often very difficult to manage large capital projects whose costs must be spread over a limited member base base spread over a large service territory. I appreciate your efforts in developing a Mitigation Tool that provides consistency in how mitigation projects can be uated. As is the case in most matters that I am responsible, there are limits. Consequently, I can not support, as written, the September Draft until I see some reliable cost mitigation numbers. Even so, I cannot support a blank check approach to mitigation. Every initiative needs sideboards, a reasonableness check. As I stated, I have an obligation to serve members, but I have to do it responsibly to keep the electricity I deliver responsibly. I would suggest mitigation measures should not increase project costs more than 10% above the baseline option. The Comment period should be extended beyond the 25th for Cooperatives to uate impacts and further explore options. I can support sage grouse mitigation if it sticks to the Governor's executive order of being "economically feasible". These Rules need sideboards to keep options economically feasible that don't adversely impact rates to my members.
409	10	Sands, Jim	Nashua, MT	1. strongly oppose the September draft until we see some reliable cost-mitigation numbers and how it will affect NorVal Electric Coop;2. am gravely concerned about how this could devastate electric co-ops seeking to deliver affordable & reliable power to rural Montana. 3. would like the comment period extended beyond September 25 to give us time to better uate the impacts; 4. am aware the governor's executive order on sage grouse specifically requires that mitigation be "economically feasible" for power lines and communication towers and that's why costs must given great consideration. Please allow Cooperatives more time to uate how this new draft will impact future operations and development.
410	11	Tebay, Norman	Whitehall, MT	As a coop member and board member, I oppose the draft proposal until we see real cost numbers. We need to know exactly how this proposal would affect our members. The comment period must be extended in order for us to uate the impact on our members. The governors executive order called for mitigation to be "economically feasible" for power lines and communication towers. This is certainly not the case with this proposal. Please be aware we are talking huge numbers, which our members would have to pay ifthis goes forward. The cost is completely out of line with what we can afford. We, being our electric coop members. Thank you for the opportunity to comment on such a vital issue.
411	12	Biolo, Debbie	Whitefish, MT	Gov. Bullock specifically required any mitigation to be economically feasible with costs given great consideration. This draft does not give the costs involved. As coop members we depend on sustained AFFORDABLE POWER. The sage grouse are not the only ones who need help in sustaining their lives. Humans deserve conditions to economically sustain their lives as well. One week is not an adaquate comment period, and not having transparent costs included in the draft is unacceptable.
412	13	Propp, Jami	Sidney, MT	I am very concerned about how this could devastate electric co-ops seeking to deliver affordable & reliable power to rural MT. I don't feel that one week for public comment is an adequate amount of time to uate the impact of this proposal.
413	14	Hillesland, Chris	Sidney, MT	I strongly oppose the September draft of the sage grouse mitigation rules. The comment period needs to be extended beyond September 25th to provide time to better uate the impacts. The governers executive order on sage grouse requires that mitigation must be economically feasible for power lines and communication towers. Therefore there needs to be more time to uate the impacts.
414	15	Zadow, Margo	Sidney, MT	I strongly oppose the September draft until we see some reliable cost-mitigation numbers as I am gravely concerned about how this could devastate electric co-ops seeking to deliver affordable & reliable power to rural Montana. The comment period needs to be extended beyond September 25 to give us time to better uate the impacts. I am aware the governor's executive order on sage grouse specifically requires that mitigation be "economically feasible" for power lines and communication towers and that's why costs must be given great consideration. Please don't rush into this as it will have dire lasting consequences.

415	16	Bond, Brenda	Sidney, MT	I strongly oppose the September draft until we see some reliable cost-mitigation numbers; This sage grouse conservation program could devastate electric co-ops seeking to deliver affordable & reliable power to rural Montana. Please extend the comment period beyond September 25 to give us time to better uate the impacts; I understand that the governor's executive order on sage grouse specifically requires that mitigation be 'economically feasible' for power lines and communication towers and that's why costs must given great consideration. Thank you for your attention to my concerns.
416	17	Ellis, Ray	Eureka, MT	I certainly appreciate the efforts you have put into helping the sage grouse population in Montana. I do have some real concerns with the September Draft. To my knowledge there hasn't been any cost analysis released with the Draft. I cannot support any plan where the cost is not understood clearly. Cooperatives are charged with keeping power affordable and reliable. The September Draft has the potential to double the cost of line extensions and other projects which makes any such construction unfeasible. Such additional costs would stymie the fragile economies of rural Montana. The Governor's executive order specifically requires that mitigation be "economically feasible". Without any cost analysis included with the draft it is impossible to understand the cost. To that end please extend the comment period beyond September 25th to allow more time to uate costs and impacts.
417	18	Keysor, Kelly	Sidney, MT	I strongly oppose the September draft until we see some reliable cost mitigation numbers! I am aware the governor's executive order on sage grouse specifically requires that mitigation be "economically feasible" for power lines and communication towers and that is why costs must be given great consideration.
418	19	Bloom, Russ	Simms, MT	I would like to urge you to extend the comment period for the latest plan concerning sage grouse. As a director at Sun River Electric Co-Op in Fairfield, I a very concerned about the economic costs that the latest plan mandates for mitigation for a project such as extending an electric line to a new customer, or building a new transmission line to better server our members. The current plan mandates mitigation measures that would be economically unfeasible to rural co-ops such as ours. I urge you to follow the mandate set forth in the Governor's executive order which state that mitigation measures must be economically feasible.
419	20	Herbert, Craig	Glasgow, MT	I strongly oppose the September draft until I see some reliable cost-mitigation numbers. I belong to a small cooperative. I am gravely concerned about how this could devastate my cooperative seeking to deliver affordable and reliable power to rural Montana. Your attempt to close the public comment period so fast, appears to be a method to force your ideals on the people of Montana. I am also aware the Governor's executive order on sage grouse specifically requires that mitigation be "economically feasible" for power lines and communication towers and that is why costs must be given great consideration. Without knowing the costs up front, you are ignoring this part of the executive order.
420	21	Vaira-Herbert, Doreen	Glasgow, MT	I strongly oppose the September draft until I see some reliable cost-mitigation numbers. I belong to a small cooperative. I am gravely concerned about how this could devastate my cooperative seeking to deliver affordable and reliable power to rural Montana. Your attempt to close the public comment period so fast, appears to be a method to force your ideals on the people of Montana. I am also aware the Governor?s executive order on sage grouse specifically requires that mitigation be "economically feasible" for power lines and communication towers and that is why costs must be given great consideration. Without knowing the costs up front, you are ignoring this part of the executive order.
421	22	Kuntz, Robin	Ekalaka, MT	I am a member and employee of Southeast Electric Cooperative, Inc. We are situated in Carter County which has a large sage grouse population. Our inhabitants still have common sense and strive both to manage our land, wildlife, and habitat and yet economically survive in this agricultural community. 1. I strongly oppose the September draft until we see some reliable cost-mitigation numbers; 2. I am gravely concerned about how this could devastate electric cooperatives seeking to deliver affordable & reliable power to rural Montana. 3. I wish for the comment period to be extended beyond September 25 to give electric cooperatives time to better uate the impacts; 4. I am aware the governor's executive order on sage grouse specifically requires that mitigation be "economically feasible" for power lines and communication towers.

422	23	Wiens, Gary. Montana Electric Cooperative	Great Falls, MT	See attached document
423	24	Lasich, Sharon	Twin Bridges, MT	Although the governor's office has promised to send us hypothetical costs under the September version based on a proposed co-op power line project in sage grouse country (The 64.6 mile 115 kV power line by Big Flat Electric to serve the Keystone pipeline), we haven?t yet seen those numbers. THUS, WE REMAIN OPPOSED TO THE SEPTEMBER DRAFT UNTIL WE SEE THE NUMBERS. 1.I strongly oppose the September draft until we see some reliable cost-mitigation numbers; 2.I am gravely concerned about how this could devastate electric co-ops seeking to deliver affordable & reliable power to rural Montana. 3.I want the comment period extended beyond September 25 to give us time to better uate the impacts; 4.I am aware the governor's executive order on sage grouse specifically requires that mitigation be "economically feasible" for power lines and communication towers.
424	25	Helm, Tom	Toston, MT	Thank you for your work on the Sage Grouse Oversight Team. As a trustee for Vigilante Electric Co-op which distributes power to and through many areas affected by the oversight plan, I must object to the September draft. We would appreciate the comment period being extended beyond the September 25th deadline as the draft does not contain reliable cost mitigation numbers. Without these numbers, how can we determine if the mitigation is "economically feasible" as the Governor's executive order specifically requires?
425	26	Van Voast, Alan	Turner, MT	As a director for Big Flat Electric Cooperative and also a farmer-rancher, I am writing to express my concerns over the latest draft of mitigation rules. I appreciate the work you have done to put together a plan to protect the sage grouse in our state and especially in my territory. This is a very complicated issue and I know you have many interests to juggle when deciding on policy. I have a few concerns I wish to share. First has to do with the relatively short comment period. There is a vast amount of material to wade through before an educated position can be taken. Second is the mitigation costs are still not clearly stated in this draft. Co-ops talk to each other and our manager has been in touch with Triangle Communications in Hill county over the charges they are incurring over the proposed cell tower in south Phillips County. Though the initial charges have been reduced they still amount to half the cost of the tower itself! Imagine the costs our electric co-op (actually our members) will be forced to pay for any newly constructed power line! The result is the projects won't go forward. In our cooperative's territory our members are heavily reliant on what the land has to offer, much like the sage grouse. Please be mindful when you are crafting rules that you remember those of us that try to make our living in Sage grouse country. I respectfully ask that you offer consideration and fairness when it comes to solving the issues involved when protecting a species.
426	27	Hayden, Mark	Missoula, MT	Thank you for the improvements made to the proposed sage grouse mitigation rules that specifically address cost reductions pertaining to power lines. However, affected electric co-ops still still do not have any level of certainty with regard to cost impact even with the improved September draft version. This level of uncertainty makes it impossible to know if this draft is consistent with the governor's sage grouse executive order, which specifically stated that mitigation costs on power lines had to be "economically feasible" For this reason, I oppose the September draft until we see some reliable cost-mitigation numbers, and ask that the comment period extended beyond September 25 to give us time to better uate the impact on Montana electric co-op.
427	28	Stephens, Tim	Livingston, MT	I applaud the MSGOT for their efforts for trying to make accommodations for Montana's electric cooperative's concerns with power lines in Sage Grouse country but I cannot support the September Draft without knowing what these costs will be or how they will be calculated.
428	29	Hanson, Dean	Whitehall, MT	As a Director of Vigilante Electric Co-op and a rancher, I am gravely concerned about how the September draft of the sage grouse mitigation costs could devastate electric co-ops seeking to deliver affordable & reliable power to rural Montana. I strongly oppose the draft until we see some reliable cost mitigation numbers. I want to see the comment period extended beyond Sept 25 to allow more time to uate impacts. I am aware the governor's executive order on sage grouse specifically requires that mitigation be "economically feasible" for power lines and towers.

429	30	Huidekoper, Leona	Fairfield, MT	I strongly oppose the September draft until we see some reliable cost-mitigation numbers. I am concerned about how this could devastate electric co-ops seeking to deliver affordable & reliable power to rural Montana. I would like to see the comment period extended beyond September 25 to give us time to better uate the impacts. I am aware the governor's executive order on sage grouse specifically requires that mitigation be "economically feasible" for power lines and communication towers.
431	31	Boardman, Gretchen. Big Flat Electric Cooperative	Malta, MT	See attached document
432	32	Rupp, Mark. Environmental Defence Fund, Montana Association of Land Trusts, Montana Land Reliance, Montana Audubon, Montana Wildlife Federation, Conservation Fund, The Nature Conservancy in Montana, Theodore Roosevelt Conservation Partnership, Anaconda Sportsmen's Club, Hellgate Hunters and Anglers, Laurel Rod and Gun Club, Montana Chapter of Backcountry Hunters and Anglers, Traditional Bowhunters of Montana	Washington, DC	On behalf of the Environmental Defense Fund (EDF), an international non-partisan, non-profit organization dedicated to protecting human health and the environment by effectively applying science, economics, and the law, I submit the attached comments in response to the September 14, 2018 meeting of the Montana Sage Grouse Oversight Team (MSGOT).
433	33	Olson, Alan. Montana Petroleum Association, Montana Mining Association, Treasure State Resources, Montana Contractor's Association, Montana Coal Council	Helena, MT	See attached document
434	34	Stavick, Liv. Montana Farm Bureau Federation	Bozeman, MT	See attached document
435	35	Baker, Corey; Beaver, John. WESTECH Environmental	Helena, MT	See attached document
436	36	Nixdorf, Timothy. Triangle Communications	Havre, MT	See attached document
Mail	37	Bauman, Brad	Fairfiled, MT	See attached document
Mail	38	Deeble, Ben. Big Sky Upland Bird Association	Missoula, MT	See attached document

1. I strongly oppose the September draft until we (MECA, Montana Electric Cooperative Association, our statewide organization) see some reliable cost-mitigation numbers;

2. I am gravely concerned about how this could devastate electric co-ops seeking to deliver affordable & reliable power to rural Montana;

3. I want the comment period extended beyond September 25 to give MECA time to better evaluate the impacts;

4. I am aware the governor's executive order on sage grouse specifically requires that mitigation be "economically feasible" for power lines and communication towers.

THUS, WE REMAIN OPPOSED TO THE SEPTEMBER DRAFT UNTIL WE SEE THE TRUE NUMBERS. Thank you.

Comments
of the

Montana Electric Cooperatives' Association

September Draft, Version 1.0
Montana Sage Grouse Habitat Quantification Tool
& Mitigation System Policy Guidance

Submitted September 25, 2018

Thank you for the opportunity to submit comments on the September version.

General Comments

1. We appreciate the changes made in the September draft in an effort to accommodate concerns about cost impacts of these rules on our member-owned, not-for-profit electric cooperatives, i.e., specific mention of 35 kV and smaller being exempt, separate treatment of 69 kV and 115 kV, recognition of impact difference between nesting and non-nesting tall structures, reduced buffers for indirect assessment areas.
2. We strongly urge that either the HQT or Policy Guidance document or both specifically state that power lines 35 kV and smaller will not be subject to either direct or indirect assessment areas.
3. We have not received any cost calculations and must continue to oppose the September draft documents until we see these costs. There is grave concern the costs could be devastating to our electric co-ops, which average only about 4,500 members each and many of them, especially in sage grouse country, have less than one member per mile.
4. The governor's Executive Order (EO) specifically emphasizes requirements for location of power lines outside the 0.6 mile-buffer in core areas (or .25 mile-buffer in general habitat) from active leks must be "economically feasible." (P. 14, Attachment D, "Stipulations for Uses and Activities.")
    a. If mitigation costs exceed project costs we question whether the governor's "economically feasible" condition is being met. We request that if implementation of mitigation costs render a power line project not economically feasible that additional considerations should be made – either in the HQT or Policy Guidance document, or both.
    b. We request either the HQT or Policy Guidance document or both specifically reference the governor's EO statement regarding power line projects needing to be "economically feasible."
    c. It appears from the EO the objective is a .60 buffer for distribution lines (35 kV and smaller) in core area and .25 buffer in general habitat. Shouldn't this mean no additional mitigation for these lines is

required if outside these areas? If not, please explain to us the rationale.

5. Adaptive management contemplates changes in the HQT as science becomes more complete. As peer reviewer Jim Burruss points out, the U.S. Geological Survey (Mainier et al. 2014) states that, "There is no single distance that is an appropriate buffer for all populations and habitats across the sage-grouse range."
    a. We request the Program continue to monitor and follow new research as it becomes available because buffers may need to be modified.

Specific Comments

HQT

1. On P. 50, 4.3.2, "Updates to Second Level Assessment Results for Credit Projects," we question the rationale in scoring not suitable habitat as suitable just because it once was suitable;
2. We continue to be concerned about time and costs involved in third-level assessments. This process should be streamlined;
3. The concern about buffers with respect to predators as listed in the HQT is addressed in the EO. Attachment D statement indicates the 4-mile buffer is adequate to address predation.
4. It appears substations of all sizes continue to be treated as tall structures even though they vary in size, voltages and height or where they can be sited, depending on use as a substation for distribution, transmission or both. As stated by peer reviewer Jim Burruss, "Most substations shouldn't be considered a tall structure." The HQT indicates substations will be examined on a case-by-case basis (P. 133). We believe substations should be viewed as a small disturbance such as a compressor station.
5. We disagree with the disparity of treatment between wind towers and transmission structures. Wind towers require only a 1.5 km buffer but transmission structures require 6 or 8 km. This is inconsistent. Transmission tall structures can also be made of tubular steel so that nesting cannot occur and yet they are subject to much larger 6 or 8 km buffers.

Policy Guidance

1. Not having yet seen any cost estimates for proposed and hypothetical projects, we are greatly concerned the Policy Guidance fails to take into account the EO's emphasis on economic feasibility of mitigation requirements. If mitigation costs more than what the project costs, the process is seriously flawed. It is difficult to understand the rationale of how economic feasibility has been achieved when cost mitigation exceeds project costs.
2. The Policy Guidance contradicts the EO with regard to unsuitable habitat. On P. 28 of the EO, Attachment H, "Unsuitable Habitat," the statement indicates a

developer should not have to mitigate for areas considered unsuitable as a result of natural ecological conditions such as juniper, cheat grass, badlands, etc.

Big Flat Electric Cooperative

Serving Blaine, Phillips and Valley Counties

September 25, 2018

MSGOT Committee
1539 Eleventh Ave.
Helena, MT 59601

Dear MSGOT Committee,

I am writing to express my continued concerns of the MSGOT committee and the HQT tool. I do believe the committee has made changes that are easier to accept. I appreciate the efforts to assist in the continuing needs of electrical services in rural Montana. However, I still can't support the HQT tool as I have not seen numbers showing what a transmission line in Phillips County would cost for mitigation.

As a general manager of an electrical cooperative, I ask that you continue to remember two important things - we need affordable and reliable power to pass along to our members. With high mitigation costs that takes away from affordability. We have an opportunity to provide our members with reliable power by putting in a transmission line in Phillips County. Passing on costs but stopping projects due to high mitigation costs would prohibit reliable power. I hope you will consider low cost mitigation to ensure that we do not have to pass along high costs to our members.

Sincerely,

Gretchen Boardman

Gretchen Boardman
General Manager
Big Flat Electric Co-op., Inc.
406-654-2040

September 26, 2018 *Submitted Electronically*

Carolyn Sime, Manager
Sage Grouse Habitat Conservation Program
Montana Department of Natural Resources and Conservation
1539 11th Avenue
PO Box 201601
Helena, MT 59620-1601

RE: MSGOT Meeting: September 14, 2018

Dear Ms. Sime:

On behalf of the Environmental Defense Fund (EDF), an international non-partisan, non-profit organization dedicated to protecting human health and the environment by effectively applying science, economics, and the law, I submit these comments in response to the September 14, 2018 meeting of the Montana Sage Grouse Oversight Team (MSGOT). These comments also serve as a follow-up to joint comments submitted on August 8, 2018 in coordination with Montana Association of Land Trusts, Montana Land Reliance, Montana Audubon, Montana Wildlife Federation, Conservation Fund, The Nature Conservancy in Montana, Theodore Roosevelt Conservation Partnership, Anaconda Sportsmen's Club, Hellgate Hunters and Anglers, Laurel Rod and Gun Club, Montana Chapter of Backcountry Hunters and Anglers, Traditional Bowhunters of Montana and EDF.

It is impressive to see the ongoing efforts of MSGOT and other stakeholders as we collectively strive to create a state-based solution to ensure Sage Grouse conservation, making an Endangered Species Act (ESA) listing unnecessary. I encourage MSGOT, as you work toward final adoption of the Habitat Quantification Tool (HQT) and Mitigation System Policy Guidance, as well as issue a draft rule for public comment next month, that you maintain the current plan's integrity and a robust mitigation program. With experience developing Sage Grouse mitigation programs in several states – including Colorado, Nevada and Wyoming – EDF supports Montana's program. What MSGOT has developed has the potential to be a leader nationwide and a model for how state-based plans can offer species protection and habitat conservation, while still preserving the well-being of local landowners and economies.

With respect to what came out of the September 14 meeting, I am pleased to know that the most updated plan includes a habitat objective for no net loss, with net gain being preferred. If the

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same amount of habitat continues to support the same population of birds at the level where the bird was a candidate for a listing, we will continue to face the threat of an ESA listing. For that reason, it is commendable that the program is looking to set specific standards for progress and we agree that functional acres gained and credits in the system should exceed functional acres lost and debits. The commitment to keep enough credits in the reserve account to fulfill all debits on the ground is also a prudent goal.

I also commend MSGOT on the new bird objectives, noting that an essential part of this process is intended to stabilize and eventually reverse negative population trends. In addition, the retention of the multipliers and additional detail to the HQT ensures that the tool is as accurate and fair to all those involved in the process. Finalizing and maintaining these proposed standards is necessary to protect this species' existence, as well as to prevent the future decline of the more than 300 other species of concern that share the sagebrush ecosystem with the Sage Grouse. If the standards are watered down, we stand to negatively impact not only the bird, but also the health and vitality of the local landscape as a whole.

Thank you for the open and robust process MSGOT has taken with the work before it and the many opportunities given to interested parties to engage. I look forward to seeing this program's expedient finalization by the end of the calendar year, protecting what EDF sees as a strong conservation standard with the potential to be a model for other states.

Sincerely,

Mark W. Rupp
Director, Wildlife Campaign

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Comment # 33

Thank for the opportunity to comment on the revised Mitigation Policy Document and Habitat Quantification Document.

We are reserving our right to comment further until the full rule is released at a later date. We are re-submitting our previous comments for additional consideration prior to release of the final rule for comment.

Alan Olson
Executive Director
Montana Petroleum Association

Tammy Johnson
Executive Director
Montana Mining Association

Peggy Trenk, CAE
Executive Director
Treasure State Resources Association

Cary Hegreberg
Executive Director
Montana Contractors' Association

Bud Clinch
Executive Director
Montana Coal Council

September 25, 2018

Ms. Carolyn Sime
Manager-Montana Sage Grouse Program
1539 11th Avenue
Helena, MT 59601

RE: Comments on the HQT and Mitigation Policy Document dated September 2018

Dear Ms. Sime:

Thank you for the opportunity to provide comments on the revised drafts of the HQT and Mitigation Policy document. Thank you also for holding the additional stakeholder meeting and for your consideration of our input. We appreciate that a number of our recommendations were incorporated in these revised documents. In the spirit of "adaptive management" we request that you consider the following comments aimed at continued improvement of these key guidance documents in order to provide a clear and transparent process for protecting sage grouse habitat and allowing Montana's diverse economy to flourish.

On behalf of the following companies and organizations whose members comprise a significant majority of project developers in sage grouse habitat we submit the following comments to the draft sage grouse mitigation policy updated on July 19, 2017; and HQT document last updated in July, 2017:

Montana Petroleum Association
Montana Coal Council
Montana Contractors Association
Montana Mining Association
Treasure State Resources Association

HQT COMMENTS

Population and Habitat Variables:

In the most recent HQT the Montana Sage Grouse Habitat Conservation Program (Program) still doesn't break the HQT baseline into upland and mesic habitat components as the SWCA HQT document did, all population and habitat variables are combined into one "Habitat Score".

Below is a review of the individual metrics included in the Program's HQT document that have changed since the previous version of the state HQT document was released.

Sagebrush Canopy Cover – The scores for this metric have been adjusted back to match the original SWCA HQT document – they had been adjusted in the previous MT HQT document.

Original SWCA Scoring

Sagebrush Cover (%)	0 - <3	3 - <10	10 - <15	15 - <30	>30 - 40	>40 - 45	>45 - 55	>55 - 60	>60 - 70	70 and greater
Variable Score	0	0.4	0.9	1	0.7	0.5	0.4	0.3	0.2	0.1

Distance to Suitable Upland – this metric is now clipped to the "mesic mask" layer as originally proposed in the SWCA HQT document. The Program's previous HQT document did not have the mesic mask clip process included.

Average Upland Habitat Suitability – this metric is still removed in the MT state HQT document.

Coalition Comment:

Now the average upland habitat suitability variable is combined with some of the upland variables as one variable and could overstate the importance of upland habitat and understate the importance of mesic habitat. It is hard to identify how this affects debits and credits. We do support using the "mesic mask" layer as originally proposed in the SWCA HQT document.

Anthropogenic Variables:

Below is a review of the individual anthropogenic variables that have been adjusted since the last version of the HQT document was released.

Tall Structures – Wind turbines have been removed from the tall structure variable but substations are still included in the variable. Substations may fit better with general noise sources like compressors rather than tall structures. The listed disturbances included in tall structures are communication towers, weather towers and substations. The indirect impacts associated with tall structures goes out to 14.5 km though past 3 km the impacts are relatively minor. There is no discussion of co-location of towers or mechanism of impact. If tall structure impacts are related to raptor perching opportunities then, like transmission lines, co-located facilities should have no incremental impact and no mitigation or reduced mitigation would be required. Without understanding the mechanisms it is difficult to understand how co-location is considered with other impact types.

Coalition Recommendation: Move substations into the noise category and remove from the tall structures and transmission structures categories to avoid double counting impacts of substation. Please explain how the Program will consider a new co-located tall structure. We believe that it should have zero additional impact.

Transmission Lines – There is still no differentiation in transmission line size for this metric. This metric was developed by BLM, USFWS, and other stakeholders in Wyoming, Idaho, Colorado, and Utah to focus on transmission lines that are 115 kV and larger. This metric does not apply to smaller distribution lines. It would be an error to include this metric for the distribution system. Oddly, this metric also lists substations as a covered disturbance type which is also covered in Tall Structures. It is unclear how they differentiate between substations

covered by tall structures and those by transmission lines and whether they are being double counted.

Coalition Recommendation: Remove impact for lines less than 115kV. Transmission line substations should be listed noise category as mentioned above. Please clarify in the definition section that transmission structures exceed 115 kV lines.

Wind Facilities – The wind facility metric is now included in Appendix A and the scores have been adjusted back to match the original scoring outlined in the SWCA document.

Original SWCA Scoring

Percent Disturbance from Wind Energy Infrastructure within 1.5 km	Score
0-<0.5%	1.00
0.5-<2%	0.70
2-<3%	0.40
3-<4%	0.20
>4%	0.10

Coalition Recommendation: We agree with the change back to the original scores.

Pipelines, Fiber Optic Cable and Buried Utilities – this metric has been broken out into its own variable (was included with moderate roads before) but the scoring is still the same as moderate roads.

Coalition Recommendations: We agree with this change.

Ag, Mines and other Land Conversions - The same methods are the same as SWCA HQT document, however the scores were adjusted in this version of the HQT document (see below). The changes are relatively minor for this variable but it is unclear why these scores were used rather than the original scores developed by the stakeholder group. As stated in the current version, ag land conversion and large scale- mining would require more mitigation than would have been required in the original version.

Original SWCA Scoring

Percent agriculture, mining or other land conversion activities within a 3.2 km radius	Score Adjustment Factor
0-10	1.0
10-25	0.50
25-40	0.15
40-60	0.10
>60	0

MT State Scoring (changes highlighted in yellow)

Percent agriculture, mining or other land conversion activities within a 3.2 km radius	Score Adjustment Factor
0-10	1.0
10-25	0.50
25-40	0.125
40-60	0.05
>60	0

Coalition Recommendation: These scores should be returned to the original version.

Compressor Stations and other Noise Sources – This metric originally included substations as their primary impact is noise and human presence, not tall structure impacts. There are no examples given of what disturbance types are included in this variable other than compressors. The scoring for this metric has been adjusted slightly, see below. This change could result in increased mitigation owed by a project proponent.

Original SWCA Scoring

Distance	Adjustment Factor
0 – 50	0.25
50 – 100	0.50
100 – 450	0.70
>450	1.00

MT State Scoring (changes highlighted in yellow)

Distance	Adjustment Factor
0 – 50	0
50 – 100	0.50
100 – 400	0.70
>400	1.00

Coalition Recommendation: Return substations to the noise category and remove from the tall structure category. The scores should be changed back to the original version that was developed by SWCA and the stakeholder group.

MITIGATION POLICY (MP) COMMENTS

The Sage Grouse Industrial Coalition has two overarching comments on the mitigation policy document (MP) that we have maintained throughout its development. First, projects that can be developed within all the stipulations contained in the final executive order do not require compensatory mitigation because adherence to these stipulations is the foundation of the program in the first place.

The argument that residual impacts are unavoidable because new or increased activities will have "some level of impact" on sage grouse and sage grouse habitat is unclear. Paragraphs 23 and 24 of E.O. 12-2015 work together to prevent declines in sage grouse populations. If stipulations are followed as set forth in attachment D then it shall be deemed sufficient to demonstrate that the project will not cause declines in sage grouse populations. While any new activity on the surface will have "some" impact to habitat, following the stipulations ensures that actual impact to sage grouse populations have been addressed. To state that the only way to avoid residual impacts is to not implement a development project in designated sage grouse habitat grossly exceeds the authority originally envisioned by the drafters of the sage grouse executive orders. Both the 2014 and 2015 executive orders were clear in that new land uses in core areas shall be avoided **when possible.** Stating in the MP that you should not develop projects in sage grouse habitat sends a very strong message to a large portion of Montana that sage grouse are more important than the resident's livelihood. It also places arbitrary constraints on our state's opportunities for economic growth, particularly those that generate jobs that pay well and bolster revenue needed for important state programs and services.

Paragraph 2 of the E.O. 12-2015 states that: "Nothing in this Order in any way creates, adds to, or expands the regulatory authority of a state agency." Despite this direction from the Office of the Governor, the Program is treating sage brush habitat, not the actual sage grouse species itself, as an endangered species by inferring that compensatory mitigation will be required on all projects within sage grouse habitat, regardless of the project's effects on sage grouse population. The Program does not have the authority to require compensatory mitigation for projects that have followed the mitigation hierarchy and have no residual impacts to the sage grouse species.

Our second overarching comment involves the development of credits and how this policy document artificially restricts the supply of potential credit development projects through the credit reserve account. Section 9 of SB 261 originally established compensatory mitigation to be a 1 to 1 replacement of debit actions on the landscape with credits. While we recognize that the application of multipliers provides disincentive for activities in sage grouse habitat the cumulative impact of the reserve account contribution and the MP baseline credit of 40% for post project habitat function is excessive.

Section 3.1.1 requires debit projects to provide an additional 20% credit contribution above the raw HQT score toward a credit account that is set aside to offset unforeseen events or unavoidable loss of habitat. At what point could a credit account have enough credits to be considered viable? Does this contribution ever stop? Further, on the credit side, permanent conservation easement protections are considered the "gold standard" for conservation yet they

are only valued at a default of 40%. The combination of both the reserve account contribution and the default of gold standard conservation easements is excessive.

Coalition Recommendation: Remove the requirement for a reserve account contribution or set the baseline for post project functional acres equal to the credit raw score from the HQT. Specify that projects that are developed within all the stipulations contained in the final executive order do not require compensatory mitigation.

Finally, in the beginning of the MP we understand that there is an intention of creating a Memorandum of Understanding (MOU) between State and Federal land management agencies to align their land use requirements with the Montana MP. In part 1.4.2 there are various references that suggest when dealing with a joint State/Federal project that a special mitigation approach to satisfy Federal requirements may be necessary. This is inconsistent with the Federal intent to align their land use plans to ours. There are several references to that effect or that bluntly state that there may be additional Federal mitigation requirements. Given Montana was the only state in the Sage Grouse range that did not want the Federal Department of Interior to reopen their land use plans, it seems to us that if there is an MOU regarding sage grouse conservation that there should be ONE mitigation policy. This was further supported by public comments by the BLM representative at the stakeholder meeting on May 16 where it was stated that the BLM did not have specific mitigation policies and they would align with Montana's plan.

In the last sentence of section 1.4.2.1, "Propose Project" the MP states. " Proposals may be revised or denied for reasons other than sage grouse." This statement appears to give the Montana Sage Grouse Oversight Team (MSGOT) blanket discretion to revise or deny any project in sage grouse habitat. The MSGOT, as clearly stated in paragraph 2 of E.O. 12-2015 does not have this authority. This sentence needs to be removed from the MP

Referring to page 21 and the bulleted list of specific examples of how Stewardship Account funds can be used to create compensatory mitigation credit; what is meant by reduction of unneeded anthropogenic predator subsidies and infrastructure? Is it the intent to use Stewardship account funds to pay a landowner to remove obsolete fences, barns, corrals, etc.? If so, who then would have title to those credits?

In various sections of Section 1 of the MP there is referencing to increasing the credit baseline to 40% with a variable 10% increase or reduction at the discretion of the MSGOT. There should be more criteria and a clear process listed by which the MSGOT can use such discretion.

On page 50, the third paragraph states that there will be an obligation for project developers to obtain additional credits for each violation of the executive order stipulations. This is consistent with the Program statements at the May 4th and May 16 meetings. There is however, some confusion how each violation will be assessed. Take for example a linear project; if the timing restriction is violated by the project is that one violation of the stipulations for the entire length of the project? We are concerned that the cumulative effects of adding stipulation violations together could be excessive, especially on complex large scale projects such as highway reconstruction or pipeline placement.

On the bottom of page 50 and carrying to page 51 is a discussion on how stipulations will be calculated. We read this to state that if a project is within core area but on existing disturbance there would be a 10% multiplier for each stipulation violation. Further, if the project was in core

area and not on existing disturbance there would be another 10% multiplier for each stipulation violation for a total of a 20% multiplier impact. Is our reading correct? While we understand that the 10% landscape multiplier in the Program's May presentations has been deleted, it was a 10% across project wide multiplier. We read this as a combination of a10% multiplier for core disturbed ground, plus another 10% for core undisturbed group for each stipulation violation. The coalition opposes this section if that is the intent. If it is not the intent, these sections need clarification.

The first sentence on page 52 says that "Montana's minimum standard for mitigation is no net loss". Where is the authority to adopt that standard?

On page 57, first bullet, an operator will provide a plan of development including a "robust site reclamation plan". What exactly is a "robust" plan? The word "robust' should be deleted.

The Policy footnotes and references a number of federal documents that have been revised/withdrawn. For example, the FWS has withdrawn its Mitigation Plan and Compensatory Mitigation Plan because of the "net conservation gain" requirement. The Policy needs to be revised to reflect these changes to federal requirements.

On page 8, section 4 - The Policy goals are to provide an approach that is predictable and equitable. Some MPA members seek clarity on how the Policy provides cost certainty to developers or that the cost of the credits are fair and reasonable? If there are too few available credits to offset project debits, the cost of credits will soar. Developers will not be able to plan and budget for development if the costs are continually changing, potentially increasing drastically, based on availability of credits.

Throughout the Policy, it states that an independent third party was expected to administer the program; however, that hasn't occurred and the state and federal agencies plan to implement it. Administration costs typically range from 40-60% on these types of programs reducing the amount of funds (typically generated by the program) that go directly to on-the-ground conservation for the species and its habitat. No matter what entity is administering/implementing the program, the cost of the administration of the program should be fully disclosed to the stakeholders and the public. In addition, there should be a full accounting on a yearly basis of the details of the program i.e. how much funds are brought in by each development; how much funds went to on-the-ground conservation for the species and its habitat, how much of the funds went to 3rd parties, cost of credits, etc.

It is unreasonable for compensatory mitigation to be required for every project, and is it contrary to successful programs implemented for other species. This completely circumvents the mitigation hierarchy and discourages participation and economic investment. Compensatory mitigation should not be "automatic". Additionally, it is unclear how residual impacts are determined/derived in an objective manner to determine the amount of compensatory mitigation. This should be clarified in the Policy.

Section 3, Page 52 – It is confusing when the document states that a "net conservation gain" is voluntary when in reality it is automatic when determining the functional acres lost and using the multipliers that automatically provide a net conservation gain. These statements are not accurate and should be removed. It would be beneficial to the stakeholders and public if the Policy identified the range of ratios that the developer might encounter, for example, actual acres disturbed vs the amount of offset acres needed. This is not a 1:1 ratio so what is it? Again, this would provide clarity and align with the transparency goal identified on page 8.

Section 4.4 - In regards to adaptive management, the documents states that new science will be incorporated as it becomes available. Adaptive management is an important part of the process; however, it should not be constantly changing at a pace that places entities in a position of not being able to plan and budget its resources. The Policy states that on annual basis, MSGOT will review and determine whether major or minor changes are needed. One year of data is not adequate to fully understand

variability, and any changes should be based on a minimum of 3-5 years of best available science. The text should be revised and clarified on this issue. Finally, any requirements as a result of new science should be applied to new development and not apply retroactively to existing development.

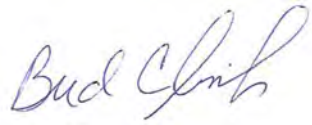
Regards:

Alan Olson
Executive Director
Montana Petroleum Association

Tammy Johnson
Executive Director
Montana Mining Association

Peggy Trenk, CAE
Executive Director
Treasure State Resources Association

Cary Hegreberg
Executive Director
Montana Contractors' Association



Bud Clinch
Executive Director
Montana Coal Council

MONTANA
FARM BUREAU
FEDERATION
502 S. 19th Ave. Ste 104
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Comment # 34

September 24, 2018

Ms. Carolyn Sime
Manager, Sage Grouse Conservation Program
Department of Natural Resources and Conservation
PO Box 201601
1539 11th Ave
Helena MT, 59620

RE: ***Additional comments on the Mitigation Policy Document dated September 2018***

Dear Ms. Sime:

The Montana Farm Bureau Federation would like to thank you for providing another opportunity to comment on the mitigation system policy document for sage-grouse. MFBF is the largest agricultural organization in the state, representing over 20,000 members – many of which reside and work right on sage-grouse habitat. For this reason, the future of the sage-grouse is of the utmost importance to Montana Farm Bureau and our members' livelihoods. MFBF recognizes how critical this document is in the effort to maintain the greater sage-grouse's unlisted status, and appreciate the opportunity to make it even more successful.

Nevertheless, we urge the Montana Sage-Grouse Oversight Team (MSGOT) promptly address our below concerns and move forward with adoption. The period of time before sage-grouse are reconsidered under the Endangered Species Act is dwindling, and the only way Montana can prevent a listing is if this Program is set in motion.

Comments:

However, Farm Bureau wishes to remind the Program of its goals, outlined on page 9, to "support rangeland health, *balanced with economic development*, within sage-grouse range habitat; and to provide an approach that is *flexible*, predictable, transparent, *equitable*, and science-based..." Though Farm Bureau members will likely be involved in the mitigation system as credit providers, the vitality of the rural communities they call home depends on development. This Program needs to be flexible, and recognize that a model will not consistently create accurate results. Developers cannot be so financially burdened by this Program that they will not invest in our rural communities. The Program must equitably balance conservation and development together.

MFBF has been committed to the goal of Montana's Sage Grouse Conservation Program since its debut. However, our primary commitment remains in the hands of rural Montana's citizens who make a livelihood producing fuel and fiber for the world. Protecting greater sage-grouse cannot be prioritized over communities who are also at risk of becoming extinct.

> "Huge portions of rural Montana are being left behind as the state's economic growth – which is hotter than the U.S. overall – is restricted almost exclusively to counties with larger urban areas. There are 56 counties in Montana, but from 2000-2016, just five counties have captured 75 percent of new jobs, according to data from the *U.S. Bureau of Economic Analysis*." (Missoulian)

According to the before mentioned economic analysis, as many as 10,000 jobs could disappear in rural Montana over the next five years. Rural areas are being left out of Montana's rapid job growth, and for a state-run program to inhibit growth as extensively as this one appears to do is unacceptable.

Likewise, preventing services such as broadband and cellular telecommunications from entering our rural communities significantly increases the risk these areas and their residents are already facing – the risk of falling behind competitors whose access to information is at their fingertips, the risk of young people choosing not to return to their rural hometowns due to a lack of connectivity, and most importantly the risk of safety and wellbeing were an accident to occur without means of contacting help (a very real risk in rural Montana).

Landowner participation in Montana's Sage Grouse Conservation Program is paramount to the Program's success as nearly 70% of sage-grouse habitat is found on private lands. Without their participation, the Program will not generate sufficient, if any, credits. Without credits, mitigation cannot take place and Montana's efforts to retain sage-grouse's unlisted status fails. I will reiterate that *the Program needs landowners more than they need the Program.* Appropriately, a program that disadvantages the rural communities in which ranchers work, send their children to school, and call home is not a program that lends itself to landowner participation.

Again, this Program cannot halt investment and development in our rural communities. If it does, it contradicts the many efforts that have been made by Montana to keep such areas alive.

Thank you for the opportunity to comment.

Sincerely,

Liv Stavick

Liv Stavick
Director, State Governmental Affairs
Montana Farm Bureau Federation

WESTECH ENVIRONMENTAL

MEMO

To: Montana Sage Grouse Oversight Team September 26, 2018

From: Corey Baker and John Beaver

Subject: Review of peer reviewed comments and simulated HQT output

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The following paragraphs contain a summary and discussion of the comments provided to the Montana Sage Grouse Conservation Program (Program) during the peer-review process conducted from July 5 – August 16, 2018. The peer-review and public comments are accessible via the September 14 MSGOT meeting notes website (https://sagegrouse.mt.gov/Team#meetingArchive) and are contained in the 795 pages of the Notes 2 Appendix. The peer-reviewer responses were evaluated relative to comments that would helpful to both project proponents and to the Program as the final details of the model and associated policy are finalized. The reviews of summaries include the random identifications assigned to peer reviewers; the specific comments may be located in the Notes 2 Appendix by reviewer number. These issues are addressed again in this document because they are important to the functionality of the HQT-based mitigation process and do not appear to have been incorporated into the process at this point.

Following the summary of comments are tables showing differences in physical acreages and estimated mitigation costs for the DY Junction tower. This table is helpful for evaluating the potential changes to mitigation costs that can result from relatively modest changes to the procedures used in the HQT calculations. Some notable factors include: 1) influence of discounts from non-nesting structures, 2) incorporation of site-specific topographic analysis, and 3) the large decrease in physical acreage (and subsequently functional acres) from modest decreases in impact radius.

We commend the Program for reviewing and incorporating significant amounts of data and literature into the HQT. We are concerned that the significant mitigation payments for many projects, particularly for those in general habitat in areas removed from leks, will generate significant public backlash as has happened in other states, with the result that the effectiveness of the Program will be substantially reduced.

Peer Reviewer Comments:

Credits for Mitigation Measures - Several reviewers commented on the lack of a procedure or guidance for tracking reduction of habitat impacts from mitigation measures. These measures could include siting considerations, construction techniques, or other strategies that avoid or reduce impacts to sage grouse habitat, but are not specifically accounted for in the HQT model. Incorporating a standardized system for tracking impact reductions would be beneficial to project developers during the design phase and to the Program for tracking voluntary actions that would contribute to sage grouse conservation through avoidance or minimization. Reviewers #74 and #13 specifically ask for a mechanism to be included in the model that can account for additional credits from avoidance or minimization measures. Reviewer #63 states "the incentives for avoidance are likely not great enough to materially influence siting decisions". Reviewer #97 states that a mitigation instrument and a clear explanation of the contents of that instrument are very important components of the model. The underlying message for all of these comments appears to be that a clearly defined, transparent, and reliable method for alternate mitigation actions should be developed and incorporated into the fabric of the HQT model.

Third-Level Assessments - There were several comments commending the Program for including site-specific data into the HQT model, as mentioned in the HQT guidance documents. However, many expressed concerns that it was not clear how these site-specific data would be incorporated into the model output and that these procedures should be better defined. One specific third-level assessment that is very applicable to above-ground structures is a topographic analysis. This type of analysis can be completed via a desktop analysis of a site or a corridor using factors such as the height of a structure and publicly available digital terrain data. The topographic assessments are even more important with the recent revelation that the Program will consider some structures to be non-nesting,

thereby removing the potential for threats from territorial feeding by avian predators on nesting sage grouse. With that factor removed, the primary threat from non-nesting tall structures would be perceived threats from visibility of the structure by sage grouse.

Several peer-reviewers recommended that topography be included into the HQT output for a specific project. Reviewer #68 states that, "No consideration is given for visual obscurity of anthropogenic structures. If a transmission line is 1km away, but on the other side of a hill- it isn't a factor". With the inclusion of these analyses, project developers can adjust project siting or design, using readily available and reliably reproducible data, to include topographic considerations on habitat impacts for all types of projects, not just those associated with above-ground structures.

It is acknowledged that sage grouse move across landscapes and habitat. However, the rationale for the HQT basemap habitat variables is to determine likely sage grouse locations and therefore impacts. The Program has invested substantial time in developing habitat layers to identify "winter, breeding, and nesting habitats" as well as "early and late summer brood-rearing habitats". It is reasonable to assume that sage grouse will move between these areas of suitable habitat, with minimal time spent in unsuitable habitat. Consequently, the data are relied upon to measure probable sage grouse habitat use and impacts to those habitats and to grouse. Therefore, siting structures such that they are not visible from suitable habitat would clearly reduce the impacts of a structure to sage grouse as several peer-reviewers noted.

In summary, if the only threat from a tall structure is the perceived, i.e., visual threat, of that structure, then areas of suitable habitat that are not visible from the top of the structure should not be considered threats. The debit generated for those acres should be reduced to: a) acknowledge that sage grouse will not be impacted by a non-nesting structure they cannot see from suitable habitat; and b) incentivize project proponents to site facilities to reduce impacts. Because the Manual specifically identifies topography as a mitigating factor in several areas, an analysis of visible suitable habitat should be incorporated into the HQT, or at least as a third-level assessment.

Incorporation of Scientific Data - Some reviewers took exception to the fact that scientific experts were not included as members of the MSGOT committee. Specifically, they were critical that FWP biologists and academic experts are relegated to "advisory roles" or contribute only through literature. Based on several of the first few projects through the program, it appears that important decisions regarding the implementation of the HQT are based on detailed interpretations of complex data. Incorporating a science advisory team, as recommended by Reviewer #97, would likely help to bolster the scientific basis of HQT model assumptions and make the model output more reliable when utilized by project developers or wildlife conservationists alike. Reviewer #75 recommends incorporating FWP lek attendance data into the model as a method of more accurately predicting impacts to sage grouse populations. It would seem that these type of data could also be used to track actual impacts observed near existing projects and further refine the model. Incorporation of these types of data could also help to scientifically evaluate the effectiveness of the conservation program regarding actual sage grouse population trends.

Reclamation Curve - Peer reviewers and members of the public commented on the unnecessarily long recovery period for sage grouse habitat that is built into the model assumptions. Many of these reclamation assumptions are based on literature in which sagebrush was removed for several decades due to fire. Data from reclaimed areas show much reduced sagebrush recovery timeframes. Seeding sagebrush at densities of 1 kg pure live seed (PLS) per hectare has been shown to result in at least 1 shrub per square meter after six growing seasons (Hild et al. 2006). Actively seeding sagebrush on disturbed lands using established techniques and higher sagebrush seed rates has been shown to exceed this density within two growing seasons (Fortier 2000, Schuman and Booth 1998) and there is substantial experience and literature, particularly with regards to coal mines, demonstrating successful establishment methods for sagebrush (Jacobs et al. 2011, Shaw et al. 2005, Williams et al. 2002, Booth and Bai 2000, etc.). The potential for accelerated reclamation is acknowledged in the Manual, however, given that re-establishing sagebrush has proven methods, the model uses an overly pessimistic assumptions and requires a full payment based on a 75-year recovery curve which likely results in excessive mitigation payments upfront that require additional investment to document and provide to the Program for credit release. This seems like a cumbersome process that could be better managed through different assumptions of sagebrush establishment. The requirements for implementing proven sagebrush establishment techniques could be itemized within state permits to ensure their implementation.

Basis of Mitigation Cost Multiplier - Several reviewers commented on the need for transparency and more thorough explanations of the methods used to derive the $13 per acre mitigation cost. Reviewers #17, #41, and #75 comment specifically on the need for a detailed explanation of how the $13 figure was developed.

Tall Structures - Reviewer #47 is particularly critical of the manner in which tall structures and transmission lines are addressed. This reviewer recommends that the Program adopt a buffer of 1.5 km for tall structures until more scientific research has been completed on this subject. This reviewer has several other criticisms of the model and how it will be applied to above-ground structures which were hopefully reviewed by the Program and members of the MSGOT (reviewer responses are on pages 317-333 of Notes2 Appendix). It appears that the original model developers (SWCA Consultants) did not assign specific buffers for tall structures. Presumably this is because they, like Reviewer #47 and several other sage grouse ecologists, are not convinced that there are adequate data to definitively identify impacts specific to these structures that are not confounded by other anthropogenic variables, like towns and highways. The Program is charged with establishing buffers; however, we believe that because the effects of cell tower tall structures are frequently confounded by other variables, it is not prudent to adopt liberal buffers for indirect impacts until impacts specific to cell tower structures are analyzed independently of other anthropogenic impacts. We find that based on the literature cited in the Manual as well as elsewhere, there is limited demonstrated conservation benefit to sage grouse from 6-8 km cell tower buffers; whereas, the potential for public backlash to the program is high.

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Simulated Mitigation Calculations:

In the absence of publicly available HQT data to evaluate various impact scenarios we used the existing mitigation calculations for the proposed 199-foot tall tower at DY Junction to develop some comparisons. The data in the following table consists of the following:

- Physical impact acreages: Based on area contained within buffer areas of the various indirect impact radii proposed by the Program or recently by project proponents.
- Raw HQT Score: To do this we assumed that the average score of sage grouse habitat (reported as 0.71 of the total physical acres) in a given impact buffer is equal to that of the 14.5km buffer. This is unlikely, but a reasonable assumption and the best available without access to the HQT basemap.
- 20% Reserve: Reported as 20% of the Raw HQT score.
- Total Functional Acres: Sum of Raw HQT and 20% Reserve.
- Preliminary Mitigation Cost: A linear calculation of mitigation cost based on the total mitigation cost (provided from the HQT output using $13 per functional acre for the 14.5km buffer) divided by the estimated Total Functional (Func) Acres for all other impact buffers.
- Discount for Non-Nesting Structures: Assumes a 50% discount for utilizing a non-nesting tower.
- Percent Visible: Topographic calculation of how much area within a given impact buffer is visible from a height of 199-feet at the tower site.
- Discount for Non-Visible: Calculated by multiplying the Non-Nesting Discount figure by the percent of the area visible in a buffer – since this is the only are that could require visual mitigation.

		Functional Acres			Costs			
Radius from DY Tower Site (km)	Physical Acres	Raw HQT Score (Functional Acres)	20% Reserve	Total Func Acres	Preliminary Mitigation Cost	with Discount for Non-Nesting Structure	Percent Visible (top of 199ft tower)	with Discount for Non-Visible Areas
14.5	163218	116534	23307	139841	$ 1,817,933	$908,966.50	20%	$181,793.30
Following data based on linear assumptions from 14.5 km example								
8	49683	35275	7055	42330	$ 550,289	$275,144.45	39%	$107,306.34
6	27947	19842	3968	23811	$ 309,541	$154,770.49	45%	$ 69,646.72
4	12420	8818	1764	10582	$ 137,564	$ 68,781.96	64%	$ 44,020.45
1.5	1747	1240	248	1488	$ 19,350	$ 9,674.89	85%	$ 8,223.65

The 3% discount over time has not been applied to these values.

The most notable and relevant component of this table is the exponential relationship between physical acreage and impact radius. This is a relationship that is intuitive, but difficult to define when converting linear kilometers to acres. These areas are further amplified by the application of the $13/acre to the functional acre score, which is why a 4km difference in radius results in over $400K of mitigation costs. The discount columns provide a means of estimating actual mitigation cost reduction options. For instance, the Non-Visual Discount could help both Triangle and the Program understand what types impacts could reasonably be expected and what cost structures could be developed through a relatively simple analyses, in this case topography.

The following table evaluates proportional differences between an impact buffer and the acreage within that buffer and is intended to quantify the differences between the impact buffer and the physical acres within that radius. An exhibit such as this will help illustrate the impacts of these seemingly minor changes to the model input and could be helpful in future discussions with the Program. A copy of these calculations was previously provided to the Program to review as they consider questions of impact buffers and mitigation discounts.

Difference Comparison (Radius vs Acreage)			
Radius (km)	Percent of 14.5km Radius	Acres	Percent of 14.5 Acres
14.5	100%	163218	100%
8	55%	49683	30%
6	41%	27947	17%
4	28%	12420	8%
1.5	10%	1747	1%

9/26/18

Montana Sage Grouse Oversight Team

RE: Comments on the HQT and Mitigation Draft Policy dated July 2018

Dear Committee Members,

Thank you for the opportunity to comment on the draft policy and HQT documents put out by your department.

Montana – both the governor and legislature – made the commitment to start the sage grouse program in an effort to aid in its conservation, and hopefully keep from listing the birds as an endangered species. To date, it is considered simply a species of concern.

Montana has sage grouse not only because of these efforts, but those of a dedicated Fish Wildlife and Parks department that has managed the species well. The most important factor, however, has been the stewardship and conservation efforts by the private landowners within the state's borders. Because of this they now are in the position of being penalized because of their proximity to the species.

Those developing projects to serve the immediate needs of those living in general and core habitat areas will have to pay mitigation in order for the improvements to occur, thus paying a "fine" because of geographic locality. Those doing the projects will have to roll the expense over to those who are making the cost occur. This situation will ultimately result in animosity and acrimony towards not only the program, but the species – an untenable situation.

As such, we propose the following modifications

1. Consider building in components allowing for complete waivers of the calculated mitigation for public safety. As referenced in the letter from DNRC fire personnel, if communications towers would have been available, faster response and increased communication capability would have reduced the loss of habitat, which takes decades to recover. If needed, emergency response personnel have offered to give the same types of letters of support, discussing specific situations where cellular phones would have aided them in their responses to emergencies in these underserved areas.
2. The governor's EO-12-2015, H23, stipulates that maintenance activities within existing ROW may continue within the existing boundaries, even if they exceed the stipulations of this Conservation Strategy. Fiber optic cable is used to replace failing copper telephone lines and meets the conditions of this paragraph. Additionally, power lines replacing previously existing lines fits under the same parameters.
3. Under K 6, b & c, for economically feasible reasons the EO allows for power lines and communications towers to be placed outside of 0.6 mile lek buffer.
4. Human life and its safety must be a considering factor. Being able to dial 911 is critical in remote areas of Montana.

The spoken comments by the public and resulting reflections by several MSGOT members get to the heart of the issue – that of the calculated mitigation's impact on the economic feasibility of proposed projects in habitat. The model's current calculations will exclude any development and limit what

private landowners can do with their land. Time must be taken to get this right, or the resulting confrontation and escalation will reflect poorly on all involved, when we should be celebrating the special nature of this species. The Governor's Executive Order, and the legislature were clear in their intent that the MSGOT was not to become a regulatory body. The EO specifically references several instances where exceptions can be made if economic feasibility became a question. By creating a tool calculating exorbitant amounts of mitigation fees, it has become a regulatory body by making projects too expensive.

This public comment deadline – like the last one – was extended. We were told to anticipate a recalculated mitigation amount prior to the September MSGOT meeting. That did not occur. Finally, hours before the comment deadline, they are received.

Hours before the commenting deadline, the company received its recalculated mitigation amounts, with a myriad of unexplained factors and charges embedded within the total dollar amounts. While there are too many to adequately address in a short time frame, the following jump immediately to mind;

1. The previously built project, which we call the South Hays Supernode, was resubmitted to get a rough idea on what our costs would be for a project that included sage grouse habitat. DNRC personnel have stated it the least intrusive of any of the project types – yet the calculation shows they use a 500 meter buffer zone on each side of the line, and it yielded a figure roughly equating to $1,700 per mile, for a project that is only supposed to have one year's worth of impact. The increase in cost on this project would have amounted to 34% cost increase – a penalty that would have to be paid by the very people who've been providing the habitat. Ironically, the construction can't be completed until after the primary nesting season, which ends on July 20th; It could be argued, therefore, that the work does not impact a full year, but only those months before the new growth is completed, or snow covers the construction.
2. New fiber optic cable routes follow existing roads, which already have an anthropogenic effect; wouldn't it make sense that this buffer be built into the model, and then any additional distance where projects overlap that area be used to calculate the functional acres make sense?
3. There's a 10% charge incorporated into the calculation that is new to us; what is it for? For those practices that have extended reclamation periods and need something similar to a bond (like in a mining operation), the 20% additional fee might make sense – but it makes no sense when the impacts are indirect, and it should be waived.
4. Mitigation amounts at the September meeting were calculated for several oil, gas and mining developments. It doesn't make sense that a telecommunications company putting in fiber underground, with less total disturbed earth than any of the approved developments, or a 75 foot by 75 foot compound for a tower (that's less than 200 feet tall) would have more impact on habitat than those which were approved? If it doesn't make sense, it needs to be fixed.
5. Approximately $113.50/acre was recently spent on purchasing a conservation easement, a portion of which came from sage grouse funds. With that thought in mind, the mitigation amount requested by the state would virtually grant permanent protection on almost 8 square miles of land. Considering there is supposed to be an acre – for – acre trade off, it's difficult to believe the communications tower would have that large of an impact, especially when considering 85% of it cannot be seen from the lek.
6. The calculated amount for the South Hays Supernode telecommunications project with its map attachments showed the areas used to calculate the functional acreage were "double counted"

in several instances; there are significant overlaps that drove up the calculated amounts. Additionally, the amount calculated on the North Yantic tower should have been calculated at "zero" – but was significantly higher. The Tool is not ready.

Receipt of the mitigation calculations created more questions than they answered. While our staff have spent many hours trying to understand the research and calculations of the HQT and the policies of the MSGOT, the complexities overwhelm their abilities, given the time constraints involved. You can either have something of value everyone understands (doesn't mean everyone will agree with it!), or you can make the deadline

Respectfully,

/s/Tim Nixdorf

Director of Wireless Operations

Triangle Communications

Comment # 37

Sept. 20, 2018

Carolyn Sime
Sage Grouse Habitat Conservation Program
Montana DNRC
P.O. Box 201601
Helena, MT 59620-1601

Dear Carolyn:

I am writing to offer comment on the Sept. draft of the Sage Grouse Mitigation Program.

My first comment is a concern for the short amount of time allowed for comment. This suggests that the DNRC is trying to push something through without giving people ample time for comment. This comment period should be extended for at least an additional two weeks to allow for a fair sampling of public input.

A second comment centers around the cost of mitigation. It seems reasonable that a formula should be able to be created that would allow companies the ability to predict what the cost of mitigation might be for a project. This latest proposal leaves the cost of mitigation as an open-ended amount. The mentality of "what will the company be willing to pay" is misguided thinking. It serves as a means to be an obstructionist to development and that is not where the State of Montana should be. The costs being assessed to utilities and development companies will in the end be born by the end consumer. This looks a whole lot like a hidden tax that helps the DNRC line its pockets at the expense of development.

A final comment reminds you and your organization that our Governor Bullock has gone on record stating that the mitigation should be "economically feasible". The costs being suggested to a local telephone company in Havre for $1 million dollars per tower is not feasible, it is a crime that stands in the way of progress and would create added costs to the cooperatives end users that are not in the intent of true mitigation costs.

Thank you for allowing my input and please consider allowing more people to wat in on this issue.

Sincerely,

Brad Bauman

Brad Bauman
P.O. Box 592
Fairfield, MT. 59436

Comment # 38

9/26/18

RE: Draft Montana Mitigation System for Greater Sage-grouse, Policy Guidance document, and Administrative Rules

Dear Ms Sime:

The Big Sky Upland Bird Association is a Montana-based group of upland bird hunters. Several of us have been engaged in Greater Sage-grouse (GSG) population monitoring and conservation planning for over 15 years. Our members have served on your Sage-grouse Council, Upland Bird Citizen Advisory Committees of FWP and as co-chairs of the local sage-grouse working group in southwest Montana at Dillon.

The USFWS will regularly review its prior finding that GSG are "warranted but precluded" from listing under the federal Endangered Species Act (ESA). As such, it is incumbent upon Montana's mitigation program to provide demonstrably effective conservation of both sage-grouse habitats and populations. There are also several criteria which can be used to list this bird as threatened or endangered in the future, and key federal policies used to evaluate the likely effectiveness of non-federal conservation actions (USFWS PECE 2003). From this background and perspective we want to briefly comment on your current draft Montana Mitigation System for Greater Sage-grouse, and in particular the Policy Guidance component of your effort.

Energy development, and in particular the surface disturbances caused by drilling, roads, powerlines, vehicle traffic, pipelines, waste pits, pump jacks, well pads, and production water ponds, have been well documented to comprise on of the primary threats to Greater Sage-grouse habitats and breeding lek persistence.

Your draft documents and Administrative Rules appears constrained by some of the specific details of Montana Executive Orders 12-2015 and 21-2015. The .25 mile No Surface Occupancy (NSO) provision in General Habitat, and the .6 mi NSO provision in Core Habitat, while these are stipulations that has been used repeatedly in other states such as Wyoming, is NOT based on science. This stipulation will not protect leks or sage-grouse. In fact the 0.25 mile and 0.6 mi. buffers have repeatedly been shown by researchers to be an inadequate protective measure to maintain GSG lek activity, and are highly likely to damage those breeding populations and habitats. Furthermore, limiting new disturbance in a project area to 5% will not necessarily or adequately preventing fragmentation of GSG habitat. The 5% surface disturbance cap stipulation would allow the potential disturbance of 32 acres of each section (square mile) of state land, and in combination with the NSO in core habitat of .6 mi. would allow placement of surface facilities on each section of state land, regardless of lek location or importance to the local lek complex. These stipulations will not ensure lek persistence (Holloran 2005, Walker et al. 2007, Manier et al. 2014).

USFWS Participation and Lack of Concurrence

The USFWS participated extensively in the meetings of Montana's Sage-grouse Council, seated by Gov. Bullock in Spring 2013. Unfortunately that 12 member council was biased towards protecting economic interests over conserving sage-grouse populations and intact sagebrush habitats. The USFWS provided pages of substantive comments on the October draft report of the Council aimed at improving the certainty of effective conservation of GSG. During the Council's January 14-15, 2014 draft revision work session, the Council consistently voted to remove most of the USFWS' suggestions. As a result, the

Council's final report was passed to the Governor only after a split vote by members. Your mitigation effort relies upon both the E.O.s and the Sage-grouse Council report as foundational documents, and as such falls short of providing key science-based conservation practices or conservation policies recommended by federal wildlife authorities in your implementation. Furthermore, recent 2017 state legislation expressly directs your effort be developed only "in consideration of" USFWS policies relevant to sage grouse conservation.

Conservation Easements Ignoring Energy Development Rights Can Fail to Conserve GSG
To date, the proposals for acquisition of mitigation properties we have reviewed have not included acquisition, limitations or suspension of mineral rights, either by the surface owners or royalty holders in split-estate situations. Nor have conservation easement terms proposed by The Nature Conservation or the Montana Land Reliance restricted surface disturbance related specifically to potential future oil and gas energy development.

With the above in mind, does anything in your mitigation policy assure or guarantee that acquired mitigation properties on private land in core or general GSG habitat can not be subjected to energy-related surface disturbances otherwise allowable through DNRC energy development policies, guidelines, permitting or stipulations? If not, this is a significant omission to developing reliable and effective long-term protections of Montana's sage-grouse habitat and strategies to sustain populations, and grossly undermines the likelihood that private or agency conservation easements or outright acquisitions will be effective means of protecting sage-grouse populations from long-term decline.

Conclusion
While your draft documents and draft Administrative Rules deal with a range of other types of impacts, much of which may be helpful to conserving GSG, there appears to be substantial and significant exceptions in the case of energy development which may minimize the efficacy of your mitigation program under current and future energy development scenarios.

Your plan and current Executive Order, while an excellent initial effort in several regards, fails to meet several key federal criteria regarding likelihood of the effectiveness and implementation of Montana's GSG conservation efforts. Action is needed by your office and conservation easement entities for Montana to meet additional conservation criteria in clear and unambiguous ways.

Please strengthen the surface disturbance stipulations related to energy development on mitigation properties to comport with the best available science related to GSG habitat and population conservation. Anything less that this risks the continued decline and extirpation of GSG populations, future listing under the federal ESA, and loss of management authority by the state of Montana for this species.

Thank you for your work on this planning effort, and for the opportunity to comment.

Sincerely,

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