

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

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**ENVIRONMENTAL ASSESSMENT**

**FOR PHASE I WIND TURBINE DEVELOPMENT**

**Chokecherry and Sierra Madre (CCSM)  
Wind Energy Project (EA 2)  
DOI-BLM-WY-D030-2016-0046-EA**

**January 2017**

**U.S. Bureau of Land Management  
High Desert District  
Rawlins Field Office**

**1300 N. Third Street  
Rawlins, Wyoming 82301  
Phone: 307-328-4200  
Fax: 307-328-4224**

High Desert District – Rawlins Field Office



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**DOI-BLM-WY-D030-2016-0046-EA**

# ENVIRONMENTAL ASSESSMENT

DOI-BLM-WY-D030-2016-0046-EA

JANUARY 2017

## CHOKECHERRY AND SIERRA MADRE WIND ENERGY PROJECT

### ENVIRONMENTAL ASSESSMENT FOR PHASE I WIND TURBINE DEVELOPMENT, CARBON COUNTY, WYOMING

*Location:* Township 17 N, Range 87 W, Sections: 6, 7, 18, 19  
Township 17 N, Range 88 W, Sections: 1, 2, 3, 4, 5, 9, 10, 11, 12, 13, 14, 15, 22, 23, 24  
Township 18 N, Range 87 W, Sections: 1, 2, 3, 4, 5, 6, 7, 18, 19, 20, 29, 30  
Township 18 N, Range 88 W, Sections: 1, 2, 3, 7, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 32, 33, 34, 35  
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Township 19 N, Range 86 W, Section: 7  
Township 19 N, Range 87 W, Sections: 1, 3, 12, 13, 23, 24, 25, 26, 31, 33, 34, 35, 36  
Township 20 N, Range 86 W, Sections: 30, 31  
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Township 20 N, Range 88 W, Sections: 1, 12, 13, 14, 24  
Township 21 N, Range 86 W, Sections: 31, 32, 33  
Township 21 N, Range 87 W, Sections: 24, 32, 33

*Applicant/Address:* Power Company of Wyoming LLC  
555 Seventeenth Street, Suite 2400  
Denver, CO 80202

U.S. Department of the Interior  
Bureau of Land Management  
Rawlins Field Office  
1300 North Third Street  
P.O. Box 2407  
Rawlins, WY 82301  
Phone: (307) 328-4200  
Fax: (307) 328-4224

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## ACRONYMS AND ABBREVIATIONS

ACM	applicant-committed measure	NST	National Scenic Trail
APAI	Area of Potential Adverse Impacts	NTP	Notice to Proceed
APP	Avian Protection Plan	PCW	Power Company of Wyoming LLC
ARMPA	Approved Resource Management Plan Amendment	PEIS	Programmatic Environmental Impact Statement
AUM	Animal Unit Month	PFYC	Potential Fossil Yield Classification
BBCS	Bird and Bat Conservation Strategy	PHMAs	Priority Habitat Management Areas
BLM	U.S. Bureau of Land Management	PI	Potentially Impacted
BMP	best management practice	Rail Facility	West Sinclair Rail Facility
CCSM Phase I	Phase I of the CCSM Wind Energy Project	Ranch	Overland Trail Ranch
CCSM Project	Chokecherry and Sierra Madre Wind Energy Project	RFO	Rawlins Field Office
CDNST	Continental Divide National Scenic Trail	RMP	Resource Management Plan
CFR	Code of Federal Regulations	ROD	Record of Decision
CWR	crucial winter range	ROW	right-of-way
DEQ	Department of Environmental Quality	RV	recreational vehicle
DOI	U.S. Department of the Interior	SCADA	Supervisory Control and Data Acquisition
EA	Environmental Assessment	SHPO	State Historic Preservation Office
ECP	Eagle Conservation Plan	SLRU	Sensitivity Level Rating Unit
EIS	Environmental Impact Statement	SPOD	site-specific plan of development
ESA	Endangered Species Act	SQRU	Scenic Quality Rating Unit
ETP	Eagle Take Permit	TOTCO	The Overland Trail Cattle Company LLC
FEIS	Final Environmental Impact Statement	U.S.	United States
GHMAs	General Habitat Management Areas	U.S.C.	U.S. Code
GIS	geographic information system	USACE	U.S. Army Corps of Engineers
I-	Interstate	USFWS	U.S. Fish and Wildlife Service
ID Team	Interdisciplinary Team	VRM	Visual Resource Management
IM	Instruction Memorandum	WDA	wind development area
KOP	Key Observation Point	WGFD	Wyoming Game and Fish Department
kV	kilovolt	WUS	Waters of the U.S.
MW	megawatt	WY	Wyoming
N/A	Not Applicable	WYNDD	Wyoming Natural Diversity Database
NEPA	National Environmental Policy Act		
NHPA	National Historic Preservation Act		
NHT	National Historic Trail		
NI	Not Impacted		
NP	Not Present		
NRCS	Natural Resources Conservation Service		
NRHP	National Register of Historic Places		

## **CHAPTER 1 – INTRODUCTION AND NEED FOR PROPOSED ACTION**

**THIS ENVIRONMENTAL ASSESSMENT IS TIERED TO THE CHOKECHERRY AND SIERRA MADRE WIND ENERGY PROJECT FINAL ENVIRONMENTAL IMPACT STATEMENT (EIS) AND INCORPORATES BY REFERENCE THE ANALYSIS AND OTHER CONTENT CONTAINED IN THE FINAL EIS AND RECORD OF DECISION.**

### *Identifying Information*

**Title:** Environmental Assessment for Phase I Wind Turbine Development

**EA Number:** DOI-BLM-WY-D030-2016-0046-EA

**Proposed Action:** Construction of Phase I wind turbine generators and associated facilities. For ease of reference in this Environmental Assessment (EA), “Proposed Action” refers to the wind turbine generators and associated facilities described in the site-specific plan of development for the Phase I Wind Turbine Development filed with the Bureau of Land Management (BLM) by Power Company of Wyoming LLC (PCW).

**Location:** Township 17N, Range 87-88W; Township 18N, Range 87-89W; Township 19N, Range 86-87W, Township 20N, Range 86-88W; Township 21N, Range 86-87W, across a total of 126 sections in Carbon County, Wyoming

**Preparing Office:** Rawlins Field Office (RFO)

**Lease/Case File Number:** WYW-167155

**Applicant:** Power Company of Wyoming LLC

## **1.1 Introduction**

This EA is being prepared consistent with the tiering procedures outlined in Appendix C to the Record of Decision (ROD) for the Chokecherry and Sierra Madre Wind Energy Project (CCSM Project ROD [BLM 2012a]) signed by the BLM’s Acting Director on September 28, 2012, and approved by the Secretary of the Interior on October 9, 2012. The CCSM Project ROD (BLM 2012a) was based on the project-level final environmental impact statement (FEIS) prepared by the BLM for the Chokecherry and Sierra Madre Wind Energy Project (CCSM Project FEIS [BLM 2012b]). As described in Appendix C of the CCSM Project ROD (BLM 2012a), tiering uses the coverage of general matters in broader National Environmental Policy Act (NEPA) documents (e.g., the CCSM Project FEIS) in subsequent, narrower NEPA documents (e.g., this EA). This allows the tiered NEPA document to narrow the range of alternatives and focus on any issues not already addressed. Tiering is used when the analysis for the proposed action is a refinement of the existing NEPA document.

The CCSM Project ROD (BLM 2012a) determines that wind energy development is appropriate within a portion of the 219,707-acre conceptual area of development described in detail and referred to as the Application Area (or 2012 ROD boundary) (Map 1-1) in the CCSM Project FEIS (BLM 2012b). However, the CCSM Project ROD (BLM 2012a) does not authorize site-specific construction of the individual project components analyzed in the CCSM Project FEIS (BLM 2012b). Instead, the CCSM Project ROD (BLM 2012a) explains that PCW intends to submit separate site-specific plans of development (SPODs) for individual components of the project, and the BLM will render decisions on those SPODs following site-specific review as described in Appendix C to the CCSM Project ROD (BLM 2012a; provided as Appendix A to this EA and herein referred to as the Tiering Procedures).

Subsequently, in April 2014, PCW submitted three SPODs for Phase I Infrastructure Components to the BLM for review: (1) Phase I Haul Road and Facilities; (2) West Sinclair Rail Facility; and (3) Road Rock Quarry. The BLM analyzed the impacts of the construction, operation, maintenance, and decommissioning of these components in the EA for Infrastructure Components (BLM 2014a) that was released for public review on August 11, 2014. The BLM prepared this EA for Phase I Wind Turbine Development in response to PCW's submittal of the SPOD for the construction, operation, maintenance, and decommissioning of the Phase I Wind Turbine Development, described below and in the attached SPOD (PCW 2015a). The Phase I Wind Turbine Development SPOD and its appendices are incorporated by reference in this EA as permitted by 40 Code of Federal Regulations (CFR) 1502.21. The Phase I Wind Turbine Development SPOD is included in this EA on compact disc as Appendix D, is available electronically on the BLM website, and printed copies are available for review in the BLM RFO.

The BLM's review of PCW's 2,000–3,000 megawatt (MW) wind energy project, located in the checkerboard area of public and private land in Carbon County, Wyoming, began in 2008. In August 2012, President Obama identified the proposed Chokecherry and Sierra Madre Wind Energy Project (CCSM Project) as a Nationally or Regionally Significant Project for Renewable Energy. Supporting President Obama's June 2013 Climate Action Plan, the nameplate capacity of the CCSM Project will provide enough electricity to power more than 790,000 households.

In January 2008, PCW applied to the BLM for right-of-way (ROW) grants to construct, operate, maintain, and decommission the CCSM Project on the Overland Trail Ranch (Ranch) in Carbon County, Wyoming. More than half of the Ranch consists of privately-owned land, which is intermingled with federal land administered by the BLM. As lead federal agency, the BLM commenced preparation of an EIS, in coordination with other federal, state, and local governmental agencies. Public scoping was completed in 2008, the Draft EIS was released for public comment on July 22, 2011, and, on June 29, 2012, the Notice of Availability for the FEIS on the CCSM Project was published in the Federal Register (77 Federal Register 63328). The CCSM Project ROD (BLM 2012a) was signed by the BLM's Acting Director on September 28, 2012, and approved by the Secretary of the Interior on October 9, 2012.

The CCSM Project FEIS (BLM 2012b) summarizes the components of the CCSM Project as follows:

- A 2,000 to 3,000 MW wind farm consisting of approximately 1,000 wind turbine generators each with a nameplate capacity ranging from 1.5 to 3 MW;
- Development of step-up transformers, underground and overhead electric collection and communication lines, electric substations, rail distribution facility, operations and maintenance facilities, and laydown areas;
- Haul road and transmission connection between the Chokecherry Wind Development Area and the Sierra Madre Wind Development Area;
- Construction of new roads and the upgrade of existing roads; and
- Power from the wind farm to be transmitted via overhead electric transmission lines that would connect to a new substation in the Application Area. (BLM 2012b, p. ES-1.)

The wind turbine generators are to be constructed in two phases: Phase I Wind Turbine Development will consist of up to 500 turbines and Phase II Wind Turbine Development will consist of up to 500 turbines. The BLM will comply with NEPA and the CCSM Project ROD (BLM 2012a) by analyzing the Phase II Wind Turbine Development in a separate NEPA document. The Chokecherry and Sierra Madre Wind Development Areas and the phase boundaries within each of these Wind Development Areas (WDAs) are shown in Map 1-1.

The project-level FEIS was based on a conceptual plan of development prepared by PCW (CCSM Project ROD [BLM 2012a], Appendix B). The conceptual turbine and facility sites guided the BLM's preparation of its impacts analysis for the overall project. That analysis assumed "the greatest potential for disturbance" so that impacts identified at the time of micro-siting the various project components

would most likely not exceed those impacts described in the EIS (CCSM Project ROD [BLM 2012a], p. 3-1). The CCSM Project ROD (BLM 2012a) explained that BLM would use the Tiering Procedures to “closely evaluate the site-specific plans of development to determine whether the impacts exceed the disturbance estimates from the conceptual layouts that served as the basis for determining significance of impacts in the project-wide level EIS” (BLM 2012a, p. 3-1).

In accordance with the CCSM Project ROD (BLM 2012a), PCW submitted the Phase I Wind Turbine Development SPOD to the BLM. PCW requests the BLM issue a ROW grant to construct, operate, maintain, and decommission these integral components of the CCSM Project. The requested ROW grant is for a term of 30 years, after which, subject to market conditions, the CCSM Project may be decommissioned or repowered as necessary to continue its operations. The CCSM Project ROD authorizes the BLM to issue separate ROW grants for the Phase I Wind Turbine Development analyzed in this EA and the CCSM Project Infrastructure Components (i.e., Phase I Haul Road and Facilities, West Sinclair Rail Facility, and Road Rock Quarry, which were analyzed in a separate EA [BLM 2014a]). Notices to Proceed (NTPs) for individual SPODs would be issued as the permitting requirements are completed.

The Tiering Procedures outlined in the CCSM Project ROD (BLM 2012a), which are attached to this EA as Appendix A, contain a detailed description and flow chart explaining the NEPA tiering process to be used by the BLM in analyzing the Phase I Wind Turbine Development SPOD. Following the Tiering Procedures, the BLM has concluded that there may be some impacts from the facilities proposed in the Phase I Wind Turbine Development SPOD that may warrant evaluation beyond the analysis in the CCSM Project FEIS (BLM 2102a), and therefore the BLM prepared this EA. The CCSM Project FEIS analyzed and disclosed environmental impacts, including significant impacts to some environmental resources. This EA screens the Phase I Wind Turbine Development SPOD and the additional impacts described in the EA for Phase I Infrastructure Components, against the analysis conducted in the CCSM Project FEIS to assess and disclose any additional or new environmental impacts, which will assist the BLM in determining whether any such new impacts are significant. This EA incorporates the analysis and other content contained in the CCSM Project FEIS (BLM 2012b) and the CCSM Project ROD (BLM 2012a). As provided in the Tiering Procedures, this EA will not re-analyze the effects on resources that were fully analyzed in the project-wide CCSM Project FEIS (BLM 2012b) (CCSM Project ROD [BLM 2012a], Appendix C, p. C-6; also attached to this EA as Appendix A).

This EA tiers to and incorporates by reference the BLM’s 2012 CCSM Project FEIS. In addition, this EA incorporates by reference analyses presented in the U.S. Fish and Wildlife Service’s (USFWS) 2016 FEIS for Eagle Take Permits (ETPs) for the CCSM Phase I Wind Energy Project (USFWS FEIS). Finally, analysis for impacts to Greater Sage-Grouse as a result of wind energy development presented in the BLM’s 2015 Greater Sage-Grouse RMP amendments is also incorporated by reference.

The USFWS FEIS focused on the effects to biological resources and described and evaluated in detail with regard to their potential for being affected by the take of bald and golden eagles and other special status species. The resources evaluated in the USFWS FEIS are water resources (Section 3.3); vegetation and wetlands (Section 3.4); fish, amphibians, and reptiles (Section 3.5); mammals (Section 3.6); birds (other than eagles) (Section 3.7); eagles (Section 3.8); and cultural resources (Section 3.9). Each of these topics was evaluated in the BLM CCSM Project FEIS and ROD. This EA is including by reference these sections that were analyzed in detail in the USFWS FEIS.

Based on site-specific engineering of CCSM Project components, PCW developed a 171,251-acre site-specific Project Area to include areas in which CCSM Project components (infrastructure, wind turbines, etc.) are proposed (see Map 1-1). The Phase I Wind Turbine Development Site term corresponds to the 3,035-acre initial disturbance area associated with the wind turbine generators, including 485 acres of long-term disturbance, and 440 acres of activity areas (i.e., where project activities may occur that do not

require ground disturbance [would not be cleared or graded]; thick vegetation higher than one foot may be trimmed to allow for safe vehicle access and minimize fire potential).

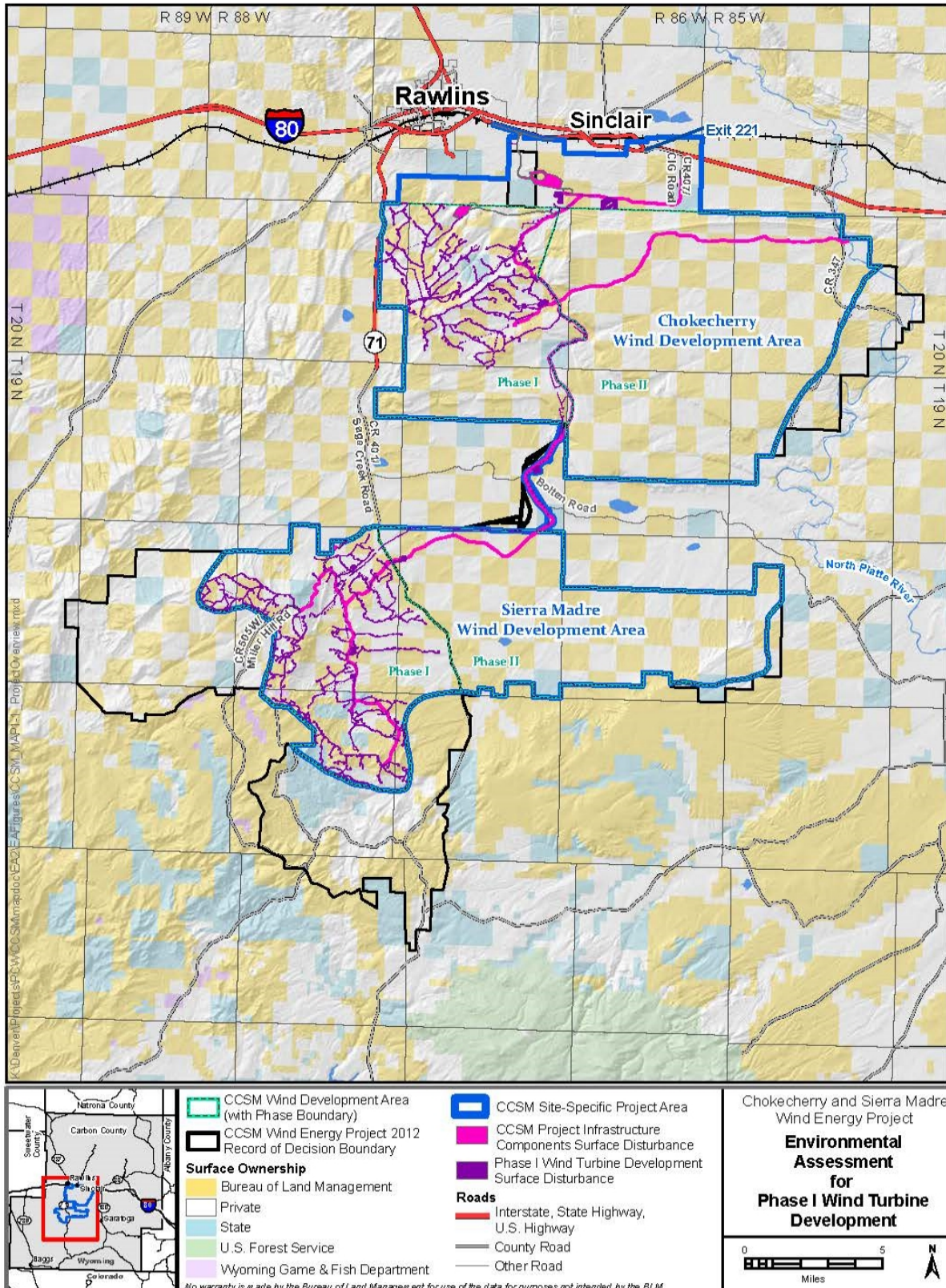
Capitalized terms used in this EA but not defined in this document have the same meaning as used in the CCSM Project FEIS (BLM 2012b). The CCSM Project FEIS (BLM 2012b) and CCSM Project ROD (BLM 2012a) are available on the BLM RFO website (<http://www.blm.gov/wy/st/en/info/NEPA/documents/rfo/Chokecherry.html>).

## **1.2 Summary of Phase I Wind Turbine Development SPOD**

PCW has prepared and filed with the BLM the Phase I Wind Turbine Development SPOD for the Phase I Wind Turbine Development (PCW 2015a). The wind turbine generators and associated facilities of this SPOD are summarized below, shown in Map 1-1, and further described in detail in Chapter 2 (*Proposed Action and Alternatives*).

The Phase I Wind Turbine Development includes up to 500 wind turbine generators and associated facilities for the CCSM Project such as roads, electrical lines, substations, operation and maintenance buildings, meteorological towers, utilities, and temporary construction features. The Phase I Wind Turbine Development would occur in the western portions of the Chokecherry and Sierra Madre Wind Development Areas and would provide approximately half of the electricity (about 1,500 MW) needed to generate renewable energy that meets the objectives of the CCSM Project. Phase I of the Sierra Madre WDA would be constructed first followed by Phase I of the Chokecherry WDA. If Phase I is approved, then PCW plans to install 229 wind turbine generators in 2019 and 271 wind turbine generators in 2020.

**Map 1-1. Chokecherry and Sierra Madre Wind Energy Project Location and Phase I Wind Turbine Development**



### **1.3 Purpose and Need**

The Proposed Action would develop up to the first half of the CCSM Project’s electrical generation, specifically up to 500 wind turbine generators and associated facilities, to support renewable energy development. The BLM’s purpose and need for the Proposed Action is to respond to PCW’s ROW application, in accordance with the Federal Land Policy and Management Act (FLPMA) and other applicable laws, and to comply with the procedures set out by the BLM in the CCSM Project ROD (BLM 2012a).

The objectives for the CCSM Project itself are described in Chapter 1 of the CCSM Project FEIS (BLM 2012b) and are incorporated herein by reference. The economic viability of the CCSM Project has always been based on sizing it as a utility scale project due to the lack of existing transmission and the distance to the market in the Desert Southwest. The CCSM Project, with a total of 1,000 wind turbine generators and an installed capacity of 3,000 MW in two phases of 500 turbines (1,500 MW) is economically viable and achieves PCW’s interests and objectives.

The wind turbine generators and associated facilities analyzed in this EA represent the first half of the CCSM Project’s electrical generation (500 turbines with an installed capacity of approximately 1,500 MW). The Phase I Wind Turbine Development is designed to extract the maximum potential wind energy from the Phase I Wind Turbine Development Site, while avoiding resources of concern to the extent possible and complying with the requirements of the BLM’s Selected Alternative in the CCSM Project ROD (BLM 2012a). The Phase I Wind Turbine Development would be constructed on an optimized schedule, efficiently, and cost-effectively. Construction, operation, maintenance, and decommissioning of the Phase I Wind Turbine Development relies on infrastructure to be built including the Phase I Haul Road and Facilities, West Sinclair Rail Facility, and Road Rock Quarry, collectively referred to as the CCSM Project Infrastructure Components.

### **1.4 Decisions to be Made**

This EA is a step toward implementing the decision “to accept and evaluate future ROW applications for wind energy development and associated facilities on public lands” as described in the CCSM Project ROD (BLM 2012a, p. 3-1). Because this EA is tiered to the project-wide level CCSM Project FEIS (BLM 2012b), the BLM will first decide whether the impacts of the wind turbine generators and associated facilities discussed above have been adequately analyzed in the CCSM Project FEIS (BLM 2012b) (see Tiering Procedures, CCSM Project ROD [BLM 2012a], Appendix C, p. C-6). As stated in the CCSM Project ROD (BLM 2012a, Appendix C, p. C-6), “the tiered EA for the SPOD does not need to re-analyze the effects on resources fully analyzed in the project-wide level EIS.” This EA therefore focuses on the effects of the Phase I Wind Turbine Development SPOD that warrant analysis beyond the evaluation in the CCSM Project FEIS (BLM 2012b). If, through this EA, the BLM determines that the impacts of the Phase I Wind Turbine Development SPOD were adequately analyzed in the CCSM Project FEIS (BLM 2012b) and/or if the analysis in this EA concludes that any additional effects will be insignificant or can be mitigated to insignificance, then the Authorized Officer may grant a ROW for the Phase I Wind Turbine Development SPOD, subject to the environmental constraints, applicant-committed measures (ACMs) and best management practices (BMPs) identified in the CCSM Project ROD (BLM 2012a). The CCSM Project ROD would allow the BLM to issue separate ROW grants for the Phase I Wind Turbine Development analyzed in this EA and the CCSM Project Infrastructure Components (analyzed in a separate EA [BLM 2014a]) (collectively Phase I of the CCSM Project). Notices to Proceed (NTP) for individual SPODs would be issued as permitting requirements are completed.

The ROW grant for the Phase I Wind Turbine Development will also be subject to additional constraints identified in the Cultural Resources Programmatic Agreement (CCSM Project ROD [BLM 2012a], Appendix E, as amended in 2014), Biological Opinion (CCSM Project ROD [BLM 2012a], Appendix F),



Wildlife Monitoring and Protection Plan (CCSM Project ROD [BLM 2012a], Appendix G), any additional requirements developed through the Avian Protection Plan (APP) (also referred to as the Bird and Bat Conservation Strategy [BBCS]), Eagle Conservation Plan (ECP), and any mitigation measures identified in this EA and incorporated in the decision on the Phase I Wind Turbine Development SPOD. If the BLM determines that any element of the Phase I Wind Turbine Development SPOD has significant impacts beyond those previously analyzed and disclosed in the CCSM Project FEIS (BLM 2012b) that cannot be mitigated to insignificance, then the BLM would prepare an EIS, tiered to the project-wide level CCSM Project FEIS (BLM 2012b), before approving that Project element.

## **1.5 Conformance with the BLM Rawlins Resource Management Plan**

The CCSM Project, including the Phase I Wind Turbine Development SPOD, is subject to the BLM's 2008 Rawlins Resource Management Plan (RMP), approved on December 24, 2008 (BLM 2008a), as amended by the CCSM Project ROD (BLM 2012a) and the September 22, 2015, Greater Sage-Grouse ROD and Approved RMP Amendments for the Rocky Mountain Region, including the Greater Sage-Grouse Sub-Regions of Lewiston, North Dakota, Northwest Colorado, Wyoming and the Approved RMPs for Billings, Buffalo, Cody, HiLine, Miles City, Pompeys Pillar National Monument, South Dakota, Worland (BLM 2015a) (Regional ROD), which includes Approved RMP Amendments for Wyoming (Wyoming ARMPA) (BLM 2015a, Attachment 4). The CCSM Project is in conformance with the 2008 Rawlins RMP, as amended. See Section 3.6.3 of the CCSM Project ROD (BLM 2012a), and the discussion below.

When formulating the proposed CCSM Project, as analyzed in the CCSM Project FEIS (BLM 2012b) (including the Phase I Wind Turbine Development SPOD), the BLM was guided by the policies and procedures in BLM Wyoming Instruction Memorandum (IM) No. 2012-019 relating to Greater Sage-Grouse habitat and sagebrush management. Following publication of the Greater Sage-Grouse Regional ROD, the BLM reviewed the requirements of the Wyoming ARMPA (BLM 2015a, Attachment 4) and determined the CCSM Project (including the Phase I Wind Turbine Development SPOD) is in conformance with all applicable requirements of the Wyoming ARMPA (BLM 2015a, Attachment 4). The Wyoming ARMPA allocated land in General Habitat Management Areas (GHMAs) as open to wind energy development (BLM 2015a, Attachment 4). The CCSM Project is located entirely in GHMAs and is not sited within any Priority Habitat Management Areas (PHMAs). Further, the CCSM Project complies with all other applicable requirements for development within GHMAs, including the Best Management Practices outlined in Appendix C to the Wyoming ARMPA. See also Section 3.9.2.2.

## **1.6 Relationship to Applicable Laws, Regulations, and Policies**

In preparing this EA, the BLM complied with all applicable laws, regulations, and policies, including but not limited to, NEPA, 42 U.S.C. 4321 et seq., the regulations issued by the Council on Environmental Quality and the Department of the Interior (DOI), 40 CFR 1500–1508 and 43 CFR part 46, guidance documents including DOI requirements contained in Department Manual 516, Environmental Quality (BLM 1980), Department Manual 600 DM 6, Landscape-Scale Mitigation Policy (USDOI 2015), Secretarial Order No. 3330, Improving Mitigation Policies and Practices of the Department of the Interior (USDOI 2013), Presidential Memorandum: Mitigating Impacts on Natural Resources from Development and Encouraging Related Private Investment (White House 2015), guidelines listed in the BLM NEPA Handbook, H-1790-1 (BLM 2008b), and Guidelines for Assessing and Documenting Cumulative Impacts (BLM 1994). This EA was developed in accordance with the Tiering Procedures outlined in the ROD. (Tiering Procedures, CCSM Project ROD [BLM 2012a], Appendix C, p. C-6). Finally, Section 1.6.2 in

the CCSM Project FEIS (BLM 2012b) contains additional information on the CCSM Project’s relationship to other laws, ordinances, regulations, and statutes.

## **1.7 ROW Grant and Notice to Proceed Procedure**

Phase I of the CCSM Project includes both the Phase I Infrastructure Components (SPODs 1, 2, and 3) and the Phase I Wind Turbine Development (SPOD 4). The CCSM Project ROD allows the BLM to issue separate ROW grants for the Phase I Wind Turbine Development analyzed in this EA and the Phase I Infrastructure Components, which were analyzed in a separate EA (BLM 2014a). See CCSM Project ROD at 3-8 (BLM 2012a).

The CCSM Project ROD requires that two conditions be met prior to the BLM issuing a ROW grant: (1) PCW has developed an adequate Compensatory Mitigation Plan for cultural resources; and (2) the USFWS has reviewed and issued its concurrence on the applicable ECP and APP (or BBCS). See CCSM Project ROD at 3-1 (BLM 2012a). As described below, both conditions have been met.

The BLM has determined that PCW has developed an adequate Compensatory Mitigation Plan for cultural resources for the CCSM Project, including Phase I. In accordance with the Programmatic Agreement among the BLM, Wyoming State Historic Preservation Office (SHPO), the Advisory Council on Historic Preservation (ACHP), and PCW regarding adverse effects to historic properties resulting from the CCSM Project in Carbon County, Wyoming, the BLM, with the concurrence of the Wyoming SHPO, has developed a Compensatory Mitigation Plan designed to mitigate adverse effects on certain historic properties. The Compensatory Mitigation Plan has been appended to the Programmatic Agreement for the CCSM Project.

In addition, as required by the CCSM Project ROD, PCW has developed an Eagle Conservation Plan for Phase I of the CCSM Project in coordination with USFWS. See CCSM Project ROD at 3-1 (BLM 2012a). The Phase I ECP includes the data collected for eagles, the avoidance, minimization, and conservation measures designed to minimize risks to eagles to the extent practicable such that any remaining take is unavoidable, and monitoring provisions to determine the effectiveness of these measures. See CCSM Project ROD at 1-2 (BLM 2012a). The Phase I ECP also details the compensatory mitigation measures developed and adopted by PCW to address anticipated eagle fatalities, as described by the CCSM Project ROD and required by USFWS in connection with PCW’s application for an ETP. See CCSM Project ROD at 3-3 (BLM 2012a).

Further, PCW has worked cooperatively with USFWS and WGFD to develop a Bird and Bat Conservation Strategy for Phase I of the CCSM Project. As described in the CCSM Project ROD, the Phase I BBCS includes avoidance, minimization, and compensatory measures to reduce risks to migratory birds and bats. See CCSM Project ROD at 4-3 (BLM 2012a). PCW has committed to implement the measures and compensatory mitigation set out in the Phase I ECP and BBCS.

The BLM has reviewed PCW’s Phase I ECP and BBCS and will incorporate the applicable commitments in the Phase I ECP and BBCS into any Phase I ROW grants. See CCSM Project ROD at 1-2 (BLM 2012a). In addition to developing the required Phase I ECP and BBCS, PCW has voluntarily applied for ETPs for Phase I of the CCSM Project. After reviewing the ECP and preparing an EIS to analyze the environmental effects of issuing ETPs, the USFWS authorized the issuance of ETPs on January 12, 2017 (USFWS 2017a). In addition, the USFWS issued a letter of concurrence to the BLM on the APP/BBCS and ECP on January 13, 2017 (USFWS 2017b).

The direct take of an eagle from the infrastructure components is not anticipated and as such, the USFWS does not contemplate the issuance of an ETP for the Phase I Infrastructure Components. See Decision Record for “EA Infrastructure Components: Phase I Haul Road and Facilities, West Sinclair Rail Facility, and Road Rock Quarry, for the Chokecherry and Sierra Madre (CCSM) Wind Energy Project”).

On August 9, 2016, the USFWS issued a letter of concurrence on the Phase I Infrastructure Components and the BLM authorized the ROW grant on August 25, 2016.

## **1.8 Scoping, Public Involvement, and Identification of Issues**

NEPA regulations (40 CFR 1501) require that the BLM use a scoping process to identify potential significant issues in preparation for impact analysis. The goals of scoping are to identify issues and determine the scope of analysis for those issues.

**Internal Scoping:** An Interdisciplinary Team (ID Team) meeting was held on August 26, 2014. The ID Team reviewed the Phase I Wind Turbine Development SPOD, determined issues of concern for multiple resources, assessed the adequacy of the initial assessment in the CCSM Project FEIS (BLM 2012b), and determined which resources required additional site-specific assessment in this EA. The results of the internal scoping are summarized in Appendix B, and the resources for which the BLM determined additional analysis was necessary are addressed in this EA.

**External Scoping:** External scoping for the Phase I Wind Turbine Development EA was initiated on December 4, 2013; on December 6, 2013 the BLM issued a press release announcing the public scoping period. On December 16 and 17, 2013, the BLM conducted two public scoping meetings, one in Saratoga and one in Rawlins, to describe the Phase I Wind Turbine Development and to receive public comments. The scoping period ended on January 14, 2014. The BLM published the Scoping Summary Report in September 2014 (BLM 2014c). The report includes detailed information on scoping and copies of all materials presented to the public. Issues identified by public comments, as well as by the ID Team, are summarized in Appendix B and addressed in this EA.

**Site-Specific Surveys:** Consistent with ACMs outlined in Appendix D of the CCSM Project ROD (BLM 2012a) (provided as Appendix C of this EA), the BLM and PCW conducted onsite inspections for specific resources (e.g., cultural and biological) in 2012, 2013, and 2014, and PCW incorporated the outcomes of the site-specific surveys by micro-siting the Phase I Wind Turbine Development to avoid or minimize impacts on aquatic resources, special status wildlife species, sensitive vegetation communities, and cultural resources to the extent practicable. The results of site-specific surveys conducted for the Phase I Wind Turbine Development are presented in Chapters 3 (*Affected Environment*) and 4 (*Environmental Consequences*) of this EA.

**Issues Identified:** The BLM applied the results of internal and external scoping to develop Appendix B. The BLM identified resources as follows:

- “Not Present” (NP) – the resource does not occur in the CCSM Project Area for the Phase I Wind Turbine Development and is not carried forward for detailed analysis.
- “Not Impacted” (NI) – the resource is sufficiently analyzed in the CCSM Project FEIS (BLM 2012b) or it can be reasonably concluded that the resource would not be affected to a degree that requires analysis and therefore it is not carried forward for detailed analysis.
- “Potentially Impacted” (PI) – the resource is present in the CCSM Project Area for the Phase I Wind Turbine Development, and, based on the BLM’s review of the results of scoping and procedures outlined in Appendix B of this EA, it may be potentially impacted. For these resources, new information may be available or new circumstances are present that need to be reviewed to determine if the new information or circumstances are consistent with the CCSM Project FEIS (BLM 2012b). The new information and circumstances may include:
  - Regulations or guidance adopted since publication of the CCSM Project ROD (BLM 2012a) and which may affect the impact analysis as presented in Chapter 4 of this EA.

- Results of cultural, paleontological, soils, and biological surveys conducted consistent with ACMs, Applicant Committed BMPs, and mitigation measures outlined in Appendix C of this EA.
- A SPOD that provides refined engineering data for the Phase I Wind Turbine Development and allows for additional clarity in determining impacts associated with the Proposed Action.

The “Potentially Impacted” (PI) resources, as determined by the BLM in Appendix B, are listed below with issue statements describing the potential impact. These resources are carried forward in this EA for description in Chapter 3 (*Affected Environment*) and analysis in Chapter 4 (*Environmental Consequences*). For some resources, new site-specific information may be available based on site investigations conducted during 2012, 2013, and 2014, and this information is presented in Chapter 3 of this EA to the extent that it is relevant to the Phase I Wind Turbine Development SPOD. If the site-specific information does not substantively change the impact analysis presented in the CCSM Project FEIS (BLM 2012b), no additional impact analysis is included in Chapter 4.

### ***Cultural Resources and Native American Concerns***

**Issue 1:** Site-specific cultural resource surveys conducted after the CCSM Project ROD (BLM 2012a) have increased the number of known cultural resources in the Project Area and the BLM’s understanding of cultural resources that could be affected by the Proposed Action. As a result, the description of the affected environment and potential impacts that could result from the Proposed Action require a review for consistency with the disclosures in the CCSM Project FEIS (BLM 2012b) and the Cultural Resources Programmatic Agreement (CCSM Project ROD [BLM 2012a], Appendix E).

### ***National Scenic and Historic Trails***

**Issue 2:** In 2012, following publication of the CCSM Project ROD (BLM 2012a), the BLM published Manual 6280, *Management of National Scenic and Historic Trails and Trails under Study or Recommend as Suitable for Congressional Designation*. This document altered the management framework for national scenic and historic trails that was analyzed in the CCSM Project FEIS (BLM 2012b). A review of the analysis in the CCSM Project FEIS (BLM 2012b) is needed to compare it to BLM Manual 6280.

### ***Paleontological Resources***

**Issue 3:** Recent pedestrian on-the-ground paleontological surveys provide site-specific information about paleontological resources that was not available during preparation of the CCSM Project FEIS (BLM 2012b). As a result, the description of the affected environment and potential impacts that could result require review for consistency with the disclosures in the CCSM Project FEIS (BLM 2012b).

### ***Range Resources***

**Issue 4:** The analysis of impacts on range resources and Animal Unit Months (AUMs) in the CCSM Project FEIS (BLM 2012b) uses an average value for AUMs based on the best available information. Recent vegetation surveys allow for more site-specific estimates of AUM values. Due to the availability of this new site-specific information, the description of the affected environment and potential impacts that could result requires review for consistency within the disclosures in the CCSM Project FEIS (BLM 2012b).

### ***Soils***

**Issue 5:** Recent site-specific soils information was collected during field investigations. Due to the availability of this new information, the description of the affected environment and potential impacts that could result requires review for consistency with the disclosures in the CCSM Project FEIS (BLM 2012b).

### ***Vegetation (including Noxious Weeds and Invasive Species, and Wetlands and Riparian Zones)***

**Issue 6:** Recent surveys of the CCSM Project Area provide site-specific information about vegetation communities that was not available during preparation of the CCSM Project FEIS (BLM 2012b). As a result, the description of the affected environment and potential impacts that could result requires review for consistency with the disclosures in the CCSM Project FEIS (BLM 2012b).

**Issue 7:** Recent wetland delineations of the CCSM Project Area provide site-specific information about wetlands and riparian zones that was not available during preparation of the CCSM Project FEIS (BLM 2012b). As a result, the description of the affected environment and potential impacts that could result requires review for consistency with the disclosures in the CCSM Project FEIS (BLM 2012b).

**Issue 8:** Site-specific weed surveys conducted after the CCSM Project ROD (BLM 2012a) have increased the BLM's understanding of invasive species and provided new relevant information. As a result, the description of the affected environment and potential impacts that could result requires review for consistency with the disclosures in the CCSM Project FEIS (BLM 2012b).

### ***Water Resources***

**Issue 9:** The number of stream crossings and surface disturbance per sub-watershed is different from those analyzed in the CCSM Project FEIS (BLM 2012b). As a result, the description of the affected environment and potential impacts that could result require review for consistency with the disclosures in the CCSM Project FEIS (BLM 2012b).

### ***Wildlife and Fisheries Resources***

**Issue 10:** Recent surveys of the CCSM Project Area provide site-specific information about wildlife species and their habitats that was not available during preparation of the CCSM Project FEIS (BLM 2012b). As a result, the description of the affected environment and potential impacts that could result requires review for consistency with the disclosures in the CCSM Project FEIS (BLM 2012b).

### ***Special Status Species***

**Issue 11:** Recent site-specific surveys of white-tailed prairie dog (*Cynomys leucurus*), pygmy rabbit (*Brachylagus idahoensis*), Wyoming pocket gopher (*Thomomys clusius*), Greater Sage-Grouse (*Centrocercus urophasianus*), western burrowing owl (*Athene cunicularia*), and mountain plover (*Charadrius montanus*) locations provide site-specific information that was not available during preparation of the CCSM Project FEIS (BLM 2012b). As a result, the description of the affected environment and potential impacts that could result requires review for consistency with the disclosures in the CCSM Project FEIS (BLM 2012b).

**Issue 12:** Since publication of the CCSM Project FEIS (BLM 2012b), the State of Wyoming has published a revised Greater Sage-Grouse core area policy (Executive Order 2015-4), BLM has issued the Regional ROD (BLM 2015a) and Wyoming ARMPA for Greater Sage-Grouse (BLM 2015a, Attachment 4), and the USFWS has issued a technical report and listing decision for the Greater Sage-Grouse. These

documents alter the management framework for Greater Sage-Grouse that was analyzed in the CCSM Project FEIS (BLM 2012b). Therefore, the description of the affected environment and potential impacts that could result requires review for consistency with the current management framework.

## **CHAPTER 2 – PROPOSED ACTION AND ALTERNATIVES**

This EA analyzes two alternatives, a No Action Alternative (Alternative A) and the Applicant's Proposed Action (Alternative B), which is the sixth revision to the proposed action and incorporates a modified layout that reflects years of coordination between PCW, the BLM, and USFWS to meet Project goals while avoiding and minimizing environmental impacts. The No Action Alternative is considered to provide a baseline for comparison of the impacts of the Proposed Action. The CCSM Project FEIS (BLM 2012b) evaluates a range of alternatives, and this EA is tiered to that FEIS, including its alternatives analysis; therefore, the alternatives analyzed in the CCSM Project FEIS (BLM 2012b) are described below, but the analysis of these alternatives is not duplicated in this EA (refer to Section 2.2 of this EA). See, for example, the BLM NEPA Handbook H-1790-1, p. 27; CEQ regulations 40 CFR 1508.28, 40 CFR 1502.20.

### **2.1 CCSM Project FEIS Alternatives**

The CCSM Project ROD (BLM 2012a) provides an overview of the alternatives considered by the BLM in the CCSM Project FEIS (BLM 2012b), both the alternatives studied in detail, as well as the alternatives considered but eliminated from detailed study. For convenience, a brief description of these alternatives is provided below.

#### **2.1.1 Summary of Alternatives Studied in Detail in CCSM Project FEIS**

The following excerpt from the CCSM Project ROD (BLM 2012a), Section 3.5, which is quoted verbatim except where bracketed, highlights the major differences between the alternatives studied in detail:

- No Action Alternative assume[d] the BLM would reject PCW's request to develop wind energy on public lands and deny any request to provide access to private lands for wind development within the Application Area. The area would continue to be used for livestock grazing and recreation. The BLM would consider ROW requests or similar applications for other projects, such as power transmission or mineral development, which may be proposed for this area in the future. This alternative d[id] not meet the purpose and need of the project, including meeting the management objectives in the Energy Policy Act of 2005 (Title II, Section 211) which establishes a goal for the Secretary of the Interior to approve 10,000 MWs of electricity from non-hydropower renewable energy projects located on public lands and the purpose of Secretarial Order 3285 (March 11, 2009, amended Feb. 22, 2010) that establishes the development of environmentally responsible renewable energy as a priority for the Department of the Interior.
- Alternative 1R analyze[d] whether portions of the Application Area within TOTCO ranch boundaries are suitable for development of a 2,000- to 3,000-MW wind farm consisting of up to 1,000 [wind turbine generators]. This alternative was submitted by the applicant after determining the range of issues raised during scoping could not be addressed by the original project concept and optimized the conceptual layout with information from the Draft EIS. This alternative include[d] a haul road location between the CCSM [WDAs] that avoids steep terrain and a [Rail Facility] location south of Interstate (I)-80 to address concerns with access and construction traffic across I-80. This alternative was developed after a comprehensive review of information pertaining to wildlife issues in the RFO area had been identified.
- Alternative 2 analyze[d] whether portions of the Application Area only above Township 18 North (T18N) to keep development primarily within the checkerboard landownership pattern are suitable for development of a 2,000- to 3,000-MW wind farm consisting of up to 1,000 [wind turbine generators]. This alternative was developed in response to concerns raised in regard to visual impacts in areas with high recreational values. More conservative Greater Sage-grouse

stipulations would apply to these public lands. This Alternative [was] [ ] modified from the Draft EIS as a result of agency comments to include a haul road variation that parallels WY 71/CCR 401 because of concerns for impacts to big game habitat in the Chokecherry area and sensitive soils in the Sage Creek Basin. The haul road variation would connect to the [Rail Facility] located south of I-80 but within the boundaries of the Chokecherry site.

- Alternative 3 analyze[d] whether the Chokecherry portion and only the area from the eastern half of T18N, Range 88 West (R88W) to the east of the Sierra Madre portion of the Application Area is suitable to accommodate a 2,000- to 3,000-MW wind farm consisting of up to 1,000 [wind turbine generators]. All lands would be excluded below T18N, and the western half of T18N, R88W. Under this alternative, [wind turbine generators] would not be placed on Miller Hill or in the southern area defined as the Sierra Madre portion of the proposed project. [Wind turbine generators] would be placed east of the base of the slope to Miller Hill and into Sage Creek Basin. This alternative retain[ed] the original haul road location analyzed in the Draft EIS and [Rail Facility] location north of I-80 that was included in the Draft EIS. This alternative was developed in response to concerns raised with regard to existing [Visual Resource Management] Class II areas as well as areas with high wildlife concerns.
- Alternative 4 consider[ed] no placement of [wind turbine generators] on public lands within either the Chokecherry site or Sierra Madre site. This alternative, however, consider[ed] that the BLM would provide ROW grants to PCW for the public lands that would allow PCW to develop wind energy facilities on the privately held lands. The BLM would apply required NSU and timing stipulations to public lands for requested access points. This alternative retain[ed] the original haul road location analyzed in the Draft EIS and [Rail Facility] location north of I-80 that was included in the Draft EIS. This alternative was developed in response to the overall concerns raised with developing a wind farm on public lands and the associated impacts.

Based on the information from the analysis, the BLM identified Alternative 1R with modifications as the Preferred Alternative in the Final EIS. The modification is to specifically prohibit project development from areas of the Red Rim-Grizzly [Wildlife Habitat Management Area] located within the Greater Sage-grouse Core Area (247 acres) [ ]. This modification prohibits development on 1,037 acres [ ] in the Sierra Madre portion of the project. The BLM is prohibiting development in this area from the Preferred Alternative because construction within the Red Rim-Grizzly [Wildlife Habitat Management Area] may conflict with the [Memorandum of Understanding] between the BLM and [Wyoming Game and Fish Department] associated with this area.

### **2.1.2 Summary of CCSM FEIS Alternatives Considered But Eliminated From Detailed Study**

In addition to the alternatives analyzed in detail in the CCSM Project FEIS, other alternatives were considered but eliminated from detailed study. The alternatives considered but eliminated from detailed study included the original project concept with and without environmental constraints, no development in Greater Sage-Grouse core breeding areas using the Version 2 Map, no development in the Sierra Madre WDA, various wind turbine designs and siting concepts, variations to the power transmission, independent alternatives addressing resource protection, other renewable energy development concepts, alternate project sites, and turbine transport alternatives. For additional information on the entire range of alternatives considered in the CCSM Project FEIS, refer to Chapter 2 of the CCSM Project FEIS (BLM 2012b).



## **2.2 EA Alternatives**

As summarized above, the CCSM Project FEIS (BLM 2012b) rigorously explored and objectively evaluated a full range of alternatives. This EA tiers to the CCSM Project FEIS (BLM 2012b); therefore, the consideration of and the analysis of these alternatives is incorporated by reference. As provided in the BLM’s NEPA Handbook (H-1790-1, p. 27), a tiered document such as this EA need not re-examine alternatives analyzed in the broader document. Indeed, the CCSM Project ROD (BLM 2012a) specifically directed that this tiered EA “focus only on those issues and mitigation measures specifically relevant to the SPOD but not analyzed in sufficient detail in the project-wide EIS” (BLM 2012a; Section 3.1). Therefore, this EA focuses on those issues where new NEPA analysis is required to address new information and mitigation measures specifically relevant to the Phase I Wind Turbine Development that were not analyzed in sufficient detail in the project-level CCSM Project FEIS, as determined by the ID Team evaluation of the Phase I Wind Turbine Development SPOD.

In parallel to the BLM’s preparation of this EA, the USFWS prepared an EIS in connection with its decision to grant ETPs. In preparing its EIS, the USFWS considered the same turbine layout that is the subject of this EA, the Phase I Wind Turbine Development. As a result, the two agencies’ processes, although distinct, have been coordinated and have analyzed the same Phase I Wind Turbine Development alternative for different purposes (issuance of a ROW grant by the BLM and issuance of ETPs by the USFWS). The BLM is a cooperating agency in the USFWS EIS, and the USFWS is a cooperating agency in this EA.

The BLM has reviewed the USFWS FEIS in which the USFWS analyzes an alternative that consists of a subset of the 500 wind turbine generators included in the Phase I Wind Turbine Development, that is, development of the turbines in the Phase I Sierra Madre WDA Only, which consists of 298 wind turbine generators. In preparing this EA, the BLM has considered whether this specific alternative should also be analyzed in detail in this EA and has determined that such analysis is not necessary. While the CCSM Project FEIS (BLM 2012b) did not specifically analyze the identical alternative analyzed in the USFWS FEIS (USFWS 2016) (i.e., a subset of the Phase I Wind Turbine Development), the BLM’s FEIS considered and appropriately analyzed a full range of alternatives, including several that consisted of various configurations of fewer turbines. Moreover, the CCSM Project FEIS (BLM 2012b) impact analysis for all alternatives identifies the Chokecherry WDA and Sierra Madre WDA impacts separately, thereby eliminating the need to analyze the WDAs as their own alternatives. The BLM’s CCSM Project FEIS and EA2 NEPA analyses would be sufficient for the BLM to approve a portion of the proposed 500 wind turbine generators; therefore, additional alternatives for less than 500 wind turbine generators would not be needed.

As stated in the CCSM Project FEIS (BLM 2012b) for the Chokecherry WDA Only development alternative, i.e., a smaller project, “...the BLM NEPA Handbook (H-1790-1) allows for various parts of separate alternatives that are analyzed to be ‘mixed and matched’ to develop a complete preferred alternative as long as the reasons for doing so are explained. Since the impact analysis for all [EIS] alternatives analyzes the CCSM [WDAs] separately, the analysis would already cover this option and it would be unnecessary to complete a separate analysis.” The CCSM Project FEIS analysis encompasses the impacts of the Phase I Sierra Madre WDA Only alternative. This EA considers and discloses impacts covering the Phase I Sierra Madre WDA Only alternative (see Table 2-3). Therefore, due to the analysis and disclosures provided in the CCSM Project FEIS and this EA a separate detailed analysis of the Phase I Sierra Madre WDA Only alternative is unnecessary.

As described above, this EA conforms with the requirements of the CCSM Project ROD and FEIS with respect to the determination of whether additional NEPA analysis is required and the scope of that analysis (BLM 2012a; Section 3.1). Further, this EA is a tiered document and incorporates the alternatives analysis contained in the CCSM Project FEIS (BLM 2012b) by reference, including analysis of those alternatives with fewer turbines. While, as identified in Section 2.2.3 and Table 2-3, some of the

impacts on resources are directly proportional, Section 2.2 demonstrates that the impacts of the USFWS alternative with 298 wind turbine generators would be within the range of impacts disclosed in the CCSM Project FEIS. In other words, the impact analysis contained in the CCSM Project FEIS encompasses the impacts of the alternatives analyzed in the USFWS FEIS (USFWS 2016), including the USFWS alternative for 298 wind turbine generators in the Phase I portion of the Sierra Madre WDA. The BLM determined in the CCSM Project ROD that over 200,000 acres within the CCSM Project Area are suitable for wind energy development subject to the requirements described under the Selected Alternative in the ROD. The Selected Alternative was based on analysis of a conceptual layout of 1,000 wind turbine generators. As the CCSM Project FEIS and ROD have already considered alternatives with fewer turbines, there is no need to analyze a USFWS alternative with fewer turbines in detail in this EA. Section 2.2.3, EA Alternatives Considered but Eliminated from Detailed Study, provides additional information and analysis supporting this decision.

This EA analyzes two alternatives, a No Action Alternative (Alternative A) and the Applicant's Proposed Action (Alternative B). These alternatives are described in the following sections.

### **2.2.1 Alternative A – No Action**

Under the No Action Alternative, the BLM Authorized Officer would deny approval of a ROW grant for the Phase I Wind Turbine Development SPOD filed by PCW. Notwithstanding such a denial, PCW would have the opportunity to resubmit a revised Phase I Wind Turbine Development SPOD addressing the BLM's reasons for not issuing ROW grants as anticipated in the CCSM Project ROD (BLM 2012a). Selection of the No Action Alternative would not meet one of the purposes of the CCSM Project, which is to support the federal goals and objectives for the development of domestic renewable energy projects on public lands.

### **2.2.2 Alternative B – Proposed Action**

As discussed in Chapter 1 (*Introduction and Need for Proposed Action*), the "Proposed Action" comprises the Phase I Wind Turbine Development for the CCSM Project described in the Phase I Wind Turbine Development SPOD filed by PCW with the BLM and as discussed below. The CCSM Project is located south of the City of Rawlins (refer to Map 1-1), predominantly within the bounds of the Ranch. The Ranch is owned and operated by PCW affiliate, The Overland Trail Cattle Company LLC (TOTCO). The Ranch is situated within an area of alternating sections of private and federal lands commonly referred to as the "checkerboard." The vast majority of the private lands are owned by TOTCO, and the federal lands are administered by the BLM RFO. A small percentage of the land within the Ranch is owned by the State of Wyoming and is administered by the State Board of Land Commissioners. PCW has a special use lease from the State of Wyoming, Board of Land Commissioners to use certain state lands for the CCSM Project. Anadarko Land Corporation also owns some sections located on the periphery of the northwest boundary of the Ranch. PCW and Anadarko have executed agreements relating to Anadarko lands where facilities associated with the CCSM Project would be located.

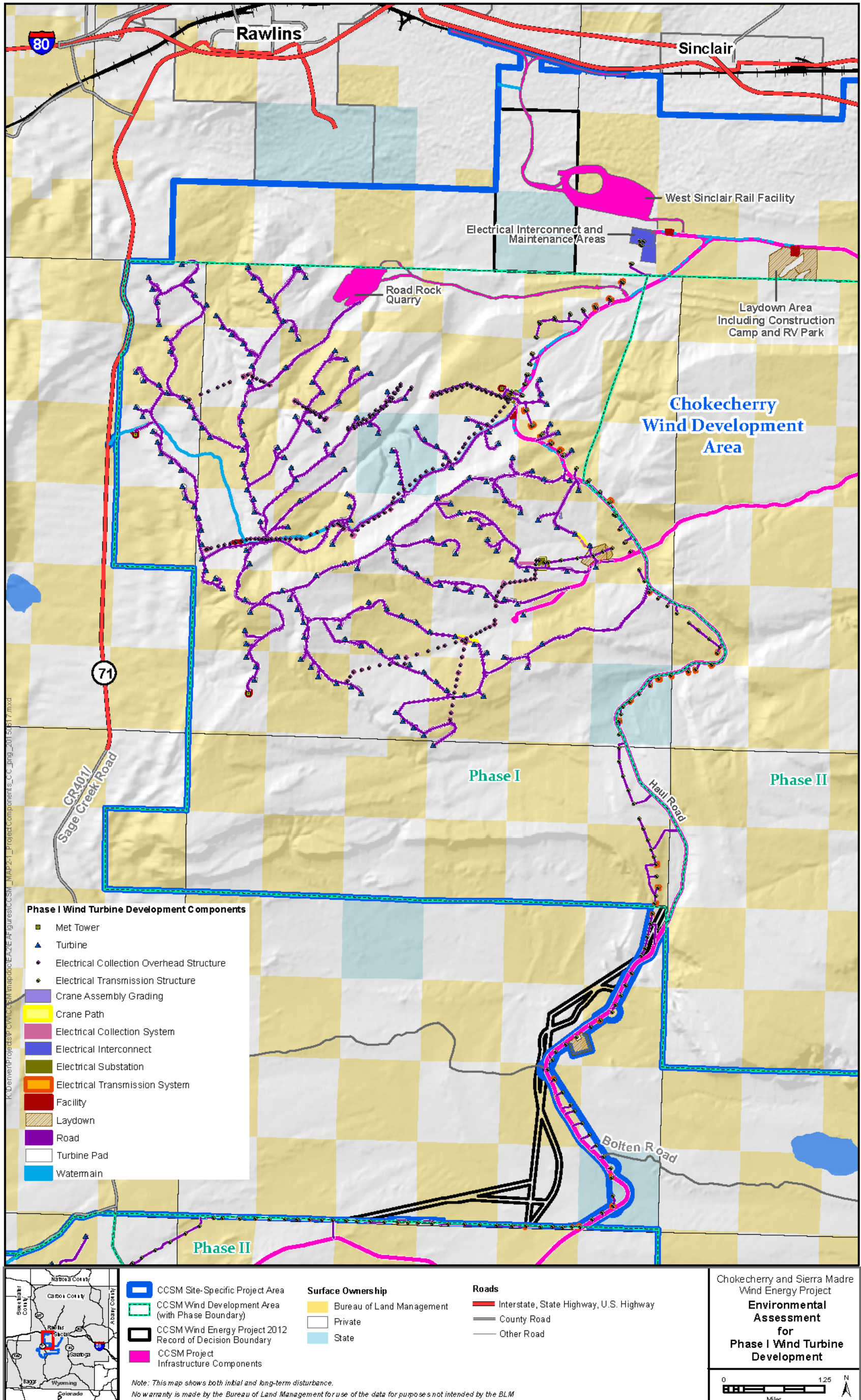
#### **2.2.2.1 Phase I Wind Turbine Development**

The Phase I Wind Turbine Development includes up to 500 wind turbine generators and associated facilities for the CCSM Project such as roads, electrical lines, substations, operation and maintenance buildings, meteorological towers, utilities, and temporary construction features. Construction, operation, maintenance, and decommissioning of the Phase I Wind Turbine Development relies on the Infrastructure Components including the Phase I Haul Road and Facilities, West Sinclair Rail Facility, and Road Rock Quarry. The CCSM Project Infrastructure Components were described and analyzed in a separate EA (BLM 2014a).

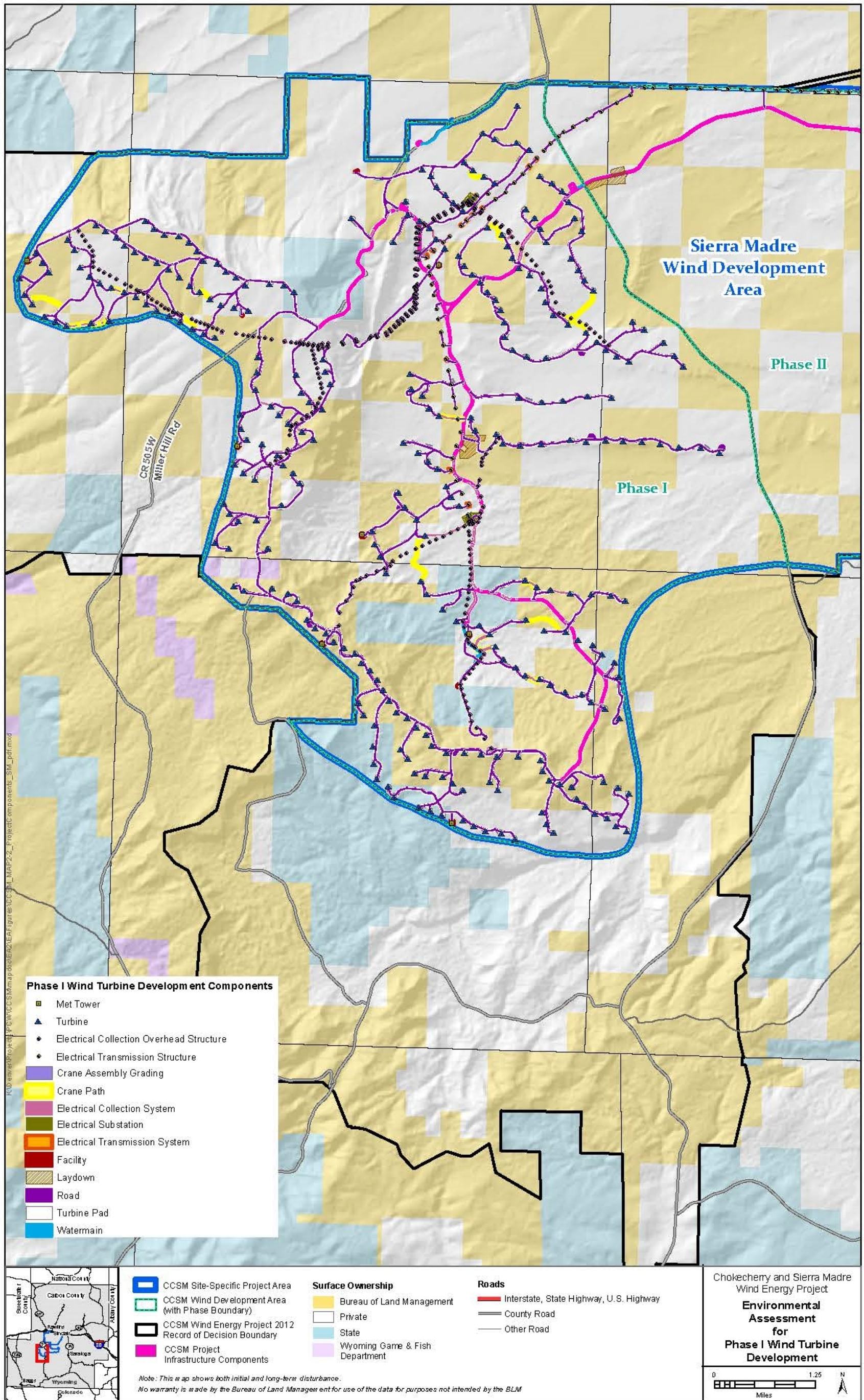
The location of the Phase I Wind Turbine Development is consistent with the Selected Alternative in the CCSM Project ROD (BLM 2012a). The wind turbine generator layout (i.e., 202 in the Chokeycherry WDA and 298 in the Sierra Madre WDA) and associated facilities are shown in Map 2-1 for the Chokeycherry WDA and Map 2-2 for the Sierra Madre WDA.

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Map 2-1. Phase I Wind Turbine Development – Chokecherry Wind Development Area



Map 2-2. Phase I Wind Turbine Development – Sierra Madre Wind Development Area



### ***Micro-siting and Design Process***

The Phase I Wind Turbine Development layout was developed in coordination with the BLM and the USFWS using detailed site-specific information. The layout was designed to meet the CCSM Project goals and objectives while complying with the CCSM Project ROD (BLM 2012a) and guidance from the USFWS to avoid and minimize environmental impacts. The CCSM Project ROD (BLM 2012a) considered and adopted numerous environmental constraints, applicant committed measures, and mitigation measures to avoid or minimize environmental impacts (BLM 2012a, p. 3-13). In addition, the ECP Guidance (USFWS 2012a) and the 2012 Land-Based Wind Energy Guidelines (USFWS 2013a) recommend extensive measures including collecting site-specific eagle survey data and the application of avoidance and minimization measures. In compliance with the CCSM Project ROD (BLM 2012a) and the USFWS guidance, PCW collected site-specific data and used the micro-siting process described in detail below to design the Phase I Wind Turbine Development.

### ***Micro-siting Process***

As an initial matter, PCW's ability to site turbines was constrained to the "Wind Development Areas" as designated in the CCSM Project ROD (BLM 2012a). Within these designated WDAs, PCW used a four-step iterative process to micro-site the turbines for the Phase I Wind Turbine Development layout:

1. Gather technical data;
2. Complete field review;
3. Gather resource data; and
4. Incorporate agency input.

### ***Technical Data Collection***

Technical data collection included: (1) meteorological data to measure wind resources; (2) topographic surveys to develop 1-foot contours; (3) 1-foot resolution orthophotography; (4) utility surveys to identify existing utility locations; and (5) geotechnical investigations to identify civil engineering design options. Through desktop analysis of available technical data, PCW developed a preliminary layout for the Phase I Wind Turbine Development.

### ***Field Review***

Once the preliminary layout was complete, PCW mobilized a team of civil engineers and construction specialists to field review the layout and micro-site each potential turbine location. During the micro-siting process, the field review team physically visited each location and compared the design conditions with the actual field conditions. These field reviews resulted in recommendations for improving the preliminary layout and engineering design to minimize disturbance and create a more efficient design. The field review team's recommendations were evaluated against the design criteria and environmental constraints and the Phase I Wind Turbine Development layout was modified as appropriate.

### ***Resource Data Collection***

PCW completed extensive surveys for cultural resources and natural resources for the CCSM Project. As required by the CCSM Project ROD (BLM 2012a) and the BLM, PCW collected detailed site-specific data for the Phase I Wind Turbine Development. These data are in addition to the data previously collected to support the CCSM Project FEIS (BLM 2012b) and to address other agency requirements and recommendations. Surveys were completed across more than 27,000 acres to micro-site Phase I of the CCSM Project. Surveys conducted include:

- Wildlife surveys for Wyoming pocket gopher, pygmy rabbit, white-tailed prairie dog, and other BLM sensitive wildlife species, as specified in Appendix G of the CCSM Project ROD (BLM 2012a)
- Greater Sage-Grouse surveys
- Rare plant and rare plant habitat surveys
- Noxious and invasive weed surveys
- Erosion potential characterization
- Class III cultural resource surveys
- Paleontological resource surveys
- Wetland delineations
- Soil and vegetation surveys

PCW also collected data for purposes of evaluating use by eagles and non-eagle raptors as well as other avian species and bats. These data were collected in accordance with the recommendations made in the USFWS Guidance. This information was used by the USFWS to recommend additional avoidance and minimization measures for the Phase I Wind Turbine Development layout specific to eagles. The data collection and avoidance and minimization process for eagles, bats, and other avian species is described in detail in the Phase I ECP and BBCS. Surveys completed for avian species and bats include:

- Eagle and non-eagle raptor nest surveys and productivity monitoring across approximately 460,000 acres
- Eagle and raptor use surveys including approximately 5,000 hours of survey across more than 171,000 acres associated with 104 survey locations
- Migratory bird surveys at 44 locations
- Breeding bird density, diversity, and habitat surveys completed at 16 locations
- Avian and bat radar surveys across more than 280,000 acres
- Detailed eagle prey base surveys across the CCSM Project Area including waterbird surveys, white-tailed prairie dog surveys, and sage-grouse lek surveys and monitoring
- Acoustic monitoring for bats at 11 locations

Based on the resource survey data, PCW identified environmental constraints and areas where avoidance and minimization measures could be applied. As opportunities for design modification were identified, they were evaluated against the design criteria and environmental constraints, reviewed by the field review team, re-surveyed for cultural and natural resources, and implemented where feasible.

### ***Agency Input***

Following resource data collection, PCW provided the relevant cultural and natural resource survey data to the BLM and USFWS. Using the site-specific survey data, the BLM and USFWS identified additional modifications to the Phase I Wind Turbine Development layout to avoid and minimize environmental impacts and comply with the CCSM Project ROD (BLM 2012a). As described above, these



recommendations were then evaluated against the design criteria and environmental constraints, reviewed by the field review team, re-surveyed for cultural and natural resources and implemented where feasible. Within the WDAs identified in the BLM's Selected Alternative, the layout for the Phase I Wind Turbine Development was adjusted numerous times during micro-siting to avoid and minimize environmental impacts and to incorporate input from the BLM and USFWS.

As contemplated in the CCSM Project ROD (BLM 2012a), PCW worked cooperatively with the BLM and USFWS to address micro-siting issues and develop a coordinated layout for the Phase I Wind Turbine Development (BLM 2012a, Appendix C, p. C-20). Over the course of five years, PCW revised their original proposed action six times to address micro-siting issues and avoid and minimize environmental impacts as follows:

**Original Proposed Action in Plan of Development (March 2009).** In March 2009, in support of its application for a Type-III Wind Energy Development Grant, PCW submitted a Plan of Development to the BLM which included a proposed wind turbine layout for the CCSM Project. The original proposed action had 675 wind turbine generators in the Chokecherry WDA and 325 wind turbine generators in the Sierra Madre WDA. Wind turbine generators were planned throughout the full extent of Upper Miller Hill and along the hogback feature in the north portion of Chokecherry; no wind turbine generators were planned on Sage Creek Rim or in Lower Miller Hill or the Sage Creek Basin.

**Revision 1, Revised Proposed Action (April 2010).** This revision moved wind turbine generators from the southernmost area of Sierra Madre and the western area of Upper Miller Hill to areas in Lower Miller Hill, Sage Creek Basin, Sage Creek Rim, and Severson Flats, which resulted in decreased impacts to multiple resources including eagles and other avian species.

**Revision 2, Applicant Proposed Alternative (August 2010).** PCW modified Revision 1 by relocating 68 wind turbine generators, primarily from western and southern Upper Miller Hill, where the best wind resources are located, to areas outside of Greater Sage-Grouse Core Areas and the associated eagle prey base and nesting habitat. This Applicant Proposed Alternative was analyzed as Alternative 1R in the CCSM Project Draft EIS.

**Revision 3, Revised Plan of Development (January 2012).** This revision considered the analysis in the CCSM Project Draft EIS and incorporated updated ACMs and a revised wind turbine generator layout. This revision worked to further reduced surface disturbance and habitat fragmentation and to provide flight/movement corridors for avian species. Wind turbine generators were removed north of the hogback and south of Rasmussen Reservoir to further reduce risks to eagles based on observed eagle use. This revised wind turbine layout formed the basis of BLM's analysis in the CCSM Project FEIS.

**Revision 4, Turbine No-Build Areas (July 2012).** In this revision, PCW used eagle-specific data and USFWS recommendations to revise the layout, including removing more than 105,000 acres across the Ranch designated Turbine No-Build Areas. This revision also removed wind turbine generators from the Red Rim-Grizzly WHMA located west and south of the Miller Hill Portion of the Sierra Madre WDA. This version was the basis for PCW's 2012 project-wide draft HCP.

**Revision 5, Initial Phase I Site-Specific Plan of Development (April 2013).** Revision 5 to the layout incorporated all of the requirements set out in BLM's ROD (BLM 2012a) and also considered all of the most recent environmental data and information for Phase I, including the most recent eagle and raptor count survey data. Revision 5 incorporated appropriate eagle and raptor nest buffers, avoidance and minimization measures related to important eagle use areas, the terms and conditions of Carbon County's approved Conditional Use Permit for the CCSM Project, and the USFWS avoidance and minimization recommendations received prior to the revision.

**Revision 6, Final Phase I Site-Specific Plan of Development (January 2014).** In Revision 6, PCW incorporated the best available scientific data, including the extensive eagle survey data collected for Phase I, through the application of additional avoidance and minimization measures designed to reduce

risk to eagles to the maximum extent practicable. Over 110 of the 500 Phase I wind turbine generators were moved to new locations within Phase I to address USFWS and BLM requirements and recommendations. The final Phase I wind turbine generator layout represents the culmination of the extensive data collection and avoidance and minimization effort for Phase I that began in 2008.

PCW provided weekly and monthly survey reports to the BLM throughout the 2013 field season for the cultural and natural resource surveys and attended a number of on-site visits with the BLM RFO. In addition, PCW worked jointly with the BLM RFO staff over the 2014 field season to collect additional soil and vegetation data across the Phase I Wind Turbine Development Site. PCW also coordinated with the USFWS over the last five years to establish survey protocols and to identify and apply eagle avoidance and minimization measures, as detailed in the Phase I ECP (PCW 2015c). Thus, the resulting SPOD for the Phase I Wind Turbine Development submitted to the BLM and the USFWS is the culmination of PCW's micro-siting effort, years of coordination between PCW, the BLM, USFWS, and other agencies, and PCW's compliance with the CCSM Project ROD (BLM 2012a), 2008 Rawlins RMP (BLM 2008), and agency guidance.

### *Construction and Design Features*

The Phase I Wind Turbine Development consists of the first half of the CCSM Project's wind turbine generators and supporting facilities: roads, wind turbine sites, foundations, wind turbine generators, collection system, substations, internal transmission system, buildings, meteorological towers, utilities, and temporary construction features. The following sections describe each of these facilities.

#### Roads

The Phase I Wind Turbine Development roads provide access from the Phase I Haul Road to the wind turbine generators, overhead collection and transmission line structures, meteorological towers, and other facilities. As described in CCSM Project Road Design Manual (Appendix C of PCW 2015a), the CCSM Project has five road classes: arterial roads, turbine roads, facility roads, structure roads, and unimproved access routes. The design elements for each road class are described in the CCSM Project Road Design Manual (Appendix C of PCW 2015a). The Issued for Permit Plans for the Phase I Wind Turbine Development identify each road class within the Phase I Wind Turbine Development Site (Appendix B of PCW 2015a).

The Phase I Wind Turbine Development roads cross a number of drainages. Turbine and facility class roads allow for use of at-grade low water drainage crossings where appropriate, which would be located and constructed so that they do not decrease channel stability or increase water velocity. The Road Design Manual (Appendix C of PCW 2015a) and the Issued for Permit Plans (Appendix B of PCW 2015a) for the Phase I Wind Turbine Development Site show the typical drainage crossing designs.

#### Wind Turbine Sites

Each wind turbine site would include three areas: initial disturbance, long-term disturbance, and activity areas. The initial disturbance is the area around the turbine where ground disturbance is required to install the wind turbine, including the turbine's foundation and electrical connections. Following installation of the wind turbine, portions of the initial disturbance would be reclaimed so that a smaller graded area remains at each site (i.e., the long-term disturbance area) to provide access to the turbine during operations and maintenance. Activity areas at a wind turbine site are areas that would not be cleared or graded, but where workforce and vehicles may need access to support wind turbine erection. In these areas, vehicles (e.g., pickup trucks, rough-terrain cranes, and all-terrain vehicles [ATVs]) and crews on foot would use designated routes to support turbine erection. In activity areas, thick vegetation higher than one foot may be trimmed to allow for safe vehicle access and to minimize fire potential.

Each wind turbine site would be established in two steps; the first step occurs prior to foundation installation and the second step occurs prior to turbine installation. Following construction of the turbine access road, construction crews would establish the grade necessary to install the wind turbine foundation. Typically crews would only grade the area immediately adjacent to the foundation unless a wider area is necessary for site stability, to account for steep grades (5-25%), or if needed for drainage. Once the foundation area is graded, the wind turbine site is released for wind turbine foundation construction.

Following construction of the wind turbine foundation, the wind turbine site would be cleared and graded for wind turbine installation. The wind turbine site would then be compacted as needed using compaction rollers and water. If required for stabilization based on soil conditions, an aggregate surface would be placed across the wind turbine site using belly-dump trailers, bulldozers, and motor graders. Areas that are sufficiently flat and stable for wind turbine installation in their natural condition would not undergo the additional site stabilization measures described above.

Each wind turbine site would have a designated crane pad location (commonly 50 feet by 100 feet) for wind turbine installation, where the main turbine erection cranes would be placed for turbine assembly. Crane pads would be cleared by bulldozers and compacted using compaction rollers and water as needed. Following compaction, wooden mats would be placed on each crane pad using rough terrain cranes. After installation of the crane pad, the wind turbine installation site is ready for delivery of turbine components and is released for turbine construction.

### Foundations

Facilities of the Phase I Wind Turbine Development requiring foundations for support include wind turbine generators, overhead electrical structures, meteorological towers, electrical devices, and buildings.

### *Wind Turbine Generators*

The bottom section of a wind turbine tower is connected to a foundation comprised of concrete and steel. Each wind turbine foundation design would meet requirements set by wind energy industry standards and applicable building codes, as further described in the Phase I Wind Turbine Development SPOD (PCW 2015a). PCW has not yet selected a specific turbine model for the CCSM Project. To develop the primary wind turbine foundation design for the project, PCW reviewed the requirements of several candidate models and developed a set of design requirements including minimum foundation stiffness, maximum allowable differential settlement, and tower connection details (PCW 2015a).

Based upon the design requirements, the primary wind turbine foundation design for the CCSM Project is the mat foundation, also referred to as spread-footing, gravity, or inverted-T. Mat foundations allow for a wide range of soil conditions and are simple to construct, requiring only shallow excavations. Due to their versatility, mat foundations would be suitable for most wind turbine sites in the Phase I Wind Turbine Development and would also provide for economies of scale and efficient construction. The Phase I Wind Turbine Development SPOD (PCW 2015a) shows example photos and design diagrams of wind turbine foundations that may be used.

PCW developed alternative foundation design options if areas with unforeseen soil conditions are found. The most common and economical approach to address these soil conditions is soil improvement for any soil conditions outside design tolerances. For the Phase I Wind Turbine Development, PCW evaluated several soil improvement methods as potential solutions for unanticipated soil conditions: mat foundation with subcut soil correction, mat foundation with stone columns, mat foundation with dynamic compaction, and pile foundations (PCW 2015a). For these design options, the ground disturbance footprint remains within the wind turbine site.

### ***Overhead Electrical Structures***

The overhead electrical lines for the CCSM Project would use both wooden poles and steel monopole structures. Wooden poles would be directly embedded and would not require separate concrete foundations. Steel monopole structures for the overhead transmission lines would be secured to a concrete foundation, while steel monopoles for the overhead collection lines may have concrete foundations or be directly embedded depending on the conditions. For overhead electrical structures that require foundations, PCW anticipates using drilled concrete piers ranging from 4 to 12 feet in diameter placed from 15 to 60 feet deep. The piers would use anchor bolt cages with reinforcing steel.

### ***Meteorological Towers***

The meteorological towers for the CCSM Project would be non-guyed steel lattice towers and would use pad/pier foundations where piers connect each of the tower's three legs to a shallow pad foundation. The piers typically go 3 to 4 feet below grade to a square pad about 20 feet per side and 1.5 feet thick.

### ***Electrical Devices***

The Phase I Wind Turbine Development includes a range of electrical devices from large substation transformers to smaller electrical junction boxes, each of which requires a foundation. Where feasible, prefabricated foundations would be purchased and placed on-site. For larger devices where prefabricated foundations are not practical, PCW would construct cast-in-place reinforced concrete foundations.

### ***Buildings***

The Phase I Wind Turbine Development buildings would use cast-in-place foundations designed for the site-specific soil and climate conditions. These foundations consist of two primary components. First, the base of the foundation would be footings on which the foundation walls would rest. These footings would be approximately 2 feet wide and 1 foot in height. The second component would be the foundation walls, which are expected to be approximately 1 foot wide and 4 feet in height. Rebar would run between the footings and foundation wall to join the two components.

### ***Wind Turbine Generators***

The wind turbine generators consist of a nacelle, rotor, and tower, as further described in the Phase I Wind Turbine Development SPOD (PCW 2015a). PCW is still evaluating wind turbine options for the Phase I Wind Turbine Development; however, all turbine models under consideration have the same general configuration, i.e., single-rotor, three-bladed upwind horizontal-axis design on a tubular tower. In addition, as analyzed in the CCSM Project FEIS (BLM 2012b), all turbine models under consideration have rotor diameters up to 120 meters and towers up to 100 meters tall.

### ***Collection System***

Wind turbine generators within the CCSM Project Area would be connected together electrically using a collection system to transmit electricity to the electric grid. Based on the nameplate capacity and the physical extent of the Phase I Wind Turbine Development, PCW would use a medium voltage collection system (34.5 kilovolt [kV]) (Appendix B of PCW 2015a).

For the Phase I Wind Turbine Development collection system, multiple turbines are grouped together onto a single collection circuit that is routed to nearby collection substations. The design of the collection system, including where underground and overhead lines are used, is based on the wind turbine generator and substation locations as well as a range of technical, environmental, and economic factors.

Underground electric lines are typically used for connection between adjacent wind turbine generators. Underground collection cables would be connected to a wind turbine generator either at the turbine's

base, or to an adjacent padmount transformer, depending upon the turbine's design. Where sections of cable are joined together (such as T-junctions or long runs of cable), splice boxes would join segments together to create a single circuit. Above-ground splice boxes or junction boxes would be used for ease of access in the event maintenance is required, and also to allow for proper acceptance testing during installation. Splice boxes and junction boxes are typically located alongside roads to allow for easy access, and are protected from vehicles using concrete bollards.

Overhead lines have been used in the Phase I Wind Turbine Development collection system design to minimize disturbance, collection system lengths, and electrical losses. One or more underground collection circuits can be connected to a single overhead collection line, allowing for more wind turbine generators to be connected to a given overhead line, reducing the overall number of circuits needed and minimizing the size of the substations. The overhead collection lines would primarily use steel poles to minimize ground disturbance by allowing for fewer poles spread wider apart and the use of double-circuit structures (carrying two sets of overhead lines instead of one) to eliminate unnecessary parallel lines. PCW would still use wood poles for single-circuit segments of the overhead collection system where feasible.

In order to ensure safe and efficient operation of the Phase I Wind Turbine Development, each wind turbine would be connected to a central Supervisory Control and Data Acquisition (SCADA) system, which allows for the turbines to be controlled and monitored remotely. The turbines would be connected together with fiber optics that are co-located with the collection system. Monitoring and control of the Phase I Wind Turbine Development would occur at the Operations Center.

The Phase I Wind Turbine Development collection system would be designed to the Avian Power Line Interaction Committee recommendations to reduce operational and avian risks that result from avian interactions with electric facilities.

### Substations

Five substations are included in the Phase I Wind Turbine Development: four collection substations, and one interconnection station. Of the four collection substations, two (Nevins Valley and Smith Draw) would be located in the Chokecherry WDA and two (McCarthy and Pine Grove) would be located in the Sierra Madre WDA. The Issued for Permit Plans in Appendix B of the Phase I Wind Turbine Development SPOD (PCW 2015a) depict each substation. Due to varying site conditions in regards to soils, slopes, laydown areas, and other considerations, initial disturbances vary for each substation; however, all four substations would be the same size when completed and thus would have the same amount of long-term disturbance. The Overland Substation, located north of the Chokecherry WDA in T21N R86W S31 (refer to Map2-1), is the interconnection station, which is the CCSM Project's connection point to the electrical grid.

### Internal Transmission System

The CCSM Project's 230 kV internal transmission lines would transfer the electrical generation from the collection substations to the interconnection substation (Overland Substation). The Phase I Wind Turbine Development internal transmission system includes two primary transmission lines: Line A would connect the Pine Grove and McCarthy collection substations to the Overland Substation and Line B would connect the Smith Draw and Nevins Valley collection substations to the Overland Substation. The use of 230 kV lines reduces the number of lines and allows PCW to design and build the internal transmission system to standards consistent with the utilities operating in the region. The internal transmission lines would be constructed using steel monopole structures.

The Phase I Wind Turbine Development internal transmission system would be designed to the Avian Power Line Interaction Committee recommendations to reduce operational and avian risks that result from avian interactions with electric facilities.

### Buildings

The Phase I Wind Turbine Development includes two types of buildings: the Operations Center, and two maintenance buildings. Design and construction of these buildings would conform to the International Building Code along with applicable federal, state, and local code requirements. The Phase I Wind Turbine Development buildings would be prefabricated and designed for the site's climate conditions.

The CCSM Project Operations Center would be located north of the Chokecherry WDA in T21N R86W S33 (refer to Map 2-1). The Operations Center would be a single-level prefabricated office building assembled on-site and would consist of approximately 5,000 square feet of office space and a 2,500 square foot high-bay. The office area would include the primary training facility, locker rooms, and a break room for the CCSM Project workforce, plus offices and conference rooms. The office area would also have a secure operations control room and server room where operators would continuously monitor the status of the CCSM Project and dispatch maintenance crews as needed. The high-bay of the Operations Center would have 20 foot ceilings and would house critical spare parts in a temperature controlled environment. The area would be equipped with bay doors to allow trucks to deliver and retrieve the spare parts. Parking would be provided around the Operations Center for the CCSM Project vehicles and personal vehicles for staff. The Operations Center would be connected to utilities (i.e., water, wastewater, electric).

The two maintenance buildings would provide spare parts storage and maintenance workspace. The Chokecherry maintenance building would be constructed in T20N R87W S19 (refer to Map 2-1). This maintenance building would support the wind turbine generators in the Chokecherry WDA. The Sierra Madre maintenance building would be constructed in T18N R88W S12 along CR401 (Sage Creek Road) (refer to Map 2-2). This maintenance building would support the wind turbine generators in the Sierra Madre WDA. The maintenance buildings would consist of a 2,500 square foot office area and a 5,000 square foot high-bay. The office area would include a conference and break area, workstations, and restrooms for use by operations and maintenance staff. Similar to the Operations Center, the maintenance buildings' high-bays would be environmentally-controlled and would be used for storage. Some shop-space would also be included for inspection and repairs. The maintenance buildings would be connected to utilities (i.e., water, wastewater, electric).

### Meteorological Towers

The Phase I Wind Turbine Development would include 10 meteorological towers (7 in the Sierra Madre WDA and 3 in the Chokecherry WDA) to measure the wind conditions for efficient operation of the wind turbine generators. The two primary objectives for the meteorological towers are to verify turbine performance and to collect data to prepare day-ahead and hour-ahead performance estimates to coordinate power delivery to the grid.

All meteorological towers are designed to meet the requirements of ANSI/TIA-222-G Structural Steel Standards for Steel Antenna Towers and Supporting Structures. The towers would be self-supporting lattice meteorological towers (Appendix B of PCW 2015a). To collect the required data, the tower would be equipped with wind speed and direction instruments at the turbine hub height and at the bottom of the rotor sweep. PCW may also install additional monitoring equipment on the towers, including remote cameras. Meteorological towers would have fiber optic and electrical connections to the nearest wind turbine to provide data to the CCSM Project SCADA system. Given the height of the meteorological towers, approximately 100 meters, it is likely each would be required to be equipped with an aviation warning light.

### Utilities

Utilities would be required for operation of the Phase I Wind Turbine Development, including water, wastewater, and electrical power connections. To meet the water demands of the CCSM Project, the

Phase I Wind Turbine Development design includes water supply infrastructure. The water supply infrastructure developed as part of the Phase I Wind Turbine Development would be in addition to the water supply infrastructure included in the Phase I Haul Road and Facilities, as described in that SPOD (PCW 2014a) and the associated EA for Infrastructure Components (BLM 2014a). The primary components of the CCSM Project water system include groundwater wells, potential municipal connections, pipelines, and water filling stations.

The Phase I Wind Turbine Development includes connections to up to three groundwater wells: one proposed connection (East Grove 1701) and two potential future connections to other TOTCO wells. The three likely methods PCW would use to obtain water from the groundwater wells within the CCSM Project Site would be: (1) submersible pump with pitless adaptor, (2) turbine pump with above-ground discharge, and (3) artesian wells flowing into a wet well. The condition of each well would be evaluated prior to construction and the appropriate method would be selected. It is anticipated that any pumps associated with the groundwater wells would be operated using diesel generators. The Phase I Wind Turbine Development design and surface disturbance estimate also includes provisions for potential connections to municipal water systems at the Operations Center and maintenance buildings.

Buried water pipelines would connect water sources with water filling stations. Water pipelines range from 6-inch outside diameter High Density Polyethylene pipe to 14-inch outside diameter High Density Polyethylene or PVC. To accommodate regional climate conditions, water pipelines would be buried approximately 72 inches below grade. Due to the length of pipelines and the overall rise in elevation between water sources and filling stations, booster stations may be required within the Chokecherry WDA. While the booster station locations have not yet been finalized, they would be co-located with other water supply system features (e.g., water filling stations) and would be within the limits of surface disturbance for those features.

The Phase I Wind Turbine Development includes four water filling stations (North, Nevins Valley, Chokecherry Knob, and Upper Miller Hill) where water would be loaded onto trucks for use throughout the CCSM Project. These water filling stations are in addition to the water stations described in the EA for Infrastructure Components (BLM 2014a). Each water filling station would have two rows of water tanks (either elevated 12,000 gallon tanks or ground-mounted 21,000 gallon tanks or similar) connected to the incoming water pipeline via a water distribution network. To maximize efficiency, each water filling station would likely have a small amount of fuel storage (approximately 500 gallons) with secondary containment so that trucks can be fueled at the same location. Each water filling station would be located within one to two acres with a slope of less than three percent. At the North Filling Station, PCW included an above-ground potable water storage tank in the filling station design. This tank is intended to support the construction camp and trailer complex during construction of the CCSM Project and the Operations Center and Overland Substation during operations. The above-ground potable water storage tank would be about 260,000 gallons to meet the potable water needs of the construction camp. The potable water storage tank would likely be a glass-coated steel design installed on a concrete foundation. The dimensions of the tank are variable depending upon vendor, and could be up to 120 feet in height. The North water filling station has also been designed to provide for water treatment equipment if required.

PCW would install septic systems at the Operations Center, Chokecherry Maintenance Building, Sierra Madre Maintenance Building, and the temporary on-site accommodations, as identified in the Issued for Permit Plans (Appendix B of PCW 2015a). In addition, PCW may use portable toilets for temporary demands at the trailer complex and laydown yards. The design for the Phase I Wind Turbine Development also provides for potential future wastewater connections to the City of Rawlins wastewater treatment system for the Operations Center and on-site accommodations. These potential future wastewater connections are included in the surface disturbance estimates and Issued for Permit Plans (Appendix B of PCW 2015a).

Sewer lines included in the Phase I Wind turbine Development design have been designed according to the Wyoming Department of Environmental Quality's (DEQ) requirements for sewer lines (Wyoming DEQ Chapter 11 – sewerage systems) and Ten States Standards for wastewater. All sewer lines would maintain a minimum 10-foot separation from potable water lines. Where lift stations are included in the design they would consist of a concrete vault and wet well and two or three pumps of the same size. The vault and wet well are designed to store wastewater while the pumps are off. The multiple pumps would alternate use and create a redundant system. If a pump fails, an alarm would go off indicating that maintenance is needed. Cleanouts and air release manholes would be located along the line per Wyoming DEQ requirements. Pumps would be powered by the distribution lines adjacent to the lift stations.

Several permanent (Operations Center, maintenance buildings, water wells, and booster stations) and temporary (construction trailers, construction camp and recreational vehicle (RV) park, laydown yards) CCSM Project facilities not directly integrated into the CCSM Project's electrical system would require electrical power to function. For the CCSM Project facilities on the north portion of the CCSM Project Area, PCW anticipates receiving this power through an overhead distribution line which would be designed and installed by Rocky Mountain Power and routed along the West Sinclair Rail Facility's lead track and the North Road.

### Temporary Features

Temporary features such as laydown yards, crane assembly areas, crane paths, a construction camp and RV sites are included in the Phase I Wind Turbine Development SPOD during construction of the Phase I Wind Turbine Development. Laydown yards would be used to store materials, components, and equipment and to provide parking and locations for temporary facilities (e.g., construction trailers). Construction of the CCSM Project would require a total of ten laydown yards. The Phase I Wind Turbine Development includes the establishment of two laydown yards (Smith Draw and East Deadman) and the expansion of three of the Phase I Haul Road and Facilities laydown yards (North, Chokecherry, and Miller Hill). The laydown yards range in size from 35 to 113 acres depending on requirements for storage and temporary facilities. Locations for the laydown yards were selected based on the existing topography and drainage; laydown yards are graded to smooth out rough terrain, but typically do not require mass grading. Typical slopes of a laydown yard range between zero and six percent following site preparation.

The large cranes used for wind turbine assembly and erection would be brought to the wind turbine installation areas via flatbed semi-trailers and assembled on-site. When such a crane is required to move long distances to another area or is no longer needed on-site, the crane would be broken down and loaded back onto the flatbed trailers. To support crane assembly and breakdown, crane assembly areas are required. Crane assembly areas would be graded to a consistent slope of no more than one percent, these areas would be 400 feet long, at least 100 feet wide, and would be connected to roads that have crane shoulders or temporary crane paths. The crane assembly areas would be located within the limits of surface disturbance for other CCSM Project facilities to the extent practicable. However, grade constraints, construction sequencing, and other factors could require assembly areas in other locations. The crane assembly areas were selected to minimize grading beyond what would be required for the access roads. Where possible, crane assembly areas would be located adjacent to turbine pads so the area can be used for multiple purposes.

To facilitate the movement of cranes short distances within the CCSM Project Site, the turbine roads and arterial roads would have crane shoulders. In certain locations, it may be necessary to build additional temporary crane paths that do not follow roads. These crane paths would be used to move cranes from one turbine location to another where road routing is impractical, and where moving the crane along the turbine roads would add significant distance and other complexities to the crane travel. The temporary crane paths are designed to minimize impacts to steep slopes and drainage crossings. Crane paths typically go straight up and down terrain rather than across it due to the cross slope requirements of



cranes needing to be less than one percent. Some grading for crane paths would be required to adjust cross slope, smooth out existing grade changes, and keep crane paths to a maximum grade of 14 percent. Gravel is not anticipated to be needed for temporary crane paths. Drainage crossings that are encountered by crane paths would either have a temporary culvert installed based on a one year storm event (for incised drainage), or timber crane mats installed (for shallow broad drainages) such that they do not decrease channel stability or increase water velocity. Drainage crossings would be constructed per the requirements of the Storm Water Pollution Prevention Plan (Appendix I of PCW 2015a). Crane paths are included in the surface disturbance estimates for the Phase I Wind Turbine Development.

Temporary on-site accommodations for the CCSM Project construction workforce are included in the Phase I Wind Turbine Development SPOD. These accommodations would include a construction camp and RV sites. All temporary on-site accommodations would be located within the North laydown yard. PCW intends to construct 100 RV sites, although there is sufficient space adjacent to the construction camp to expand to 200 RV sites if needed. Each RV site would be gravel with sufficient room for both the RV and towing vehicle. Hookups at each RV site would include electrical service, water, and wastewater connections. Typical construction camp designs include pre-fabricated dormitory “modules,” each with individual quarters and common bathrooms. Some camp designs include suites with individual bathrooms. Camps also commonly include recreation and cafeteria modules. The Phase I Wind Turbine Development design includes a construction camp for approximately 250 workers; however, sufficient room exists in the area to expand the construction camp to accommodate up to 500 workers. PCW has developed two preliminary site plans for construction camp arrangements, one for approximately 250 residents and one for 500 residents. PCW would mobilize the construction camp modules as needed to meet workforce housing demands. Modules would be connected to utilities.

### ***Operations and Maintenance***

The Phase I Wind Turbine Development operations workforce would consist of wind turbine technicians, electrical and site maintenance technicians, and administrative support personnel. Workforce access for operation and maintenance of the Phase I Wind Turbine Development would be through two entrances, the CCSM Project North Entrance and the CCSM Project South Entrance. The Operations Center near the CCSM Project North Entrance would be the base of operations and the primary location for material deliveries. Access through the CCSM Project South Entrance would be for access directly to the Sierra Madre WDA. Additional information on the transportation of personnel, components, materials, and equipment for the CCSM Project can be found in the Transportation Management Plan, included as Appendix D of the Phase I Wind Turbine Development SPOD.

Wind turbine generators operate autonomously, based on sensors that detect the conditions of the wind, power grid, and the turbine itself. When the electric grid is available to accept generation and there is sufficient wind, the wind turbine generators would operate and generate power in an automatic mode. CCSM Project operators would monitor turbine conditions from the Operations Center.

Maintenance activities for wind turbine generators fall into two categories: scheduled and unscheduled. Scheduled maintenance generally includes the following activities:

- Inspect visually and audibly all major turbine components;
- Check torque on tower and component bolts;
- Level and leak check lubrication systems;
- Lubricate appropriate seals and bearings;
- Level, leak check, and sample of gearbox oil;
- Replace gearbox oil filters;

- Inspect brake system;
- Test control and emergency systems; and
- Inspect aviation warning lights.

While PCW would develop a comprehensive scheduled maintenance program based on the wind turbine manufacturer's recommendations, some turbines would still require unscheduled maintenance and repairs. If a turbine's sensors detect an issue with the turbine or grid, the turbine will shut down and send a notification to the Operations Center through the Project's SCADA system as to the nature of the issue. Operators would then inform the maintenance teams that an unscheduled maintenance check on the turbine is required. The unscheduled maintenance work would be performed as soon as practical to return the turbine to service.

CCSM Project technicians would routinely inspect electric lines and substations and would perform vegetation management and maintenance as needed. Overhead electrical lines would be inspected visually on a regular basis, commonly at least once per quarter and after any strong storm events. CCSM Project technicians would generally perform visual inspections from the ground using existing roads. Following inspections, CCSM Project technicians would perform necessary vegetation management and maintenance. Generally, vegetation management consists of technicians limiting growth to no more than three feet above ground level and removing tree branches within about 50 feet of the overhead electrical system structures and conductors. Overhead electrical line maintenance involves replacement of structures or sections of overhead line. If a section of overhead line needs to be replaced, it would be done in a manner similar to the original installation.

Maintenance issues on underground electrical lines primarily occur at junction points or splices which are located in above-ground boxes where they are easily accessible. While unlikely, if an issue occurs with a section of underground cable away from a junction box, technicians would first perform testing to determine the location of the fault. Once the location is known, a small portion of the cable would be excavated and repaired.

PCW would complete preventative maintenance at substations based on the equipment manufacturer's recommendations. Preventative maintenance for substation equipment would generally be performed on an annual basis, commonly requiring a brief (less than 1 day) de-energization. Virtually all substation maintenance can be performed within the substation fence, at ground level or using utility boom trucks.

PCW would be responsible for routine maintenance of the roads associated with the Phase I Wind Turbine Development throughout the life of the ROW grant. PCW would control dust from the roads as described in the CCSM Project Dust Control Plan, included as Appendix G of the Phase I Wind Turbine Development SPOD (PCW 2015a). During the winter months, PCW would perform snow removal per the Winter Access Plan, included as Appendix E of the Phase I Wind Turbine Development SPOD (PCW 2015a). All erosion control measures and drainage structures would be inspected periodically and maintained as described in the Erosion Control Plan and Storm Water Pollution Prevention Plan, included as Appendices H and I, respectively, in the Phase I Wind Turbine Development SPOD (PCW 2015a).

PCW would maintain all CCSM Project facilities, including buildings, meteorological towers, and water facilities in good working order in accordance with accepted maintenance practices. PCW would conduct routine maintenance on buildings such as painting and landscape maintenance and would perform repairs as needed. All meteorological towers would receive annual and as-needed maintenance to replace sensors and check structure conditions. Aviation warning lights would be equipped with sensors to notify maintenance personnel if any issues arise that require service.

The water supply facilities would be operated remotely from each water filling station to maintain adequate storage for CCSM Project operation. PCW would also inspect the water facilities on a regular basis to identify any maintenance needs and would follow the preventative maintenance guidelines for the equipment associated with the water facilities, including schedules for lubrication, oil changes, and

bearing and belt inspections. The water demand for the CCSM Project would be expected to drop substantially during the winter months; as such, PCW would temporarily deactivate water facilities that were not required for the CCSM Project.

Waste from construction, operations, maintenance, and decommissioning would be handled in accordance with the CCSM Project Waste Management Plan (Appendix P of PCW 2015a). Small amounts of used oil, waste oil, and oil-contaminated materials may be generated and would be handled in accordance with the requirements of the Spill Prevention, Control, and Countermeasure Plan (Appendix Q of PCW 2015a).

Operations and maintenance details are further described in the Phase I Wind Turbine Development SPOD (PCW 2015a).

### ***Decommissioning***

At the end of the CCSM Project, PCW would decommission the Phase I Wind Turbine Development. PCW anticipates the decommissioning of the CCSM Project, including the Phase I Wind Turbine Development, would take three years to complete. Pre-decommissioning activities would occur prior to mobilization of the decommissioning contractor and would include coordination and outreach meetings with stakeholders. Stakeholder meetings would be held to determine the scope, requirements, and standards for decommissioning. The decommissioning workforce would include up to 398 people. The same types of equipment used for construction of the Phase I Wind Turbine Development would be needed for decommissioning.

Decommissioning activities anticipated for the Phase I Wind Turbine Development would include the removal of wind turbine generators, electrical equipment, meteorological towers, aggregate, drainage structures (e.g., culverts), laydown yard aggregate, and temporary facilities; demolition of buildings; and decompaction of subbase. No blasting activities are anticipated during decommissioning. Disturbance related to decommissioning activities would be reclaimed in accordance with the Master Reclamation Plan, included as Appendix B of the CCSM Project ROD (BLM 2012a) and the site-specific reclamation plan, included as Appendix L of the Phase I Wind Turbine Development SPOD (PCW 2015a). The Master Reclamation Plan for the CCSM Project ROD provides an overview of the reclamation goals which were developed based on the Rawlins RMP, among other BLM reclamation policies and guidance documents.

Instruction memorandum (IM) No. 2015-138 (BLM 2015b) supplements the annual solar and wind energy bonding certification requirements of IM 2013-034 with requirements for an additional review and update of solar and wind energy performance and reclamation bond requirements. The BLM will review each authorized wind energy ROW authorization project file to ensure compliance with the BLM bonding policies and verify that the performance and reclamation bond held by the BLM is adequate to cover the terms and conditions of the right-of-way grant.

### ***Wind Turbine Generators***

Wind turbine generator decommissioning consists of tower wiring removal and wind turbine generator dismantling. To facilitate wind turbine generator removal, it may be necessary to restore portions of the turbine sites, similar to conditions during construction. Specifically, crane pads would be necessary to remove the turbine components and some areas around the pads may need to be compacted to allow turbine components to be stored on the ground until they can be removed from the site.

Prior to a crane arriving at the turbine site, turbine wiring removal would be done with turbine wiring demolition crews. Once the crane pad is complete, a main erection crane would be deployed to the turbine site and the wind turbine would be removed piece by piece in roughly the reverse order and process of the original turbine installation. Once the turbine parts are on the ground the rotor would be

disassembled with a crawler crane or rough terrain cranes and a forklift. Upon completion of rotor disassembly all turbine parts would be loaded onto trucks for transport back to the West Sinclair Rail Facility. Once the wind turbine components have been removed, any above-ground electrical facilities (such as padmount transformers) would be removed along with associated conduits and grounding grids to a depth of about three feet.

### Electrical System

All substations internal to the CCSM Project would be removed at the end of the CCSM Project; however, decommissioning of the Overland Substation may not be feasible. If at some future time, other transmission lines or generation facilities interconnect into the Overland Substation such that decommissioning and removal of the substation would lead to instability of the transmission grid, then the Overland Substation would remain and continue under the operation and maintenance of PCW or a regional transmission operator such as Rocky Mountain Power or Western Area Power Administration until such time as decommissioning and removal is feasible.

The underground electrical system (e.g., buried cable with above-ground junction and splice boxes) would be removed using backhoes and bulldozers, including cabling tails to a depth of about two feet below grade. To minimize new disturbance in previously reclaimed areas, cabling buried deeper than two feet would remain in place. The overhead electrical system would be removed in its entirety using bucket trucks, backhoes, front end loaders, and bulldozers. Conductors would be removed and poles disassembled.

### Foundations

Once an element supported by a foundation (e.g., wind turbine, transmission structure or building) has been decommissioned, the foundation would be removed to an appropriate depth to meet reclamation standards for federal and private lands, generally a maximum of four feet deep, except in the case of wind turbine foundations. Foundation removal for wind turbine generators would be limited to the pedestal portion of the foundation, i.e., the underground mat foundation would be left in place.

### Roads

Once roads are no longer needed for CCSM Project decommissioning activities, they would be removed, with the exception of the roads designated to be left in place as agreed to with stakeholders or for Ranch operations. Aggregate would be removed, the subbase decompacted, and the drainage structures removed.

### Temporary Facilities and Other Features and Facilities

PCW would use the CCSM Project operations and maintenance facilities during decommissioning to the maximum extent possible. However, some temporary features such as laydown yards, crane assembly areas, and crane paths may be necessary for the decommissioning of the Phase I Wind Turbine Development. PCW would establish these temporary features as needed at the locations specified in the Issued for Permit Plans (Appendix B of PCW 2015a) and at the conclusion of decommissioning, the temporary features would be removed.

PCW would decommission other CCSM Project features and facilities such as buildings, meteorological towers, and utilities using standard demolition techniques. Generally each feature or facility would be removed in the reverse order in which it was constructed. Facilities to be left in place include those required for the operation of the Ranch or as agreed to in the stakeholder meetings. All other facilities would be removed.

### **2.2.2.2 No Surface Occupancy Waivers**

The Proposed Action would include waivers of no surface occupancy restrictions for the following:

1. **Wildlife – Raptor Nests:** Per the 2008 Rawlins RMP and ROD (BLM 2008a), no well locations, roads, ancillary facilities or other surface structures requiring a repeated human presence would be allowed within 825 feet of active raptor nests (1,200 feet of a ferruginous hawk nest). As identified in Chapter 3 of this EA, 15 raptor nests occur within 825 feet (1,200 feet for ferruginous hawks) of the Phase I Wind Turbine Development Site, of which four nests were active (one red-tailed hawk nest in 2008, one red-tailed hawk nests in 2011, one American kestrel nest in 2013, and one golden eagle nest in 2014).
2. **Soils – Steep Slopes:** Per the 2008 Rawlins RMP and ROD (BLM 2008a), surface disturbance is prohibited on steep slopes greater than 25 percent. PCW is requesting a waiver of the prohibition of surface disturbance for wind turbine staging areas on slopes greater than 25 percent for a total of 6.0 acres of initial disturbance (Appendix B of PCW 2015a). No wind turbine generators would be located on slopes over 25 percent; however, the initial disturbance areas for some wind turbine sites would affect slopes greater than 25 percent due to cut and fill requirements necessary to establish appropriate slopes on the site that intersect the existing terrain. Generally this disturbance would consist of leveling features or placing fill on steep slopes to establish the design grade for the staging area. PCW would apply the appropriate measures in the Erosion Control Plan, Stormwater Pollution Prevention Plan, and Reclamation Plan to stabilize these locations and minimize erosion. In addition, PCW has proposed site-specific erosion control measures for all wind turbine sites that would disturb more than 0.16 acre of slopes greater than 25 percent, as well as sites with slopes greater than 25 percent located within 200 feet of an ephemeral or perennial channel (Appendix B of PCW 2015a).
3. **Lands and Realty – 5D ROW Setback:** The 5D ROW setback would be equal to five times the diameter of the turbine rotor. Based on the Phase I Wind Turbine Development SPOD (PCW 2015a), all turbine models under consideration have rotor diameters up to 394 feet (120 meters). Therefore, the 5D ROW setback would be calculated as 1,969 feet (600 meters). Two wind turbine generators (LMH-I-01 and LMH-J-01) in one location (T18N R88W S2) would be located within the setback of 5D or 1,970 feet from the ROW boundary. This setback was created to protect the wind energy development rights on adjacent parcels by ensuring that wake effects from the CCSM Project wind turbine generators do not impact neighboring parcels. In this location, the wind turbine generators are over 0.25 mile (1,320 feet) from the requested ROW boundary and the direction of the prevailing wind is parallel to the property line of the adjacent parcel. The majority of the neighboring parcel is within the 0.25 mile setback from the Overland Trail and the 1.1 times structure height (577 feet) setback from the public road.

The BLM will consider waivers of these restrictions based on environmental analysis of the proposed waiver in this EA. A stipulation shall be subject to waiver only if the authorized officer determines that the factors leading to its inclusion have changed sufficiently to make the protection provided by the stipulation no longer justified or if proposed operations would not cause unacceptable impacts. If the authorized officer has determined that a stipulation involves an issue of major concern to the public, modification or waiver of the stipulation shall be subject to public review for at least a 30 day period. By including the analysis of these waivers in this EA and releasing the EA for a 30-day public review, the BLM has met this requirement. If necessary, the BLM will apply other mitigation on a site-specific basis.

### **2.2.2.3 Surface Disturbance Summary**

The initial surface disturbance for the CCSM Project analyzed in the CCSM Project FEIS (BLM 2012b) was 7,733 acres, with a long-term disturbance of 1,545 acres. Table 2-1 identifies the estimated initial

surface disturbance (3,035 acres) and long-term surface disturbance (485 acres) for the CCSM Project by project component based on the information provided in the Phase I Wind Turbine Development SPOD (PCW 2015a) and the infrastructure component SPODs (PCW 2014a, 2014b, 2014c). Table 2-1 provides a cumulative comparison of surface disturbance acreages to those provided in the CCSM Project FEIS (BLM 2012b). The CCSM Project FEIS (BLM 2012b) analyzes the entire CCSM Project; therefore, Table 2-1 compares the surface disturbance of the entire CCSM Project with the surface disturbance for the CCSM Project Infrastructure Components, Phase I Wind Turbine Development, and Phase II Wind Turbine Development (as anticipated). In addition, Table 2-1 identifies the acres of activity areas by project component. Surface disturbance estimates presented below represent the best available information.

**Table 2-1. Surface Disturbance Acreage for the Proposed Action Compared to the Chokecherry and Sierra Madre Final Environmental Impact Statement**

CCSM Project Component	Project Phase	EA Number	Initial Disturbance <sup>1</sup> (acres)	Long-Term Disturbance <sup>1</sup> (acres)	Activity Area <sup>2</sup> (acres)
Phase I Haul Road and Facilities	I	1	875	225	0
West Sinclair Rail Facility			370	121	0
Road Rock Quarry			184	18	0
Phase I Wind Turbine Development	I	2	3,035	485	440
Phase II Wind Turbine Development <sup>3</sup>	II	3	2,866	482	409
<b>Current Disturbance Estimate</b>	<b>N/A</b>	<b>N/A</b>	<b>7,330</b>	<b>1,331</b>	<b>N/A</b>
<b>CCSM Project FEIS Disturbance Estimate</b>	<b>N/A</b>	<b>N/A</b>	<b>7,733</b>	<b>1,545</b>	<b>N/A</b>
<b>Change</b>	<b>N/A</b>	<b>N/A</b>	<b>-403</b>	<b>-214</b>	<b>N/A</b>

Sources: BLM 2012a, 2012b; PCW 2014a, 2014b, 2014c, 2015.

<sup>1</sup>Initial disturbance areas are defined as the total area of surface disturbance and includes both the areas that would be reclaimed and the long-term disturbance. The initial disturbance areas would be reclaimed following construction in accordance with the Master Reclamation Plan, included as Appendix D of the CCSM Project FEIS (BLM 2012b) and the site-specific reclamation plan, included as Appendix L of the Phase I Wind Turbine Development SPOD (PCW 2015a). Long-term disturbance is defined as areas that would be reclaimed in accordance with these plans following decommissioning.

<sup>2</sup>Activity areas are areas where project activities may occur that do not require ground disturbance (would not be cleared or graded); thick vegetation higher than one foot may be trimmed to allow for safe vehicle access and minimize fire potential.

<sup>3</sup>The Phase II Haul Road and Facilities will be included in the Phase II Wind Turbine Development site-specific plan of development.

CCSM Chokecherry and Sierra Madre  
 EA Environmental Assessment  
 FEIS Final Environmental Impact Statement  
 N/A not applicable

To reduce the time between surface-disturbing activities and beginning interim reclamation, the CCSM Project implements a phased construction sequence identified in mitigation measure GEN-1 contained in Appendix D of the CCSM Project ROD (BLM 2012a). This approach would result in the construction of project facilities occurring over multiple years and allows the BLM to use an adaptive management approach to ensure the efficacy of BMPs in protecting wildlife and habitat as identified in the Wildlife Monitoring and Protection Plan, included as Appendix G of the CCSM Project ROD (BLM 2012a).

**2.2.2.4 Labor**

The CCSM Project FEIS (BLM 2012b) evaluates the impacts associated with the CCSM Project workforce. Specifically, the CCSM Project FEIS (BLM 2012b) analyzes a peak workforce of 1,200 workers during construction, 158 during operations and maintenance, and 400 during decommissioning. Table 2-2 compares PCW’s current workforce estimates for the Phase I Wind Turbine Development to those analyzed in the CCSM Project FEIS (BLM 2012b). The Phase I peak construction workforce of 945 workers would occur in 2019. The peak workforce during Phase I construction, operation, maintenance, and decommissioning, would be less than the estimated peak workforce for the CCSM Project analyzed in the CCSM Project FEIS (BLM 2012b).

**Table 2-2. CCSM Phase I Peak Workforce Estimate**

Year	Construction Workforce							Operations Workforce	
	FEIS	Phase I Haul Road and Facilities	West Sinclair Rail Facility	Road Rock Quarry	Phase I Wind Turbine Development	Total	Time of Year	FEIS	Phase I
2016	300	46	16	22	0	84	September	158	0
2017	400	119	87	33	16	255	July		0
2018	1,200	4	96	31	259	390	August		0
2019	1,200	4	147	33	761	945	July-August		40
2020	1,000	4	147	31	701	883	July-October		64
<b>PEAK</b>	<b>1,200</b>	<b>119</b>	<b>147</b>	<b>33</b>	<b>761</b>	<b>945</b>	<b>N/A</b>		<b>158</b>

Sources: PCW 2014a, 2014b, 2014c, 2015.

CCSM Chokecherry and Sierra Madre  
 FEIS Final Environmental Impact Statement  
 N/A not applicable

**2.2.2.5 Vehicle Traffic**

The Phase I Wind Turbine Development SPOD (PCW 2015a) provides information on vehicle access to the CCSM Project Area. The Transportation Management Plan, provided as Appendix D of the Phase I Wind Turbine Development SPOD (PCW 2015a), evaluates the transportation requirements of the CCSM Project, the existing and proposed infrastructure in the vicinity of the CCSM Project Site, and existing and anticipated traffic conditions to develop strategies to avoid and minimize transportation impacts from the CCSM Project to the extent practicable.

PCW developed a transportation strategy to cost-effectively use local resources and minimize transportation impacts to the extent practicable during construction, operations, maintenance, and decommissioning of the CCSM Project. The objective of the transportation strategy is to keep deliveries internal to the CCSM Project Site when possible.

PCW completed a traffic study and developed a traffic management plan for the CCSM Project (Appendix D of PCW 2015a). The EIS and ROD addressed impacts from vehicle traffic. Subsequently, the specific impacts from vehicle traffic for the CCSM Project were analyzed in the EA for Infrastructure Components (BLM 2014a), that analysis is incorporated by reference and therefore, will not be addressed further in this EA.

### **2.2.2.6 Reclamation**

A Reclamation Plan has been developed for the Phase I Wind Turbine Development (Appendix L of PCW 2015a). The reclamation plan documents the site-specific methodologies, monitoring, and reporting requirements for reclaiming disturbed areas within the Phase I Wind Turbine Development Site. The reclamation plan identifies the ecological sites that occur within the Phase I Wind Turbine Development Site. The site-specific reclamation plan documents:

1. Pre-disturbance site characterization;
2. Proposed surface-disturbing activities within each ecological site;
3. Soil management techniques, including soil handling and BMPs; landscape reconstruction and erosion control; and methods of ensuring subsurface integrity;
4. Site preparation and revegetation techniques, including seed mixture design, seeding schedules, and rates/methods;
5. Weed management techniques; and
6. Reclamation monitoring objectives and procedures.

Although PCW intends to implement the reclamation measures contained in the site-specific reclamation plan (PCW 2015a) on private lands and state lands as well as federal lands, specific measures on private lands and state lands may vary due to potentially differing requirements of the landowners and state law. The reclamation plan is intended to be adaptive to take into account changing conditions and technologies.

#### ***Interim Reclamation***

In accordance with the CCSM Project Master Reclamation Plan in the CCSM Project FEIS (BLM 2012b), PCW would stabilize soils and control erosion for all disturbed areas immediately after surface disturbance occurs. Following initial stabilization, PCW would initiate interim reclamation for those areas that are not required for routine operations and maintenance, but which may be re-disturbed during non-routine activities or decommissioning. The objective of interim reclamation is to maintain healthy, biologically active topsoil; control erosion; and minimize habitat, visual and forage loss on those portions of the disturbed area not needed for operations for the life of the Project or until final reclamation is initiated. Additional information on interim reclamation is included in the Reclamation Plan for the Phase I Wind Turbine Development (Appendix L of PCW 2015a).

#### ***Final Reclamation***

For areas that would not be re-disturbed during operations and maintenance, and for all other areas following decommissioning, PCW would proceed with final reclamation as soon as practicable. The objective of final reclamation is to return the land to a condition approximating that which existed prior to disturbance, with allowances for an improved and/or stable ecological condition where possible. This includes reconstruction of the landform to its original state along with re-establishment of a stable vegetative community, hydrologic systems, visual resources, agricultural values, and wildlife habitats. Additional information on final reclamation is included in the Reclamation Plan for the Phase I Wind Turbine Development (Appendix L of PCW 2015a).



### **2.2.3 EA Alternatives Considered But Eliminated from Detailed Study**

As discussed in Section 2.2 above, the BLM has reviewed the USFWS ETP FEIS (USFWS 2016) which includes an alternative which consists of a subset of the 500 wind turbine generators included in the Phase I Wind Turbine Development. Under this alternative, the USFWS considers issuance of an ETP for a smaller project consisting of 298 wind turbine generators located in the Phase I portion of the Sierra Madre WDA. For consistency, the BLM considered whether this EA should analyze in detail a Phase I Sierra Madre WDA Only alternative (which would require construction of the Phase I infrastructure addressed in the EA for Infrastructure Components (BLM 2014a), but would not include the 202 wind turbine generators in the Phase I Chokecherry WDA). The BLM concluded that detailed analysis of a Phase I Sierra Madre WDA Only alternative is not warranted for the reasons described below.

First, the impacts associated with a smaller project alternative such as the Phase I Sierra Madre WDA Only alternative are within the range of the impacts disclosed in the CCSM Project FEIS (BLM 2012b). The Phase I Sierra Madre WDA Only alternative would include approximately 30% of the wind turbine generators identified in the CCSM Project FEIS (BLM 2012b) and the associated surface disturbance would be approximately 23% of that identified in the CCSM Project FEIS (BLM 2012b). For those resources that the BLM ID Team identified as potentially impacted (see Section 1.8 and Appendix A). Tables 2-3 and 2-4 provide comparisons of the anticipated impacts from the Phase I Sierra Madre WDA Only alternative and the CCSM Project FEIS (BLM 2012b). While most of the impacts on resources are directly proportional, the impacts on a few resources (e.g., impacts on cultural resources, paleontological resources, range resources, and wetlands) are not directly proportional; however, the analysis demonstrates that impacts associated with the Phase I Sierra Madre WDA Only alternative are within the range of those analyzed and disclosed in the CCSM Project FEIS (BLM 2012b) to which this EA tiers. The BLM could utilize the analysis in this EA to authorize a range of wind turbine generators, up to 500. In other words, this EA is adequate to support a range of BLM decisions, not only a binary choice (i.e., either approve zero or 500).

Second, the CCSM Project FEIS (BLM 2012b) analyzed a range of reasonable alternatives as well as a range of alternatives considered, but eliminated from detailed analysis. The CCSM Project FEIS (BLM 2012b) identified and considered a smaller project alternative (development only in the Phase I and II Chokecherry WDA and no development in the Phase I and II Sierra Madre WDA) but also eliminated that alternative from detailed analysis. As stated in the CCSM Project FEIS (BLM 2012b) for the Chokecherry only development alternative, i.e., a smaller project, "...the BLM NEPA Handbook (H-1790-1) allows for various parts of separate alternatives that are analyzed to be 'mixed and matched' to develop a complete preferred alternative as long as the reasons for doing so are explained. Since the impact analysis for all [EIS] alternatives analyzes the CCSM [WDAs] separately, the analysis would already cover this option and it would be unnecessary to complete a separate analysis." The CCSM Project FEIS analysis encompasses the impacts of the Phase I Sierra Madre WDA Only alternative. This EA considers and discloses impacts covering the Phase I Sierra Madre WDA Only alternative (see Table 2-3). Therefore, due to the analysis and disclosures provided in the CCSM Project FEIS and this EA a separate detailed analysis of the Phase I Sierra Madre WDA Only alternative is unnecessary.

Finally, as part of its analysis, the BLM considered information from PCW regarding whether the Phase I Sierra Madre WDA Only alternative or another configuration of the project smaller than the Proposed Action of 500 wind turbine generators or 1,500 MW (based on 3 MW wind turbine generators) would meet PCW's interests and objectives for the project. PCW's analysis demonstrates that building the project in two phases of 500 turbines (1,500 MW) is economically viable; however, when the generation falls below 1,500 MW per phase, the unit cost of transmission increases at such a steep rate that the cost of delivered power is above the market price for renewables in the Desert Southwest (PCW 2015b). Specifically, in order for PCW to successfully compete in California's renewable market, the total delivered cost of energy (generation plus transmission) must be competitive with in-state renewable energy generation.

To model this, PCW used an analytical tool known as Benefit Cost Ratio, which is used by transmission developers and utilities when determining whether it is economic to build transmission. The Benefit Cost Ratio assists in answering the question — does the benefit of the generation outweigh the cost of the line. The Benefit Cost Ratio divides the annual generation benefits by the annual cost of transmission.

Based on Federal Energy Regulatory Commission Order 1000 and the practical application of Benefit Cost Ratio by the California Independent System Operator, Benefit Cost Ratios that would support development of the required new transmission to deliver the energy from the CCSM Project range from approximately 1.0 to 1.25. PCW estimates that the Benefit Cost Ratio for transmission to deliver the initial 1,500 MW is between 0.8 and 1.2 and the Benefit Cost Ratio for transmission to deliver 3,000 MW is between 0.9 and 1.4. This is consistent with an independent study by the National Renewable Energy Laboratory (NREL) “California-Wyoming Grid Integration Study, Phase 1- Economic Analysis” which concluded that delivering 12,000 gigawatts of Wyoming wind via a 3,000 MW direct current transmission line competed favorably with in-state resources providing significant economic benefits to California ratepayers (NREL 2014). PCW anticipates that for the required new transmission to be built, such as the TransWest Express Transmission Project, or PacifiCorp’s Gateway West or Gateway South Transmission Projects, the Benefit Cost Ratio needs to be at the higher end of the range due to the significant capital investment. Below generation of 1,500 MW per phase, the Benefit Cost Ratio does not support developing the required transmission.

The economic viability of the CCSM Project has always been based on sizing it as a utility scale project due to the lack of existing transmission and the distance to the market in the Desert Southwest. The CCSM Project, with a total of 1,000 wind turbine generators and an installed capacity of 3,000 MW in two phases of 500 turbines (1,500 MW) is economically viable and achieves PCW’s interests and objectives. PCW has informed the BLM that a Phase I Sierra Madre WDA Only alternative that includes only 298 wind turbine generators and an installed capacity of approximately 894 MW would not be an economically viable alternative. Such an alternative would not meet PCW’s interests and objectives for the project and is therefore not a reasonable alternative.

The BLM has determined that additional analysis of the Phase I Sierra Madre WDA Only alternative is not necessary because: (1) the impacts associated with the Phase I Sierra Madre WDA Only alternative are within the scope of those impacts described in the CCSM Project FEIS (BLM 2012b); (2) the BLM considered a range of reasonable alternatives in the CCSM Project FEIS (BLM 2012b) including smaller project alternatives; and (3) the BLM is responding to PCW’s ROW application and PCW has informed BLM that the Sierra Madre WDA Only alternative is not economically viable and does not meet PCW’s interests and objectives. Therefore the Phase I Sierra Madre WDA Only alternative has not been carried forward for detailed analysis in this EA.

**Table 2-3. Impact Comparison by Resource for the Phase I Sierra Madre WDA Only Alternative and the CCSM Project FEIS**

Resource	Phase I Sierra Madre WDA Only Alternative Impacts (298 wind turbine generators)	CCSM Project FEIS Impacts <sup>1</sup>
<b>Surface Disturbance</b>	Initial: 1,809 acres Long-term: 294 acres Activity areas: 288 acres	Initial: 7,733 acres Long-term: 1,545 acres Activity areas: Not applicable
<b>Cultural Resources and Native American Concerns</b>	5 sites eligible for NRHP listing, of which 4 sites are anticipated to have adverse impacts.	467 cultural resource sites identified in the Application Area, with 67 of those sites presumed eligible for NRHP nomination.
<b>National Scenic and Historic Trails</b>	Continental Divide National Scenic Trail No visual impacts to the CDNST are anticipated beyond what was identified in the CCSM Project FEIS (BLM 2012b) and impacts would be less than the Phase I Wind Turbine Development alternative. No disturbance would occur within the CDNST SRMA. Impacts to the nature and purposes, resources, qualities, values or associated settings, or the primary use of the CDNST are also consistent with those disclosed in the CCSM Project FEIS (BLM 2012b).	Continental Divide National Scenic Trail Strong contrasts would be most pronounced within 5 miles of the CDNST in the western portion of the Chokecherry WDA and the southwest and northwest portions of the Sierra Madre WDA.
<b>Paleontological Resources</b>	One location may meet BLM's standards for significant paleontological resources.	Potential for finding scientifically valuable fossils in the CCSM Project Area.
<b>Range Resources</b>	<p><b>Initial/long-term loss of AUMs</b></p> <ul style="list-style-type: none"> <li>• Pine Grove/Bolten allotment: 246 AUMs/39 AUMs</li> <li>• Sage Creek allotment: 26 AUMs/4 AUMs</li> <li>• Grizzly allotment: 0 AUM/0 AUM</li> <li>• Emigrant allotment: 0.03 AUM/0 AUM</li> </ul> <p><b>AUM Reduction from Dust Deposition</b></p> <ul style="list-style-type: none"> <li>• Pine Grove/Bolten allotment: 409 AUMs</li> <li>• Sage Creek allotment: 39 AUMs</li> <li>• Grizzly allotment: 1 AUM</li> <li>• Emigrant allotment: 0 AUM</li> </ul> <p><b>Total Long-term AUM Reduction/percent of allotment</b></p> <ul style="list-style-type: none"> <li>• Pine Grove/Bolten allotment: 448 AUMs/2.7%</li> <li>• Sage Creek allotment: 42 AUMs/&lt;1%</li> <li>• Grizzly allotment: 1 AUM/&lt;1%</li> <li>• Emigrant allotment: 0 AUM/0%</li> </ul>	<p><b>Initial/long-term loss of AUMs</b></p> <ul style="list-style-type: none"> <li>• Pine Grove/Bolten allotment: 915 AUMs/185 AUMs</li> <li>• Sage Creek allotment: 21 AUMs/7 AUMs</li> <li>• Grizzly allotment: 17 AUMs/3 AUMs</li> <li>• Emigrant allotment: 0 AUM/0 AUM</li> </ul> <p><b>AUM Reduction from Dust Deposition</b></p> <ul style="list-style-type: none"> <li>• Pine Grove/Bolten allotment: 1,886 AUMs</li> <li>• Sage Creek allotment: 47 AUMs</li> <li>• Grizzly allotment: 37 AUMs</li> <li>• Emigrant allotment: 0 AUM</li> </ul> <p><b>Total Long-term AUM Reduction</b></p> <ul style="list-style-type: none"> <li>• Pine Grove/Bolten allotment: 2,071 AUMs</li> <li>• Sage Creek allotment: 54 AUMs</li> <li>• Grizzly allotment: 40 AUMs</li> <li>• Emigrant allotment: 0 AUM</li> </ul>

**Table 2-3. Impact Comparison by Resource for the Phase I Sierra Madre WDA Only Alternative and the CCSM Project FEIS**

Resource	Phase I Sierra Madre WDA Only Alternative Impacts (298 wind turbine generators)	CCSM Project FEIS Impacts <sup>1</sup>
<b>Soils</b>	See Table 2-4 for Order III Soil Survey factors.	See Table 2-4 for Order III Soil Survey factors.
<b>Vegetation General</b>	<ul style="list-style-type: none"> <li>• 1,809 acres of initial surface disturbance</li> <li>• 294 acres of long-term surface disturbance</li> <li>• 288 acres of activity areas</li> </ul>	<ul style="list-style-type: none"> <li>• 7,733 acres of initial surface disturbance</li> <li>• 1,545 acres of long-term surface disturbance</li> </ul>
<b>Vegetation Noxious Weeds</b>	<p>No new species of noxious/invasive weeds were observed during the surveys that were not previously known and disclosed in the CCSM Project FEIS.</p> <ul style="list-style-type: none"> <li>• 1,809 acres of initial surface disturbance</li> <li>• 294 acres of long-term surface disturbance</li> <li>• 288 acres of activity areas</li> </ul>	<p>Connection between soil disturbance and increased opportunities for the spread and establishment of weeds.</p> <ul style="list-style-type: none"> <li>• 7,733 acres of initial surface disturbance</li> <li>• 1,545 acres of long-term surface disturbance</li> </ul>
<b>Wetlands</b>	<p><i>Initial (linear feet)/long-term impacts</i></p> <ul style="list-style-type: none"> <li>• Wetland WUS: 4.72 acres (3,391 linear feet)/0.29 acre (192 linear feet)</li> <li>• Non-wetland WUS: 0.13 acre (1,596 linear feet)/0.01 acre (149 linear feet)</li> <li>• Total jurisdictional WUS: 4.85 acres (4,987 linear feet)/0.3 acre (341 linear feet)</li> </ul>	<ul style="list-style-type: none"> <li>• 14,989 linear feet initial impacts</li> <li>• 2,967 linear feet of long-term impacts</li> </ul>
<b>Water Resources</b>	41 crossings of USACE-jurisdictional areas, including 14 non-wetland WUS and 27 wetland WUS.	348 stream crossings.
<b>Wildlife and Fisheries Resources Big Game</b>	<p><i>Mule deer crucial winter range (CWR)</i></p> <ul style="list-style-type: none"> <li>• CWR area: 130,989 acres</li> <li>• CWR mapped in CCSM Project Area: 24,693 acres</li> <li>• Direct impacts to CWR: 194 acres (approximately 0.14 percent of the 130,989-acre CWR area and 0.79 percent of the 24,693 acres of CWR mapped within the CCSM Project Area)</li> <li>• Indirect impacts to CWR: 6,144 acres</li> </ul>	<p><i>Mule deer crucial winter range (CWR)</i></p> <ul style="list-style-type: none"> <li>• CWR mapped in CCSM Project Area: 24,963 acres</li> <li>• Direct impacts to CWR: 232 acres</li> <li>• Indirect impacts to CWR: 20,158 acres</li> </ul>

**Table 2-3. Impact Comparison by Resource for the Phase I Sierra Madre WDA Only Alternative and the CCSM Project FEIS**

Resource	Phase I Sierra Madre WDA Only Alternative Impacts (298 wind turbine generators)	CCSM Project FEIS Impacts <sup>1</sup>
<b>Special Status Species</b> <b>Pygmy Rabbit</b>	19 occurrences (13 active and 6 inactive) within 0.25 mile of the Sierra Madre WDA Only Site of which: <ul style="list-style-type: none"> <li>• 2 (2 active and 0 inactive) occur within the initial disturbance areas</li> <li>• 0 active sites within the activity areas</li> <li>• 17 occurrences are outside of, but within 0.25-mile of the Sierra Madre WDA Only Site</li> <li>• 200 acres of initial disturbance within areas of pygmy rabbit predicted presence; 41 acres of long-term impacts within areas of pygmy rabbit predicted presence.</li> </ul>	Direct impacts on 6,294 acres identified as having some probability of pygmy rabbit occurrence; most of the loss (4,797 acres) would occur in areas classified as having a low probability of occurrence.
<b>Special Status Species</b> <b>White-tailed Prairie Dog<sup>2</sup></b>	<ul style="list-style-type: none"> <li>• 105 acres of active white-tailed prairie dog colonies within the initial disturbance limits/4% active white-tailed prairie dog colonies mapped in Sierra Madre WDA Only Site</li> <li>• 24 acres within the long-term disturbance limits/&lt;1% active white-tailed prairie dog colonies mapped in Sierra Madre WDA Only Site</li> <li>• 15 acres of white-tailed prairie dog colonies within the Sierra Madre WDA Only Site activity areas</li> </ul>	<ul style="list-style-type: none"> <li>• 92 acres of initial impacts to white-tailed prairie dog habitat</li> <li>• 22 acres of long-term impacts to white-tailed prairie dog habitat</li> </ul>
<b>Special Status Species</b> <b>Wyoming Pocket Gopher</b>	<ul style="list-style-type: none"> <li>• 16 mound/mound complexes predicted to be Wyoming pocket gopher (3 within initial disturbance area, 0 within the activity areas, and 13 outside the proposed surface disturbance or activity areas, but within 75 meters of these areas)</li> <li>• 40 unknown pocket gopher occurrences (4 within the initial disturbance area, 0 within the activity areas, and 36 located outside the proposed surface disturbance or activity areas, but are within 75 meters of these areas)</li> <li>• WYNDD predict presence within 1,022 acres of the Sierra Madre WDA Only Site</li> </ul>	<ul style="list-style-type: none"> <li>• 6,922 acres of direct impacts to areas identified as having some Wyoming pocket gopher occurrence</li> </ul>

**Table 2-3. Impact Comparison by Resource for the Phase I Sierra Madre WDA Only Alternative and the CCSM Project FEIS**

Resource	Phase I Sierra Madre WDA Only Alternative Impacts (298 wind turbine generators)	CCSM Project FEIS Impacts <sup>1</sup>
<b>Special Status Species Burrowing Owl</b>	One transient, non-breeding burrowing owl observed.	One burrowing owl observed outside the fixed point surveys.
<b>Special Status Species Greater Sage-Grouse</b>	<p><i>Core Areas</i></p> <ul style="list-style-type: none"> <li>• No direct impacts to core areas</li> <li>• 69,837 acres of core area within 4 miles of Proposed Action could experience indirect impacts</li> </ul> <p><i>Non-Core Habitat Areas</i></p> <ul style="list-style-type: none"> <li>• 1,147 acres of initial disturbance in non-core sagebrush-dominated habitat</li> <li>• 173 acres of long-term disturbance in non-core sagebrush-dominated habitat</li> <li>• 189 acres of non-core habitat impacted by activity areas</li> </ul> <p><i>Leks</i></p> <ul style="list-style-type: none"> <li>• 28 leks (16 active/occupied and 12 inactive) within four miles of Sierra Madre WDA Only Site</li> <li>• 8 leks (7 active/occupied and 1 inactive) within one mile of Sierra Madre WDA Only Site</li> </ul>	<p><i>Core Areas</i></p> <ul style="list-style-type: none"> <li>• No direct impacts to core areas</li> <li>• 127,465 acres of core area within 4 miles of Proposed Action could experience indirect impacts</li> </ul> <p><i>Non-Core Habitat Areas</i></p> <ul style="list-style-type: none"> <li>• Impacts to 8,431 acres of non-core sagebrush-dominated habitat</li> </ul> <p><i>Leks</i></p> <ul style="list-style-type: none"> <li>• 37 leks within four miles</li> <li>• 19 leks within one mile</li> </ul>
<b>Special Status Species Mountain Plover</b>	<p><i>Impacts to suitable mountain plover habitat</i></p> <ul style="list-style-type: none"> <li>• 172 acres of initial surface disturbance</li> <li>• 19 acres of long-term surface disturbance</li> </ul>	<p><i>Impacts to suitable mountain plover habitat</i></p> <ul style="list-style-type: none"> <li>• 1,386 acres of initial surface disturbance</li> <li>• 281 acres of long-term surface disturbance</li> </ul>

**Table 2-3. Impact Comparison by Resource for the Phase I Sierra Madre WDA Only Alternative and the CCSM Project FEIS**

Resource	Phase I Sierra Madre WDA Only Alternative Impacts (298 wind turbine generators)	CCSM Project FEIS Impacts <sup>1</sup>
<b>Special Status Species</b> <b>Raptors</b>	<i>Raptor nests identified since 2008 that fall within 825 feet (1,200 feet for ferruginous hawk) of the Sierra Madre WDA Only Site:</i> American kestrel: 11 feet to edge of disturbance, active in 2013 Golden eagle <sup>3</sup> : 475 feet to edge of disturbance (334 feet from nearest activity area), active in 2014 Great horned owl: 0 feet to edge of disturbance, active in 2014 Red-tailed hawk: 795 feet to edge of disturbance, active in 2011 Red-tailed hawk: 765 feet to edge of disturbance, active in 2008 Unknown raptor: 331 feet to edge of disturbance, not active Unknown raptor: 668 feet to edge of disturbance, not active Unknown raptor: 455 feet to edge of disturbance, not active Unknown raptor: 815 feet to edge of disturbance, not active TOTAL: 9 raptor nests of which 5 were active	24 active raptor nests in Application Area.

<sup>1</sup>Source: BLM 2012b.

<sup>2</sup>Impacts to white-tailed prairie dog would be greater than those disclosed in the CCSM Project FEIS; however, long-term disturbance to less than one percent of active white-tailed prairie dog colonies mapped in Sierra Madre WDA Only Site would not be considered severe enough to make the species eligible for listing under the ESA or preclude improvement of their status.

<sup>3</sup>This golden eagle nest is located within the Chokecherry WDA; however, this nest falls within the Phase I Sierra Madre Only Alternative impact area due to infrastructure requirements for the alternative.

- AUM animal unit month
- BLM Bureau of Land Management
- CCSM Chokecherry and Sierra Madre
- CDNST Continental Divide National Scenic Trail
- CWR crucial winter range
- FEIS Final Environmental Impact Statement
- NRHP National Register of Historic Places
- SRMA Special Recreation Management Area
- USACE U.S. Army Corps of Engineers
- WDA wind development area
- WUS Waters of the U.S.
- WYNDD Wyoming Natural Diversity Database

**Table 2-4. Comparison of Initial and Long-Term Surface Disturbance of Soils by BLM Order III Survey Factors (acres)**

Soil Factor	Phase I Sierra Madre WDA Only		CCSM Project FEIS <sup>1</sup>	
	<i>Initial</i>	<i>Long-term</i>	<i>Initial</i>	<i>Long-term</i>
<b><i>Water Erosion</i></b>				
Slight	37.1	6.9	381	97
Slight/Moderate	102.1	5.6	287	48
Slight/Severe	887.3	168.0	3,519	738
Moderate	0	0	466	104
Moderate/Severe	194.8	29.9	877	149
Severe	588.2	83.1	2,086	392
No Data	0	0	80	14
<b><i>Wind Erosion</i></b>				
Slight	40.8	4.4	67	10
Slight/Moderate	720.5	123.4	1,425	238
Moderate	1,045.5	164.8	5,979	1,262
Moderate/Severe	0	0	44	7
Severe	2.7	0.9	100	12
No Data	0	0	80	14
<b><i>Runoff Potential</i></b>				
Very Low	0	0	5	1
Low	0	0	45	9
Low to Moderate	0	0	18	3
Low to High	2.7	1.7	27	6
Moderate	123.3	10.8	1,074	231
Moderate to High	511.1	83.6	1,386	243
High	1,172.3	197.4	5,047	1,034
Very High	0	0	19	3
No Data	0	0	75	13
<b><i>Topsoil Rating</i></b>				
Good	518.0	97.6	3,001	597
Fair	586.8	101.5	1,829	350
Poor	695.2	76.5	2,541	537
No Data	9.5	0	322	59



**Table 2-4. Comparison of Initial and Long-Term Surface Disturbance of Soils by BLM Order III Survey Factors (acres)**

Soil Factor	Phase I Sierra Madre WDA Only		CCSM Project FEIS <sup>1</sup>	
	<i>Initial</i>	<i>Long-term</i>	<i>Initial</i>	<i>Long-term</i>
<b>Road Rating<sup>2</sup></b>				
Slight	203.3	37.8	254	41
Slight/Moderate	1.3	0.6	51	32
Moderate	976.1	156.3	4,514	903
Severe	487.7	80.8	2,553	508
No Data	0	17.9	322	59

<sup>1</sup>Source: BLM 2012b.

<sup>2</sup>Road rating based on severity of soil limitations.

BLM Bureau of Land Management  
 FEIS Final Environmental Impact Statement

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## CHAPTER 3 – AFFECTED ENVIRONMENT

This Chapter describes the affected environment for the Proposed Action, including conditions and trends of the human and natural environment that potentially could be impacted by the Proposed Action described in Chapter 2 (*Proposed Action and Alternatives*). The Affected Environment described addresses the full 500 wind turbine generators Proposed Action. As described in Chapter 1 (*Introduction and Need for Proposed Action*) of this EA, the BLM identified through the scoping process 10 resources that are PI (potentially impacted) by the Proposed Action due to the following:

1. Regulations or guidance adopted since publication of the CCSM Project ROD (BLM 2012a) and which may affect the impact analysis as presented in Chapter 4 (*Environmental Consequences*) of this EA; or
2. New information may be available or new circumstances are present that need to be reviewed to determine if the new information or circumstances are consistent with the CCSM Project FEIS (BLM 2012b);

Only the 12 resources determined to be PI in Chapter 1 (*Introduction and Need for Proposed Action*) of this EA are discussed in this Chapter. For those 12 resources, this Chapter also presents a summary of the affected environment for Phase I of the CCSM Project by combining information from this Chapter and the EA for Infrastructure Components (BLM 2014a).

This EA is tiered to the CCSM Project FEIS (BLM 2012b). As a result, this Chapter incorporates by reference the affected environment descriptions for each of the 12 PI resources from the CCSM Project FEIS (BLM 2012b, pp. 3.1-1 through 3.16-4) (Table 3-1). This Chapter then either confirms that the information presented in the affected environment chapter of the CCSM Project FEIS (BLM 2012b) is consistent with the affected environment for the Proposed Action or presents new information and circumstances applicable to the CCSM Project Area and/or within the Phase I Wind Turbine Development Site. For instance, this Chapter summarizes the results of the cultural, paleontological, soils, and biological surveys conducted since publication of the CCSM Project FEIS (BLM 2012b). These surveys were conducted consistent with the applicable avoidance and minimization measures identified in the Summary of BLM Environmental Constraints, Applicant Committed Measures, Applicant Committed Best Management Practices and Proposed Mitigation Measures (Appendix D of the CCSM Project ROD (BLM 2012a), as well as the requirements of the Wildlife Monitoring and Protection Plan included as Appendix G of the ROD (BLM 2012a).

In addition, this EA incorporates by reference the information from the affected environment descriptions from the EA for Infrastructure Components (BLM 2014a) and presents a summary of the affected environment for Phase I of the CCSM Project. This summary is created by combining the affected environment information contained in both the EA for Infrastructure Components (BLM 2014a) and this EA. The affected environment for Phase I of the CCSM Project is then compared to the affected environment identified in the CCSM Project FEIS (BLM 2012b) to determine if the site-specific information is consistent with the affected environment identified in the CCSM Project FEIS (BLM 2012b).

**Table 3-1. CCSM Project FEIS Affected Environment Sections**

Resource	CCSM Project FEIS Section	CCSM Project FEIS Page
Cultural Resources and Native American Concerns	3.2	3.2-1
National Scenic and Historic Trails	3.7	3.7-1
Paleontological Resources	3.5	3.5-1
Range Resource	3.6	3.6-1
Soils	3.9	3.9-1
Vegetation	3.11	3.11-1
Water Resources	3.13	3.13-1
Wildlife and Fisheries Resources	3.14	3.14-1
Special Status Species	3.15	3.15-1

Source: CCSM Project FEIS (BLM 2012b).

CCSM Chokecherry and Sierra Madre  
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### 3.1 Cultural Resources and Native American Concerns

The CCSM Project FEIS (BLM 2012b) cultural resources affected environment section (pages 3.2-1 through 3.2-9) includes discussion of: (1) cultural resources and (2) Native American concerns. With respect to cultural resources, the affected environment section describes the regulatory environment for cultural resources and includes an overview of the prehistoric and historic narrative of the region. The Native American Concerns section of the affected environment summarizes the regulatory framework requiring consultation with Native American tribes. These requirements are also reflected in the Cultural Resources Programmatic Agreement, included as Appendix E of the CCSM Project ROD (BLM 2012a). The methods and data sources used to identify and evaluate cultural resources within the CCSM Project Area are also described.

Specifically, the affected environment section for cultural resources and Native American concerns describes the methods and results of a files search to identify previous cultural resources investigations and previously recorded cultural resources within Area of Potential Effect). As a result of the files search, both archaeological and cultural resources (including prehistoric, historic, and multicomponent sites) were identified within the search area. The Native American Concerns section outlines the specific consultation actions that have occurred for the CCSM Project and documents the results of a Class II sample inventory (as defined in BLM Manual 8110, Identifying and Evaluating Cultural Resources) of the CCSM Project Area. The Class II sample inventory identified 45 potentially sensitive sites.

The affected environment for cultural resources in the CCSM Project FEIS (BLM 2012b) was reviewed in accordance with the requirements in the Tiering Procedures. The affected environment information from the CCSM Project FEIS (BLM 2012b) remains valid for this EA because the regulatory framework, a Class I files search, and Class II inventory information reported therein has not changed since publication of the CCSM Project FEIS (BLM 2012b); however, new updated information for this EA is available based on the results of Class III inventories completed after publication of the CCSM Project FEIS (BLM 2012b). The affected environment section in the FEIS outlines general requirements for the site-specific Class III inventories. These Class III inventories have been conducted for the Phase I Wind

Turbine Development Site. This section provides the results of the Class III cultural resources inventories conducted in 2012, 2013, and 2014.

### **3.1.1 Methods and Information Sources**

The BLM has the legal responsibility to consider the effects of its actions on cultural resources located on federal land or affected by federal undertakings. For the current undertaking (the CCSM Project), a Programmatic Agreement is in place (BLM 2012a, Appendix E), directing how the BLM will carry out this responsibility under Section 106 of the National Historic Preservation Act (NHPA). Section 106 requires federal agencies to:

- Identify historic properties (those cultural resources which are eligible for the National Register of Historic Places [NRHP]) that are in the Area of Potential Effect of federal undertakings;
- Evaluate the potential effects of the undertaking on historic properties; and
- Consult with the federal and state preservation agencies and tribal governments regarding the results of historic property identification, including NRHP eligibility determinations, and the potential of the undertaking to affect historic properties, including proposed methods to avoid, minimize, or otherwise mitigate impacts on historic properties.

Cultural resources site significance is evaluated with regard to the criteria in Title 36 CFR 60.4, which states the following:

The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:

- A) That are associated with events that have made a significant contribution to the broad patterns of our history; or
- B) That are associated with the lives of persons significant in our past; or
- C) That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- D) That have yielded or may be likely to yield information important in prehistory or history.

As stipulated by the Programmatic Agreement (BLM 2012a, Appendix E), sites and isolated resources were identified and evaluated within the Class III survey area, which is broader than the actual Phase I Wind Turbine Development Site. This identification effort included intensive (Class III) cultural resources inventories and the evaluation of cultural resources in the Phase I Wind Turbine Development Site for eligibility for the NRHP using the National Register Criteria for Evaluation (36 CFR 60), as stipulated in the Programmatic Agreement (BLM 2012a, Appendix E).

### **3.1.2 Phase I Wind Turbine Development**

The Class III inventory for the Phase I Wind Turbine Development Site identified 283 cultural resource sites and 224 isolated resources within the inventoried area. The isolated resources are not NRHP-eligible and therefore are not considered further. One hundred twenty-six of the 283 cultural resource sites lie within the Phase I Wind Turbine Development Site (PCW 2015a). Eight of these 126 sites are considered eligible (or presumed eligible) for NRHP nomination (PCW 2015a), pending a final determination by BLM in consultation with the SHPO in accordance with the Programmatic Agreement. One of the eight NRHP-eligible sites is a segment of the Overland Trail [49CR932\_193] which does not contribute to the overall NRHP eligibility. Additional information on the Overland Trail is provided in Sections 3.2 and

4.2.2 (*National Scenic and Historic Trails*) of this EA. One of the eligible sites (48CR2181) is the historic Rawlins Wood Water Pipe and six of the eligible sites (48CR4009, 48CR9097, 48CR9163, 48CR9180, 48CR10089, 48CR10321) are multicomponent archaeological sites including prehistoric open camp sites. No other sites with historic property potential were identified within the Phase I Wind Turbine Development Site (PCW 2015a).

Of the 283 sites identified within the Class III Inventory area, 157 sites are located outside of the Phase I Wind Turbine Development Site. Of these, nine sites have been recommended eligible for NRHP nomination (48CR9236, 48CR10292, 48CR10294, 48CR10308, 42CR10326, 48CR10370, 48CR10391, 48CR10392, 48CR10393) and 147 sites have been recommended not NRHP-eligible, pending a final determination by BLM in consultation with SHPO in accordance with the Programmatic Agreement. One site remains unevaluated for eligibility to the NRHP.

### **3.1.3 Summary of the CCSM Phase I Affected Environment for Cultural Resources**

In the EA for Infrastructure Components (BLM 2014a), 101 cultural resource sites were identified in the inventoried area, with 13 of those sites eligible or presumed eligible for NRHP nomination. Therefore, for Phase I of the CCSM Project, which includes the Infrastructure Component Site and the Phase I Wind Turbine Development Site, 384 cultural resource sites were identified in the inventoried area, with a total of 21 of those sites eligible or presumed eligible for NRHP nomination. This is less than the number of sites identified in the CCSM Project FEIS, which found 467 cultural resource sites in the Application Area, with 67 of those sites presumed eligible for NRHP nomination.

## **3.2 National Scenic and Historic Trails**

In 2012, following publication of the CCSM Project ROD (BLM 2012a), the BLM published Manual 6280 –Management of National Scenic and Historic Trails and Trails Under Study or Recommended as Suitable for Congressional Designation. BLM Manual 6280 alters the management framework for the only congressionally designated trail affected by the CCSM Project, the Continental Divide National Scenic Trail (CDNST). BLM Manual 6280 also adds new requirements for analysis of two trails undergoing congressionally authorized feasibility studies (trails under study) for National Historic Trail (NHT) designation (BLM 2012c), (1) the Overland Historic Trail and (2) the Cherokee Historic Trail (NPS 2011).

To comply with the new National Trail Inventory requirement set out in BLM Manual 6280, the Continental Divide National Scenic Trail Inventory for the Chokecherry and Sierra Madre Wind Energy Project in Carbon County, Wyoming was completed in 2014 (CDNST Inventory; LSD 2014). This EA incorporates the results of the trail inventory for the CDNST, as well as provides additional information on the values, characteristics, and settings of the Overland Trail and the Cherokee Trail.

The CCSM Project FEIS (BLM 2012b; page 3.12-1 through 3.12-13) describes the Visual Resource Inventory findings and Key Observation Points (KOPs) from the CDNST, Overland Trail, and Cherokee Trail. Existing visual characteristics of these trails are documented in terms of the BLM’s Visual Resource Management (VRM) system in the CCSM Project FEIS (BLM 2012b). Descriptions of the BLM’s VRM classes, sensitivity level ratings and scenic quality ratings, and results of the viewshed analyses included in the CCSM Project FEIS (BLM 2012b; pages 3.12-1 through 3.12-16) and remain valid for this EA. No changes to the CDNST, Visual Resource Inventory or VRM designations in the CCSM Project Area have occurred subsequent to the publication of the CCSM Project FEIS (BLM 2012b), nor have there been any revisions to the regulatory framework for recreation or visual resource management described in the CCSM Project FEIS (BLM 2012b).

A historic narrative of the Overland Trail, and the management objectives and scenic and recreational resources for the CDNST were described in the CCSM Project FEIS (BLM 2012b; page 3.2-3 through 3.2-4 and pages 3.7-1 through 3.7-6, respectively). This EA updates the information reported in the CCSM Project FEIS (BLM 2012b) for the National Trails System.

### **3.2.1 BLM Manual 6280**

BLM Manual 6280 provides policies for the management of National Scenic Trails (NSTs) and NHTs. Specifically, this manual identifies requirements for the management of trails undergoing National Trail Feasibility Study, and the inventory, planning, management, and monitoring of designated National Scenic and Historic Trails (BLM 2012c).

For the purposes of NEPA and the implementation-level analysis addressed in this EA, BLM Manual 6280 serves as the primary administrative and management guidance for the National Trails System. This manual provides policy direction regarding the BLM's management approach and the NEPA analysis requirements for designated trails (i.e., NSTs and NHTs) and trails under study. A main objective of Manual 6280 compliance is to inventory and analyze potential project effects to the nature and purposes, resources, qualities, values, associated settings, and primary uses that support the nature and purposes for which the trail was designated. The CDNST Inventory (LSD 2014) is summarized below in section 3.2.2. The analysis of potential project effects to these trail resources is found in Section 4.2.2, National Scenic and Historic Trails.

### **3.2.2 Continental Divide National Scenic Trail**

The length of the CDNST assessed in this EA extends from I-80 at the city of Rawlins to the Medicine Bow National Forest boundary, consistent with the length of the CDNST in the VRM Decision Area in the CCSM Project ROD (BLM 2012a). Map 3-1 depicts the Area of Potential Adverse Impact (APAI) for the CDNST, which in compliance with Manual 6280 is the visible area seen from the CDNST based on a viewshed analysis for 100 meter wind turbine generators) to a distance of 15 miles or to the visual horizon within the VRM Decision Area, whichever is closer, (LSD 2014). The VRM Decision Area was established in the CCSM Project ROD as the areas that were most likely to be influenced by the CCSM Wind Energy Project (BLM 2012a).

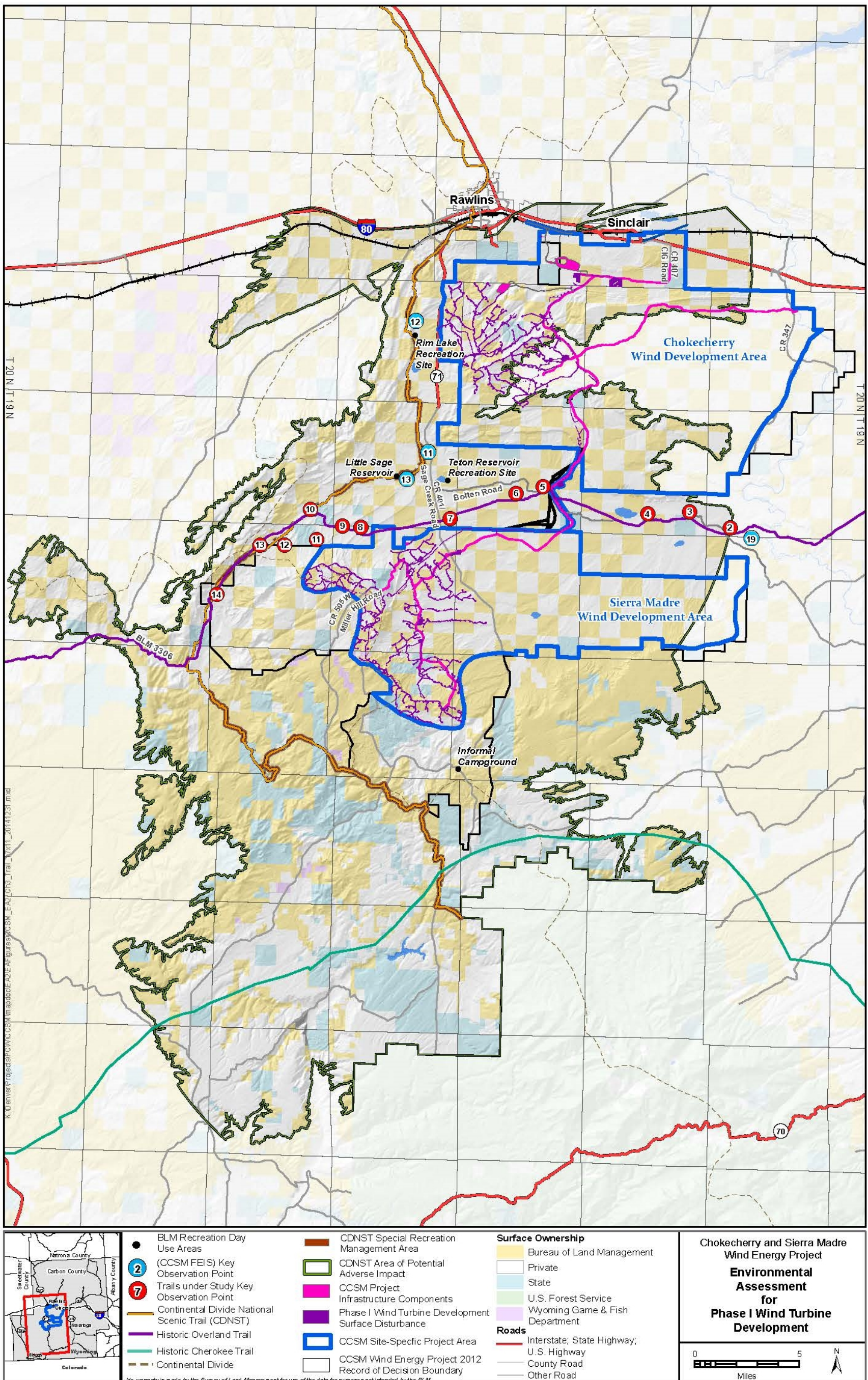
#### **3.2.2.1 Nature and Purposes**

The CDNST Comprehensive Plan states, “the nature and purposes of the CDNST are to provide for high-quality scenic, primitive hiking and horseback riding opportunities; and to conserve natural, historic, and cultural resources along the CDNST corridor” (USFS 2009). Similarly, the 2008 Rawlins RMP states that the CDNST will be “managed to provide opportunities for trail users to view the diverse topographic, geographic, vegetation, wildlife, and scenic phenomena that characterize the Continental Divide and to observe examples of human use of the natural resources” (BLM 2008a).

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Map 3-1. National Trails Affected Environment



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### 3.2.2.2 Primary Use or Uses

The primary uses of the CDNST are non-motorized recreation and transportation. The CDNST Comprehensive Plan identified the following non-motorized recreational uses for the 3,100-mile CDNST based on their compatibility with the nature and purposes of the CDNST: hiking, pack and saddle stock opportunities, backpacking, nature walking, day hiking, horseback riding, nature photography, mountain climbing, cross-country skiing, and snowshoeing (USFS 2009). Similarly, the 2008 Rawlins RMP/ROD states that the CDNST Special Recreation Management Area (SRMA) will be managed “to emphasize interpretive and educational opportunities” and “to accommodate camping, wildlife viewing, and other compatible uses” (BLM 2008a).

### 3.2.2.3 National Trail Right-of-Way and Management Corridor

The RFO established a 0.25 mile-wide SRMA on the BLM-administered lands of the CDNST to serve as a corridor for management of the CDNST as shown on Map 3-1 (BLM 2008a).

A National Trail Right-of-Way describes the area of land that is of sufficient width to encompass National Trail resources, qualities, values, and associated settings, and the primary use or uses. It is selected by the National Trail administering agency in the trailwide Comprehensive Plan (BLM 2012c). In the case of the CDNST, a National Trail Right-of-Way has not been formally established by the U.S. Forest Service in the CDNST Comprehensive Plan, though the Comprehensive Plan identified a “zone of concern” that consists of a 50-mile wide corridor centered on the geographic Continental Divide, in which the CDNST right-of-way may be relocated without further Acts of Congress. This corridor applies to all segments of the CDNST (USFS 2009).

As BLM Manual 6280 post-dates the 2008 Rawlins RMP (BLM 2008a), the RMP does not designate a National Trail Management Corridor.

### 3.2.2.4 Resources, Qualities, Values, and Associated Settings

The segment of the CDNST in the APAI currently uses existing aggregate-surfaced roads, graded natural surface roads, unnamed 4-wheel-drive /two-track roads, a paved road, and cross-country trails. Most of the APAI is characterized by natural landscapes and rangelands with limited development consisting primarily of roads, utility lines, and fences. Scattered agricultural, ranching and oil and gas development are also present, but are not visibly dominant.

The resources, qualities, values, and associated settings of the CDNST within the APAI are described briefly below and in greater detail in the Continental Divide National Scenic Trail Inventory for the Chokecherry and Sierra Madre Wind Energy Project in Carbon County, Wyoming (LSD 2014).

#### *Scenic Resources*

Scenery in the vicinity of the CDNST is dominated by large, steep landforms and their adjacent low, rolling hills and valleys. Grassland and low shrub vegetation, including sagebrush, comprises the majority of the vegetation within the APAI. Patches of mixed conifer and aspen are present in the higher elevations on north facing slopes, and riparian vegetation and scattered meadows are present along the rivers and creeks in the APAI. The western horizon is defined by the Atlantic Rim, and mountain ranges in the Medicine Bow National Forest form the southern and southeastern horizon. Rural, urban, and industrial development near Rawlins and Sinclair and along I-80 is prominent at the north end of the APAI. Eastern views are defined by large, steep landforms such as Miller Hill, Sheep Mountain, and Chokecherry Knob and their adjacent low, rolling hills and valleys such as Sage Creek Basin and Eight Mile Lake Basin (LSD 2014).

### ***Recreation Resources and Associated Settings***

Visitors to the CDNST within the APAI can take advantage of various recreational opportunities along the trail, as well as access sites within the APAI, such as Teton Reservoir, and outside of the APAI, such as the Medicine Bow National Forest. Motorized use is currently allowed on over 90 percent of the CDNST within the APAI due to its location on existing roads in those areas that allowed motorized vehicle use at the time of designation, or due to routing constraints across the checkerboard land ownership pattern (LSD 2014). Motorized use for administrative, commercial, and private purposes is common. Motorized recreation (scenic driving, off-highway vehicle use, and snowmobiling) also occurs. Scenic driving is common within the APAI from late March through November, especially during the fall season when the aspen leaves change color. Off-highway vehicle use occurs along specifically-authorized segments of the CDNST in the block federal lands, which allows access to more remote areas, especially during big game hunting seasons. Small and big game hunting is a popular activity during the open hunting seasons. Biking, picnicking, and other day use activities are also common on public lands within the APAI (LSD 2014).

The BLM maintains trail easements across private property for the CDNST alignment shown on Map 3-1. Trail easements across private lands allow legal access for recreationists; however, off-trail recreational use is not permitted on private lands (LSD 2014).

### ***Historic and Cultural Resources and Associated Settings***

The nature and purposes of the CDNST are to “conserve...historic and cultural resources along the CDNST corridor,” and a management objective for the CDNST SRMA is to “provide users with opportunities to view, experience, and appreciate examples of prehistoric and historic human use of the resources along the Continental Divide” (USFS 2009, BLM 2008a). As described in the CCSM Project FEIS (BLM 2012b), prehistoric and historic resources have been documented in the vicinity of the Phase I Wind Turbine Development within the CDNST APAI, some of which are or may be eligible for listing on the NRHP. Additional information regarding sites recommended or presumed eligible for listing in the NRHP as identified during Class III cultural resources inventories is described in Section 4.2.1, Cultural Resources and Native American Concerns.

Historic-age sites including expansion-era trails and freight roads also are located in the APAI, the majority of which date from the Territorial Period in the late 1800s to the Depression period (1939). The historic era began in the early 1800s, with the arrival of well-organized fur trading expeditions in the region. Major themes represented by historic cultural resources include ranching, transportation, and mining (BLM 2012b). Two historic trails under feasibility study and recognized in the 2008 Rawlins RMP are within the CDNST APAI: the Overland Trail and Cherokee Trail, which are described under the headings Overland Trail and Cherokee Trail, below (BLM 2008a). The CDNST intersects the Overland and Cherokee Trails, and shares the same corridor as the Overland Trail for approximately 8 miles. The site setting of the Overland Trail within the CDNST APAI contributes to its NRHP eligibility (BLM 2012b).

### ***Biological, Natural, and Other Landscape Resources***

BLM Manual 6280 includes an inventory and analysis of the natural, biological, geological, and scientific resources and geographic extent of the natural landscape elements that influence the trail experience and contribute to resource protection (BLM 2012c). The nature and purposes of the CDNST are to “conserve natural...resources along the CDNST corridor,” and a management action for the CDNST SRMA is that the SRMA “will be managed to provide opportunities for trail users to view the diverse topographic, geographic, vegetation, wildlife, and scenic phenomena that characterize the Continental Divide and to observe examples of human use of the natural resources” (USFS 2009, BLM 2008a). The series of ridge

landscapes within and adjacent to the APAI are typical of the Wyoming Basin physiographic province. Elevations in the APAI range from approximately 6,800 to over 8,400 feet above mean sea level. Vegetation communities and wildlife within the APAI are consistent with the vegetation and wildlife described in the CCSM Project FEIS (BLM 2012b). Geologic formations and structures of note in the APAI include the Continental Divide, Atlantic Rim, Sheep Mountain, Miller Hill, and Grenville Dome (LSD 2014).

### **3.2.3 Overland Trail (under feasibility study)**

The Overland Trail served as a principal overland stage and emigrant trail route between Kansas and Utah, and was used extensively from 1862 to 1869. The trail traversed roughly east-west across southern Wyoming to Fort Bridger, in the southwest corner of the state. From there the trail continued southwest along the Mormon Trail into Salt Lake City, Utah. The trail was likely blazed along a series of existing trails, which crisscrossed the northern Plains and Rocky Mountains, and were used originally by Indians, then fur trappers and explorers, and later emigrants. The first documented use of a trail that would become the Overland Trail is in 1825, when William H. Ashley's expedition party followed portions of the trail in Wyoming. In the early 1860s the trail's utilization increased when the Overland Stage Company shifted its mail transport and passenger service operations from the Oregon Trail to the Overland Trail for safety reasons, as well as cost-savings (LSD 2014).

With the completion of the Transcontinental Railroad in 1869, the need for mail service by stagecoach dwindled and the Overland Stage Company ceased operations along the Overland Trail. It is estimated that between 1862 and 1868 more than 20,000 emigrants traveled the trail each year (LSD 2014). As previously discussed, the NPS is conducting a feasibility study to evaluate the addition of the Overland Trail to the California NHT.

The Overland Trail traverses the CCSM Project Area through landscapes characterized by rolling steppe and plains typical of the Wyoming Basin physiographic province which are primarily vegetated with low-growing shrub and grassland species, as shown in Map 3-1. The Overland Trail setting through the Sage Creek basin is a generally open valley crossed by barbed wire fences at some property boundaries and paralleled or overlapped by the Bolten Road (an improved crowned road) east of Highway 71 to the Bolten Ranch, and the Bridger Pass Road (another crowned and ditched road) west of Highway 71, with numerous two-track roads splitting from and crossing the country between these comparatively arterial named roadways (SWCA 2012). There are limited recreation opportunities along these segments except where the trail crosses public roads, such as an overlook along Wyoming Highway 789 (BLM 2008a).

In 2008, a field assessment identified and evaluated the historical integrity of the Overland Trail at and in proximity to the CCSM Project Area from the North Platte River crossing, at east, to Sulphur Springs Stage Station at west (Barclay 2011). Portions of this trail route retain sufficient historical integrity to contribute to maintaining the overall NRHP eligibility of the resource (Barclay 2011). In these segments, the setting is largely unaffected by modern development with only gravel and two-track roads and structures associated with ranches (telephone lines, fencelines, water pipelines, and ditches) visible on the landscape from the trail trace. For these portions of the trail route, the integrity of the setting is otherwise intact and maintains a sense of feeling and association for the period of significance (Barclay 2011).

As a trail under feasibility study, the Overland Trail does not have a nature and purpose, primary use(s), National Trail Right-of-Way, or National Trail Management Corridor.

### **3.2.4 Cherokee Trail (under feasibility study)**

The Cherokee Trail is a 900-mile overland trail that passed through present-day Oklahoma, Kansas, Colorado, and Wyoming. The trail originated in Tahlequah, Oklahoma, and proceeded north-northwest through Kansas, Colorado and then west across southern Wyoming, where it connected with other westward trails at Fort Bridger, Wyoming as shown in Map 3-1. The trail's development is related to the California Gold Rush of the late 1840s when the route was blazed by Cherokee parties leaving Oklahoma in search of work in the gold fields. The first party to use this route did so in 1849 and within a year at least five more Cherokee parties travelled the route to reach California. During the next four decades the trail was a primary transportation corridor through the central Plains into the Rockies. Similar to the Overland Trail, the NPS is conducting a feasibility study to evaluate the addition of the Cherokee Trail to the California NHT.

As a trail under feasibility study, the Cherokee Trail does not have defined nature and purpose, primary use(s), a National Trail Right-of-Way, or National Trail Management Corridor.

### **3.2.5 Summary of the CCSM Phase I Affected Environment for National Scenic and Historic Trails**

The affected environment for national scenic trails and trails under feasibility study described above in this EA is the same as the affected environment disclosed in the EA for Infrastructure Components (BLM 2014a). Therefore, the affected environment for Phase I of the CCSM Project is as disclosed above.

## **3.3 Paleontological Resources**

The CCSM Project FEIS (BLM 2012b) paleontological resources affected environment section (pages 3.5-1 through 3.5-4) includes discussion regarding: (1) potential fossil yield classification (PFYC) and (2) fossil potential in the CCSM Project Area. Federal laws, statutes, and regulations for paleontological resources also are discussed. As described in the CCSM Project FEIS (BLM 2012b), paleontological resources are closely tied to the geologic units (i.e., formations, members, or beds) in which they are located. The probability of finding paleontological resources can be broadly predicted from the geologic units present at or near the surface. The PFYC system is a method of classifying geologic units based on the relative abundance of vertebrate fossils or scientifically important fossils (plants and invertebrates) and their sensitivity to adverse impacts, as discussed in CCSM Project FEIS (BLM 2012b, p. 3.5-1). Table 3.5-1 of the CCSM Project FEIS (BLM 2012b) lists the PFYC with management guidance for each PFYC type, and Table 3.5-2 of the CCSM Project FEIS (BLM 2012b) summarizes the PFYC types and geologic formations/deposits occurring in the CCSM Application Area.

The affected environment section for paleontological resources in the CCSM Project FEIS (BLM 2012b) was reviewed in accordance with the Tiering Procedures. No changes to the PFYC in the CCSM Project Area have occurred subsequent to the publication of the CCSM Project ROD (BLM 2012a), nor have there been any revisions to the regulatory framework for paleontological resources described in the CCSM Project FEIS (BLM 2012b). However, since publication of the CCSM Project FEIS (BLM 2012b), additional geological and paleontological site investigations were performed within the CCSM Project Area, and the results of these surveys are provided below.

### **3.3.1 Geologic and Paleontological Surveys Conducted Subsequent to CCSM Project FEIS**

PCW conducted additional geotechnical investigations within the Phase I Wind Turbine Development Site since publication of the CCSM Project FEIS (BLM 2012b). Geology maps indicate that the geologic units underlying the Phase I Wind Turbine Development Site include Quaternary alluvium (PFYC 3), mixed Steele Shale/Niobrara formations (PFYC 3 and 5, respectively), Mesa Verde Group (PFYC 3), Steele Shale (PFYC 3), and a small parcel of Frontier, Mowry, and Thermopolis Shales (PFYC 3).

As set forth on page 4.5-3 of the CCSM Project FEIS (BLM 2012b), the 2008 Rawlins RMP requires that BLM “utilize on-the-ground survey prior to approval of surface disturbing activities...for Class 4 and Class 5 formations....” In compliance with the CCSM Project FEIS (BLM 2012b), a pedestrian paleontological assessment was completed on federal lands in the Phase I Wind Turbine Development Site in 2013. As no PFYC 4 formations occur in the CCSM Project Area, surveys were conducted for PFYC 5 formations as well as select PFYC 3 formations that were encountered during survey of the PFYC 5 areas. In the Lower Miller Hill portion of the Sierra Madre WDA, the majority of fossils identified in the Niobrara formation were evaluated as non-significant marine invertebrate fossil locations. One location in the Mowry and Thermopolis Shales in the Lower Miller Hill portion of the Sierra Madre WDA contained marine vertebrate and invertebrate fossils and may meet BLM’s standards for significant paleontological resources set forth in IM 2009-011. No additional geologic formation/deposits, other than those listed in Table 3.5-2 of the CCSM Project FEIS (BLM 2012b), were discovered as a result of geotechnical testing and on-the-ground pedestrian paleontological surveys (PCW 2015a).

### **3.3.2 Summary of the CCSM Phase I Affected Environment for Paleontological Resources**

The types of fossils found during the pedestrian surveys for the Infrastructure Component Site (BLM 2014a) and the Phase I Wind Turbine Development Site were consistent with the potential types identified in the CCSM Project FEIS (BLM 2012b). The CCSM Project FEIS (BLM 2012b) identified the potential for finding scientifically valuable fossils in the CCSM Project Area. During the pedestrian surveys for the Infrastructure Component Site, three areas met BLM’s criteria for significant fossil localities as defined in BLM IM 2009-11 and for the Phase I Wind Turbine Development Site, one location may meet these criteria.

## **3.4 Range Resources**

The CCSM Project FEIS (BLM 2012b) range resources affected environment section (pages 3.6-1 through 3.6-9) discusses: (1) grazing allotments; (2) range management systems; (3) range improvements; and (4) allotment evaluation status. The grazing allotments section describes the existing allotments within the CCSM Project Area, while the range management systems section describes the management of these allotments (e.g., intensive rotation systems). The range improvement section describes the multiple range improvements in the CCSM Project Area, including fences, wells, developed springs, and sagebrush treatments. The allotment evaluation status section describes how BLM evaluates land resources for grazing considerations and other uses and resources within a watershed. This section also outlines the Standards and Guidelines Assessment, which utilizes six standards for evaluating watershed health, and summarizes the results of the Standards and Guidelines Assessment conducted for two assessment areas that overlap with the CCSM Project Area: (1) the Upper Muddy Creek and Savery Creek watersheds in the Colorado River drainage; and (2) the North Platte River-Cow Creek, Jack Creek, Sage Creek, North Platte-Iron Springs Draw, Pass Creek, and Sugar Creek watersheds in the North Platte

River drainage. As a result of management improvements and the intense rotation grazing program, watershed conditions were on an upward trend when the Standards and Guidelines Assessment was conducted for these two assessment areas.

The affected environment for range resources in the CCSM Project FEIS (BLM 2012b) was reviewed in accordance with the Tiering Procedures. No changes to the grazing allotments, range management systems, range improvements, or allotment evaluation status in the CCSM Project Area have occurred subsequent to the publication of the CCSM Project ROD (BLM 2012a). Site-specific details regarding the three grazing allotments (Pine Grove/Bolten, Sage Creek, and Emigrant) within the Phase I Wind Turbine Development Site are provided below, as well as updated AUM estimates within these allotments.

### 3.4.1 Grazing Allotments and Range Management

The majority of the Phase I Wind Turbine Development Site is located within the Pine Grove/Bolten allotment, which is permitted for use by cattle and horses. A smaller area (174 acres) occurs within the Sage Creek allotment and 0.3 acre occurs in the Emigrant allotment. Cattle are run in a variable rotation on numerous pastures within all three allotments. Cattle may use the Pine Grove/Bolten allotment from March 1 until December 31. Grazing use by horses occurs elsewhere in the allotment. Table 3-2 identifies the total AUMs within each of the four allotments as reported in the BLM Rangeland Administration System (BLM 2014d).

**Table 3-2. Animal Unit Months by Allotment**

Allotment	AUMs for Allotment
Pine Grove/Bolten	18,006
Sage Creek	10,703
Emigrant	755

Source: BLM 2014d.

AUM animal unit month

### 3.4.2 Site-Specific AUM Estimates for the Phase I Wind Turbine Development Site

Based on surveys conducted subsequent to publication of the CCSM Project FEIS (BLM 2012b), ecological sites, parsed by precipitation zone, were mapped for portions of the CCSM Project Area to support reclamation planning (PCW 2015a). The BLM has identified three primary precipitation zones within the CCSM Project Area, categorized by the total annual rainfall: (1) the 7 to 9 inch per year zone; (2) the 10 to 14 inch per year zone; and (3) the 15 to 19 inch per year zone. Ecological sites for each of these three precipitation zones are described by the Natural Resources Conservation Service (NRCS) (2014), and included in those descriptions is an AUM estimate specific to each ecological site. Based on these descriptions, and the ecological site mapping for the CCSM Project Area, the BLM developed site-specific AUMs that occur within the Phase I Wind Turbine Development Site. Table 3-3 summarizes these site-specific AUM estimates by ecological site. The Phase I Wind Turbine Development Site, comprising 3,035 acres, plus the activity areas associated with the Phase I Wind Turbine Development comprising 440 acres, accounts for approximately 467 AUMs (3 percent of the total allotment AUMs) within the Pine Grove/Bolten allotment; 26 AUMs (less than 1 percent of the total allotment AUMs)



within the Sage Creek allotment; and 0.03 AUM (less than 1 percent of the total allotment AUMs) within the Emigrant allotment.

**Table 3-3. AUM Estimates by Ecological Site for the Phase I Wind Turbine Development Site**

Precipitation Zone	Ecological Site	Acre per Animal Unit Month Estimate	AUMs in Phase I Wind Turbine Development Site
<i>Pine Grove/Bolten Allotment</i>			
<b>7-9</b>	Clayey 7-9 Inch	14	4
	Clayey Overflow 7-9 Inch	10	1
	Deep Shale 7-9 Inch	17	12
	Loamy 7-9 Inch	9	22
	Saline Lowland 7-9 Inch	10	1
	Saline Upland 7-9 Inch	14	1
	Sandy 7-9 Inch	10	15
	Shallow Loamy 7-9 Inch	13	21
<b>10-14</b>	Very Shallow 7-9 Inch	20	1
	Clayey 10-14 Inch	10	28
	Deep Shale 10-14 Inch	8	15
	Loamy 10-14 Inch	7	119
	Loamy Overflow 10-14 Inch	7	4
	Saline Upland 10-14 Inch	10	1
	Sandy 10-14 Inch	7	2
	Shale 10-14 Inch	17	2
	Shallow Loamy 10-14 Inch	8	37
	Shallow Sandy 10-14 Inch	9	2
<b>15-19</b>	Wetland 10-14 Inch	2	2
	Aspen 15-19 Inch	4	7
	Loamy 15-19 Inch	4	122
	Mountain Windswept Ridge 15-19 Inch	15	17
	Shallow Loamy 15-19 Inch	6	4
<b>Other</b>	Wet Fresh Meadow 15-19 Inch	1	12
	Agriculture and Pasture	2	15
	Disturbed and Developed	0	0
<b>Pine Grove/Bolten Allotment Total</b>			<b>467</b>

**Table 3-3. AUM Estimates by Ecological Site for the Phase I Wind Turbine Development Site**

Precipitation Zone	Ecological Site	Acre per Animal Unit Month Estimate	AUMs in Phase I Wind Turbine Development Site
<i>Sage Creek Allotment</i>			
<b>15-19</b>	Aspen 15-19 Inch	4	1
	Loamy 15-19 Inch	4	18
	Mountain Windswept Ridge 15-19 Inch	15	6
	Shallow Loamy 15-19 Inch	6	1
<b>Sage Creek Allotment Total</b>			<b>26</b>
<i>Emigrant Allotment</i>			
<b>10-14</b>	Clayey 10-14	10	0.03
<b>Emigrant Allotment Total</b>			<b>0.03</b>
<b>Grand Total</b>			<b>493</b>

AUM animal unit month

### 3.4.3 Summary of the CCSM Phase I Affected Environment for Range Resources

Table 3-4 summarizes AUMs within each allotment and compares that with the AUMs within the Infrastructure Component Site, as disclosed in the EA for Infrastructure Components (BLM 2014a), and within the Phase I Wind Turbine Development Site.

**Table 3-4. AUM Estimate Summary for Phase I of the CCSM Project**

Allotment	Total Acres in Allotment <sup>1</sup>	Total AUMs in Allotment <sup>1</sup>	Site-Specific AUM Estimate		
			AUMs within Infrastructure Component Site <sup>2</sup>	AUMs within Phase I Wind Turbine Development Site	Total AUMs for Phase I
Pine Grove/Bolten	277,369	18,006	115	467	582
Sage Creek	29,433	10,703	9	26	35
Emigrant	5,583	755	0	<1	<1
<b>Total</b>	<b>312,385</b>	<b>29,464</b>	<b>124</b>	<b>493</b>	<b>617</b>

<sup>1</sup>Source: BLM 2014d.

<sup>2</sup>Source: BLM 2014a.

AUM animal unit month

CCSM Chokecherry and Sierra Madre

## **3.5 Soils**

The CCSM Project FEIS (BLM 2012b, pp. 3.9-1 through 3.9-9) summarizes soils data from the Order III Soil Survey, as well as a reconnaissance-level survey conducted within the CCSM Project Area in 2010. These surveys, as well as the Order III Soil Survey, identified soils that may be difficult to reclaim and stabilize (e.g., clayey, saline, sodic, seleniferous, soils with steep slopes, shallow, shale, and soils prone to slumping), as well as soils prone to wind or water erosion.

The CCSM Project FEIS (BLM 2012b) soils affected environment section (pp. 3.9-1 through 3.9-9) includes discussion regarding: (1) a regional overview and (2) Application Area soils. As described in the affected environment section, an Order III soil survey for BLM land in Carbon County was completed to provide baseline information to characterize soils. Soil resources within the CCSM Project Area have formed within the cool Central Desertic Basins, Mountains, and Plateaus, Major Land Resource Area 34A. A general description of soil characteristics and soil series was also presented in the affected environment section. The Order III Soil Survey was used to identify five soil factors that may influence development within the CCSM Project Area: (1) water erosion hazard, (2) wind erosion hazards, (3) surface runoff potential, (4) topsoil rating, and (5) road limitations.

The affected environment for soil resources in the CCSM Project FEIS (BLM 2012b) was reviewed in accordance with the Tiering Procedures. No changes to the general description of soils or to the five soil factors identified based on the BLM Order III Soil Survey (water erosion hazard, wind erosion hazards, surface runoff potential, topsoil rating, or road limitations) in the CCSM Project Area have occurred since publication of the CCSM Project FEIS (BLM 2012b). Site-specific details regarding general soil profiles and series names, as well as detail on the five soil factors, are provided below specifically for the Phase I Wind Turbine Development Site. In addition, PCW has provided updated chemical properties of soils within the Phase I Wind Turbine Development Site, and these data are summarized below.

### **3.5.1 General Soils Information for the Phase I Wind Turbine Development Site**

As described in the CCSM Project FEIS (BLM 2012b), a variety of soils occur across the CCSM Project Area. Soil variability stems from a variety of parent materials as influenced by topography, aspect, elevation, vegetation, and differential rates of mineral weathering.

As described in the Phase I Wind Turbine Development SPOD (PCW 2015a), the physiography of the Phase I Wind Turbine Development Site is characterized by alluvial fans, piedmont plains, and pediments originating from the surrounding mountains that form broad intermountain basins. The topography ranges from nearly level to steep, and slopes are commonly dissected. Soils have developed from a wide variety of parent material derived from sedimentary origins. Soils within the Phase I Wind Turbine Development Site have a frigid temperature regime, an aridic moisture regime, and mixed or bentonitic mineralogy.

### **3.5.2 BLM Order III Soil Survey Data for the Phase I Wind Turbine Development Site**

As described in the affected environment section for soil resources in the CCSM Project FEIS (BLM 2012b), the BLM completed an Order III Soil Survey that covers a portion of the CCSM Project Area. The information in the Order III Soil Survey has not changed since publication of the CCSM Project FEIS (BLM 2012b). Using the Order III Soil Survey and the site-specific information for the Phase I Wind Turbine Development, Table 3-5 classifies the Phase I Wind Turbine Development Site by soil survey factor.

**Table 3-5. Acres of BLM Order III Soil Survey Factors within the Phase I Wind Turbine Development Site**

Soil Factor	Total Area (Acres)
<b><i>Water Erosion</i></b>	
Slight	37.2
Slight/Moderate	108.7
Slight/Severe	1,620.1
Moderate/Severe	317.6
Severe	951.4
<b><i>Wind Erosion</i></b>	
Slight	40.8
Slight/Moderate	837.6
Moderate	2,058.0
Moderate/Severe	83.6
Severe	14.9
<b><i>Runoff Potential</i></b>	
Low to High	34.0
Low to Moderate	52.3
Moderate	123.3
Moderate to High	645.4
High	2,179.9
<b><i>Topsoil Rating</i></b>	
Good	1,282.5
Fair	733.4
Poor	878.0
No Data	141.0
<b><i>Road Rating<sup>1</sup></i></b>	
Slight	203.3
Slight/Moderate	1.3
Moderate	1,815.9
Severe	873.4
No Data	141.0

Source: BLM 2012b.

<sup>1</sup>Road rating based on severity of soil limitations

The majority of the Phase I Wind Turbine Development Site (1,766 acres, or 58 percent) has a below moderate/severe water erosion rating, whereas the majority of the Phase I Wind Turbine Development Site has a moderate wind erosion rating (2,058 acres, or 68 percent). Runoff potential is moderate, moderate to high, or high across the majority of the Phase I Wind Turbine Development Site (2,949 acres, or 97 percent). Topsoil is rated as fair to good across 2,016 acres (66 percent of the Phase I Wind Turbine Development Site), and unsurfaced road limitations are rated as slight to moderate across 2,021 acres (67 percent of the Phase I Wind Turbine Development Site).

### 3.5.3 Site-Specific Soil Surveys within the Phase I Wind Turbine Development Site

Subsequent to the CCSM Project FEIS (BLM 2012b), PCW completed additional soil surveys at 82 locations throughout the Phase I Wind Turbine Development area. Soil pits were dug and physical (e.g., soil texture) and chemical (e.g., pH, electrical conductivity) characteristics of those soils were recorded (Table 3-6). The site-specific soil surveys indicate that the Phase I Wind Turbine Development Site is primarily underlain by deep, loamy textured soils intermingled with areas of shallow, clayey, and sandy textured soils. Additional details on the physical and chemical composition of topsoil as well as sub-soil conditions within the Phase I Wind Turbine Development Site are provided in the site-specific reclamation plan (Appendix L of PCW 2015a).

The site-specific soils data were incorporated into the ecological site mapping completed for the site-specific reclamation plan (Appendix L of PCW 2015a). Sensitive soil conditions can be identified from this ecological site mapping. The BLM defines sensitive soils as possessing the following characteristics (BLM 2011):

- Topsoil Depth: No topsoil available or very shallow—less than 3 inches.
- pH: Greater than 8.4.
- Electrical Conductivity: Greater than 8 deci-Siemens per meter, indicating strongly saline soils.
- Sodium Absorption Ratio: Greater than 13 (this is a laboratory test), indicating sodic soils.
- Texture: Sand, sandy clay, silty clay, clay, or silt.
- Soil Surface Features: For example, visible biological activity, abiotic white crusts, abiotic black crusts, surface dominated by coarse material greater than 2 millimeters in diameter.
- Parent Materials: Marine shale, clay/siltstone, seleniferous (selenium bearing) geological substrates.
- Halophytes: For example, Gardner’s saltbush (*Atriplex gardneri*).
- Alkali Halophytes: For example, greasewood (*Sarcobatus vermiculatus*).
- Selenium Accumulator plants: For example, two-grooved milkvetch (*Astragalus bisulcatus*), prince’s plume (*Stanleya tomentosa*), and woody aster (*Xylorhiza glabriuscula*).
- Very shallow, saline, lowland, sands, clayey, or badland ecological sites.

**Table 3-6. Summary of Site-Specific Soil Physical and Chemical Characteristics across the CCSM Project Area**

Ecological Site	Topsoil Texture	Subsoil Texture	Topsoil Depth (inches)	Topsoil pH	Subsoil pH	Topsoil EC	Subsoil EC	Topsoil Fragments (% volume)	Subsoil Fragments (% volume)	Selenium Indicator Species (Yes/No)
<b>7-9 Inch Precipitation Zone</b>										
Clayey 7-9	Clay loam	Silty clay to clay	4.7	8.78	8.64	0.10	0.41	5-20%	0-35%	Yes
Clayey Overflow 7-9	Sandy clay loam to clay loam	Sandy clay loam to silty clay loam	4.7	8.62	8.37	3.7	3.0	None	None	Yes
Deep Shale 7-9	Fine sandy loam to clay loam	Sandy clay loam to clay loam	5.8	8.53	8.41	0.14	0.81	0-15%	0-30%	Yes
Loamy 7-9	Sandy loam to fine sandy loam	Sandy loam to clay loam	5.9	8.81	8.61	0.06	0.10	0-10%	0-50%	No
Saline Lowland 7-9	Silty clay loam to clay loam	Clay loam to clay	3.7	8.69	8.51	0.90	4.6	None	0-20%	Yes
Saline Upland 7-9	Silty clay loam to silty clay	Silty clay to clay	4.9	8.49	8.28	0.83	1.6	None	0-50%	Yes
Sandy 7-9	Loamy sand to sandy loam	Sandy loam to loam	4.6	8.16	8.49	0.08	0.10	0-20%	0-20%	No
Shallow Loamy 7-9	Loamy fine sand to loam	Fine sandy loam to silty clay loam	6.0	8.28	8.04	0.08	0.09	0-40%	0-50%	No
Very Shallow 7-9	Fine sand to fine sandy loam	<Null>	5.8	8.56	<Null>	0.22	<Null>	0-10%	None	No
<b>10-14 Inch Precipitation Zone</b>										
Clayey 10-14	Fine sandy loam to clay loam	Sandy clay loam to clay loam	6.8	8.57	8.78	0.24	0.07	None	0-50%	Yes
Deep Shale 10-14	Loam to clay loam	Silty clay loam to clay loam	8.0	8.32	8.06	0.40	2.2	0-20%	0-40%	Yes
Loamy 10-14	Fine sandy loam to sandy clay loam	Sandy loam to clay loam	5.4	8.52	8.45	0.05	0.09	0-20%	0-50%	No
Loamy Overflow 10-14	Fine sandy loam to clay loam	Sandy loam to silty clay	6.4	8.57	8.54	0.10	0.09	0-10%	0-10%	Yes
Saline Upland 10-14	Silty clay loam to silty clay	Sandy clay loam to clay	6.0	8.09	7.89	2.0	4.2	None	0-60%	Yes

**Table 3-6. Summary of Site-Specific Soil Physical and Chemical Characteristics across the CCSM Project Area**

Ecological Site	Topsoil Texture	Subsoil Texture	Topsoil Depth (inches)	Topsoil pH	Subsoil pH	Topsoil EC	Subsoil EC	Topsoil Fragments (% volume)	Subsoil Fragments (% volume)	Selenium Indicator Species (Yes/No)
Sandy 10-14	Fine sand to loamy fine sand	Fine sand to fine sandy loam	5.2	8.28	8.41	0.21	0.23	None	None	No
Shale 10-14	Clay loam	Sandy clay loam to silty clay	6.7	8.60	8.53	0.63	0.99	0-50%	5-50%	Yes
Shallow Loamy 10-14	Sandy loam to sandy clay loam	Sandy loam to clay loam	4.1	8.57	8.77	0.08	0.07	0-10%	0-45%	No
Shallow Sandy 10-14	Fine sand to fine sandy loam	<Null>	9.4	8.08	<Null>	0.18	<Null>	0-20%	None	No
Wetland and Riparian 10-14	Loam to silty clay loam	Silty clay to clay	7.7	8.60	8.32	0.42	0.67	None	0-15%	No
<b>15-19 Inch Precipitation Zone</b>										
Aspen 15-19	Fine sandy loam to loam	Sandy loam to sandy clay loam	7.6	7.24	7.18	0.09	0.03	None	0-15%	No
Loamy 15-19	Very fine sandy loam to loam	Sandy loam to clay loam	6.8	8.26	8.15	0.03	0.03	0-15%	0-50%	Yes
Mountain Windswept Ridge 15-19	Very fine sandy loam	Fine sandy loam to sandy clay loam	4.6	8.05	8.18	0.03	0.03	0-25%	0-50%	Yes
Shallow Loamy 15-19	Loamy very fine sand to very fine sandy loam	<Null>	6.3	7.92	<Null>	0.04	<Null>	10-40%	None	Yes
Wet Fresh Meadow 15-19	Loam	Sandy clay loam to clay loam	7.7	8.21	8.17	0.10	0.09	None	None	No

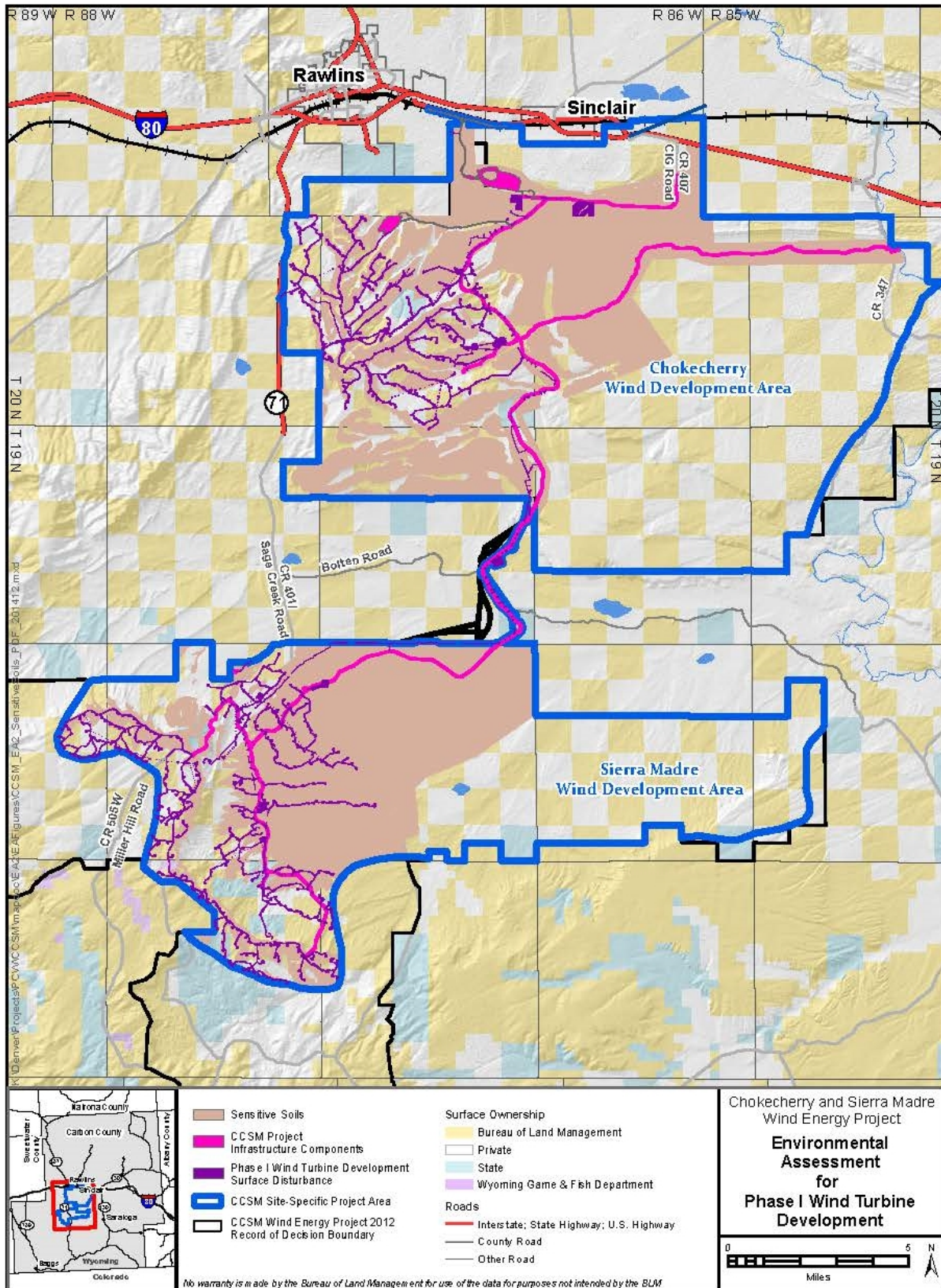
%            percent  
EC            electrical conductivity

Based on BLM's definition of sensitive soils (BLM 2011), PCW developed a sensitive soils data layer using the spatial data for ecological sites (SWCA 2014a) incorporating the specific physical and chemical characteristics of sensitive soils (Table 3-6, Map 3-2). Specifically, the sensitive soil data layer includes: (1) all shallow ecological sites (i.e., shallow loamy, shallow sandy, very shallow); (2) saline ecological sites (i.e., deep shale, saline lowland, saline upland, shale); (3) ecological sites with soils containing clayey textures (i.e., clays and silty clays) or sandy textures (i.e., sands); and (4) ecological sites with pH greater than 8.4 and fine textures.

In addition, PCW documented the presence of other soils that may be locally sensitive based on chemical and physical properties, as well as site-specific vegetation data (SWCA 2014b). These ecological sites may include sensitive physical (i.e., rock fragments) and chemical (i.e., saline and sodic conditions) characteristics that may be limiting; however, they do not occur universally throughout the ecological site and should be considered locally sensitive. The site-specific reclamation plan (Appendix L of PCW 2015a) addresses this uncertainty and provides the flexibility to address locally sensitive soil areas as they are identified during construction and reclamation. A total of 1,588 acres of sensitive soil resources may occur within the Phase I Wind Turbine Development Site, representing approximately 52 percent of the total area within the Phase I Wind Turbine Development Site.



Map 3-2. Sensitive Soils in the Phase I Wind Turbine Development Site



### 3.5.4 Summary of the CCSM Phase I Affected Environment for Soils

Table 3-7 provides a comparison of the soil survey factors in the CCSM Project Area considering: (1) the Infrastructure Component Site, as disclosed in the EA for Infrastructure Components (BLM 2014a); (2) the Phase I Wind Turbine Development Site, as disclosed in this EA; (3) the total for Phase I of the CCSM Project; and (4) the total identified in the CCSM Project FEIS (BLM 2012b).

**Table 3-7. Summary of Acres of BLM Order III Soil Survey Factors**

Soil Factor	Phase I			CCSM FEIS <sup>2</sup>
	Infrastructure Component Site <sup>1</sup>	Phase I Wind Turbine Development Site	Phase I Total	
<b>Water Erosion</b>				
Slight	394	37.2	431.2	14,621
Slight/Moderate	196	108.7	304.7	7,787
Slight/Severe	435	1,620.1	2,055.1	87,548
Moderate	56	0	56.0	12,764
Moderate/Severe	117	317.6	434.6	33,622
Severe	231	951.4	1,182.4	66,105
No Data	0	0	0	6,628
<b>Wind Erosion</b>				
Slight	9	40.8	49.8	11,767
Slight/Moderate	130	837.6	967.6	38,761
Moderate	1,269	2,058.0	3,327.0	168,342
Moderate/Severe	2	83.6	85.6	2,607
Severe	18	14.9	32.9	981
No Data	0	0	0	6,619
<b>Runoff Potential</b>				
Very Low	0	0	0	1,021
Low	29	0	29.0	2,089
Low to Moderate	10	52.3	62.3	693
Low to High	11	34.0	45.0	981
Moderate	260	123.3	383.3	33,838
Moderate to High	296	645.4	941.4	52,185
High	823	2,179.9	3,002.9	131,135
Very High	0	0	0	323
No Data	0	0	0	6,821

**Table 3-7. Summary of Acres of BLM Order III Soil Survey Factors**

Soil Factor	Phase I			CCSM FEIS <sup>2</sup>
	Infrastructure Component Site <sup>1</sup>	Phase I Wind Turbine Development Site	Phase I Total	
<b>Topsoil Rating</b>				
Good	370	1,282.5	1,652.5	55,370
Fair	356	733.4	1,089.4	68,052
Poor	689	878.0	1,567.0	93,510
No Data	14	141.0	155.0	12,144
<b>Road Rating<sup>3</sup></b>				
Slight	0	203.3	203.3	2,389
Slight/Moderate	13	1.3	14.3	1,010
Moderate	805	1,815.9	2,620.9	138,383
Severe	598	873.4	1,471.4	75,149
No Data	14	141.0	155.0	12,144

<sup>1</sup>Source: BLM 2014a.

<sup>2</sup>Source: BLM 2012b.

<sup>3</sup>Road rating based on severity of soil limitations.

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Based on the sensitive soils data layer created for Phase I of the CCSM Project, the EA for Infrastructure Components (BLM 2014a) identified 757 acres of sensitive soil resources. There are 1,588 acres of sensitive soil resources in the Phase I Wind Turbine Development Site, for a total of 2,345 acres of sensitive soils in Phase I of the CCSM Project.

### 3.6 Vegetation

The CCSM Project FEIS (BLM 2012b) vegetation affected environment section (pages 3.11-1 through 3.11-18) includes discussion regarding: (1) primary vegetation cover types, (2) wildlife habitat management areas, (3) noxious weeds and invasive species, and (4) wetlands and riparian zones. As described in the CCSM Project FEIS (BLM 2012b), the CCSM Project Area lies within three Level IV ecoregions, of which a majority of the Chokecherry WDA is mapped as rolling sagebrush steppe and a majority of the Sierra Madre WDA is mapped as foothills shrublands. The noxious weeds and invasive species section summarizes the primary types of noxious weeds and invasive species in the CCSM Project Area. Finally, the wetlands and riparian zones discussion describes PCW’s efforts to identify potential areas that may support wetland or riparian vegetation, an analysis that has since been updated as a result of the Waters of the United States (WUS) delineation effort for the Phase I Wind Turbine Development Site conducted in 2013 and 2014.

The affected environment for vegetation resources in the CCSM Project FEIS (BLM 2012b) was reviewed in accordance with the Tiering Procedures. No substantive changes to the vegetation resources described in the CCSM Project FEIS (BLM 2012b) have occurred since publication of the document.

This EA provides results from vegetation surveys, weed inventories, and WUS delineations performed subsequent to the publication of the CCSM Project FEIS (BLM 2012b).

### **3.6.1 Vegetation Cover Types**

The following sections summarize the vegetation communities occurring within the Phase I Wind Turbine Development Site (Map 3-3 and Map 3-4) using an updated vegetation data layer. The vegetation data presented in this EA use spatial data generated from PCW's 2009 vegetation classification, updated with site-specific vegetation and soil data collected from 2012 to 2014. These data reflect an updated understanding of the BLM vegetation mapping presented in the CCSM Project FEIS (BLM 2012b). Therefore, the vegetation data described in this section is consistent with the vegetation data provided in the CCSM Project FEIS (BLM 2012b), but provides additional detail.

The vegetation community names were refined based on botanical field work (e.g., vegetation transects) conducted from 2012 to 2014 to support the classification of ecological sites. Additional details on ecological sites are provided in the site-specific reclamation plan, included as Appendix L of the Phase I Wind Turbine Development SPOD (PCW 2015a).

Table 3-8 summarizes the vegetation communities observed within the Phase I Wind Turbine Development Site. Descriptions of these vegetation communities are provided in the Phase I Wind Turbine Development SPOD (PCW 2015a). The majority of the area within the Phase I Wind Turbine Development Site is located within Wyoming big sagebrush (*Artemisia tridentata* ssp. *Wyomingensis*), mountain big sagebrush (*Artemisia tridentata* ssp. *Vaseyana*), black sagebrush (*Artemisia nova*), and shadscale saltbush (*Atriplex confertifolia*) communities (Table 3-8). Smaller areas of upland grass and Gardner's saltbush communities also occur. Areas classified as riparian/mesic lowland communities also occur within the Phase I Wind Turbine Site; these communities are discussed in more detail in Section 3.11 (Water Resources).

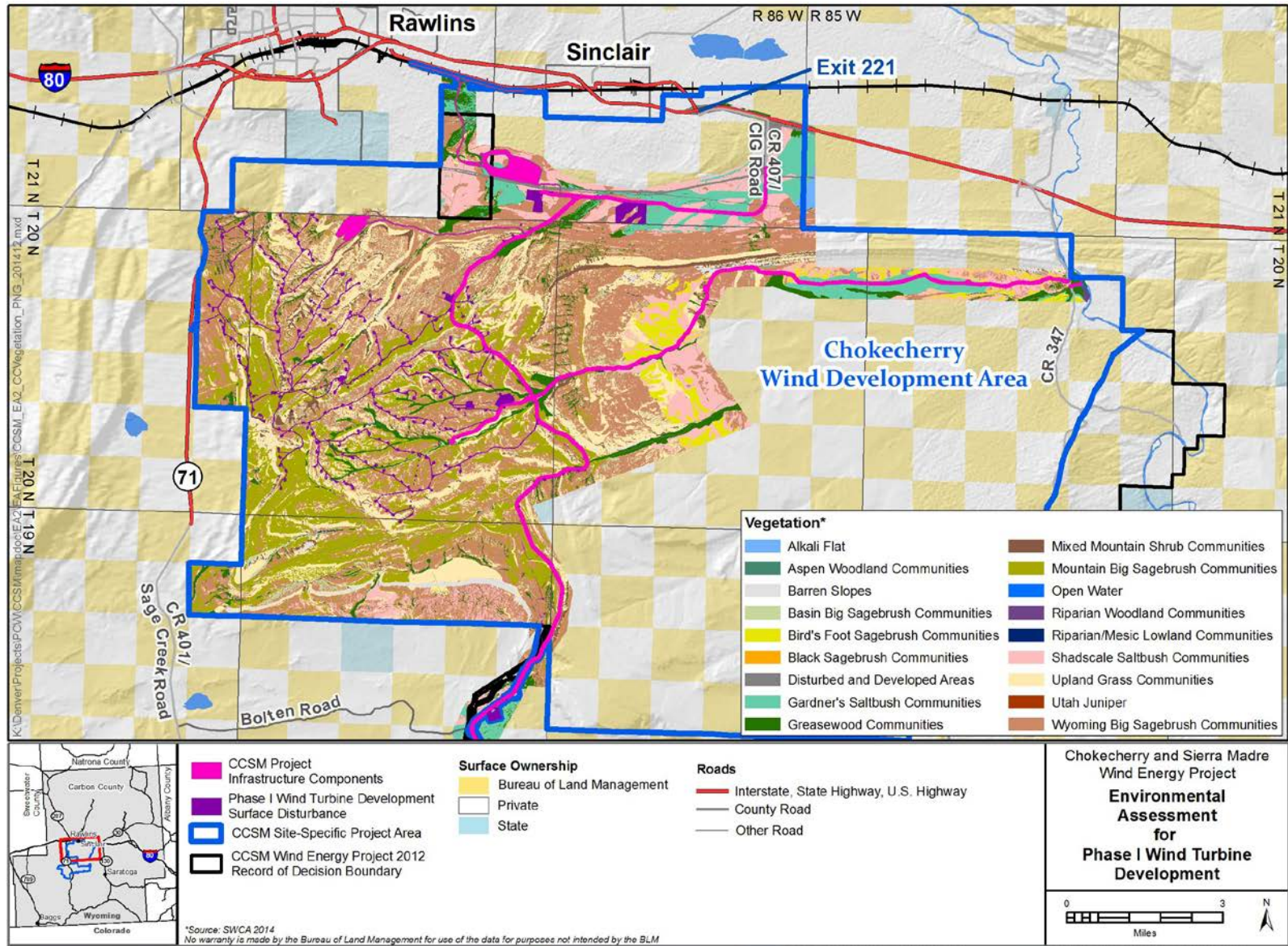
**Table 3-8. Vegetation Communities within the Phase I Wind Turbine Development Site**

Vegetation Community	Total Area (acres)	Activity Areas (acres)	Percent of Total Area in Phase I Wind Turbine Development Site
Wyoming Big Sagebrush Communities	716.5	83.9	26
Mountain Big Sagebrush Communities	669.0	110	26
Black Sagebrush Communities	466.6	41.7	17
Shadscale Saltbush Communities	418.9	76.6	16
Upland Grassland Communities	327.2	43.4	12
Gardner’s Saltbush Communities	196.7	27.9	7
Disturbed and Developed Areas	109.8	18.9	4
Greasewood Communities	60.4	22.4	3
Riparian/Mesic Lowland Communities	36.3	7.3	1
Aspen Woodland Communities	16.0	1.7	1
Basin Big Sagebrush Communities	8.3	3.7	<1
Barren Slopes	4.3	0.4	<1
Mixed Mountain Shrub Communities	3.6	1.6	<1
Birdfoot Sagebrush Communities	1.4	0.3	<1
<b>Grand Total</b>	<b>3,035.0</b>	<b>439.8<sup>1</sup></b>	<b>100</b>

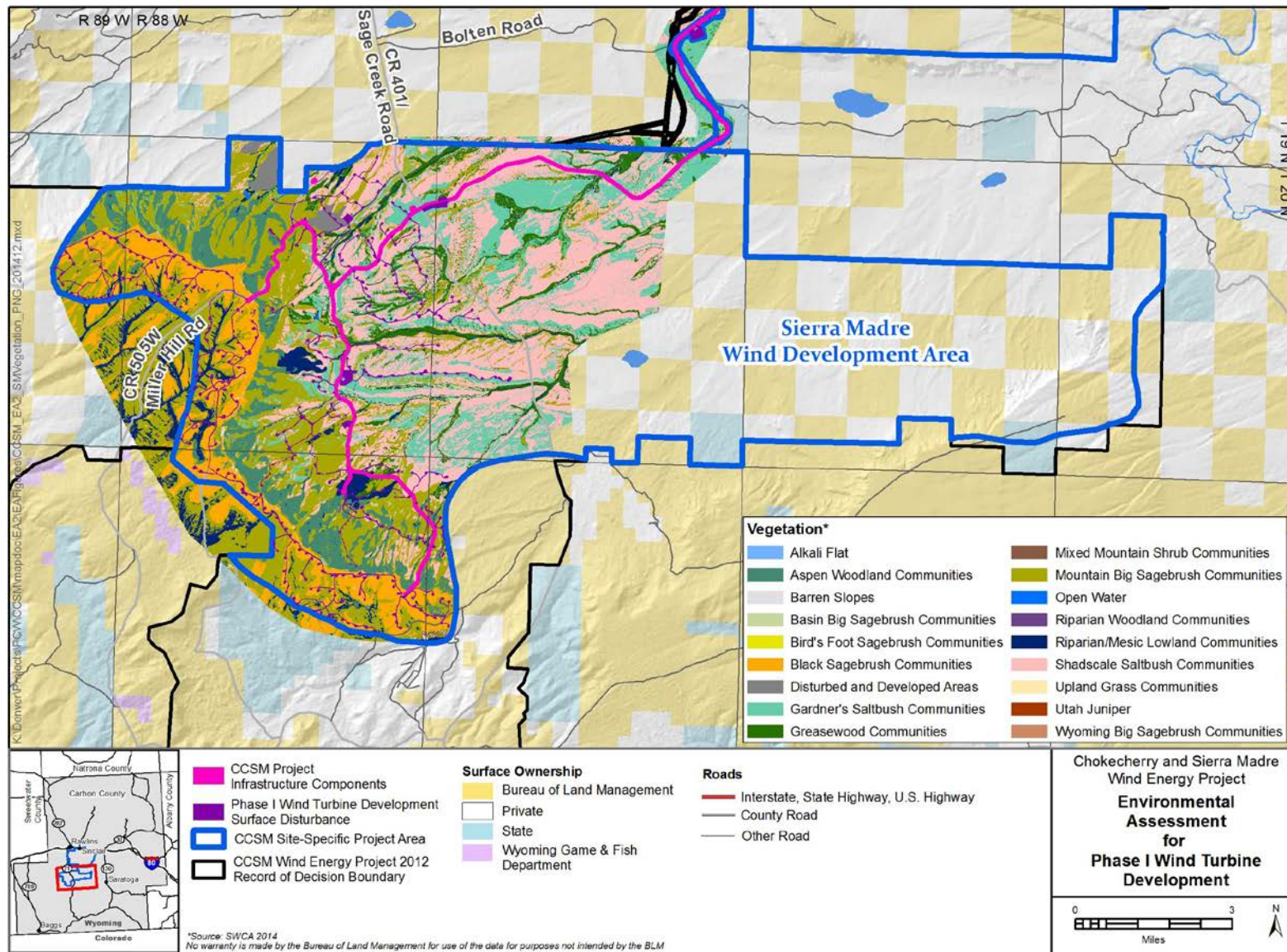
Source: SWCA 2014b.

<sup>1</sup>Numbers may not add up to the total 440 acres of activity areas due to rounding.

Map 3-3. Vegetation Types in the Phase I Wind Turbine Development Site Chokecherry Wind Development Area



Map 3-4. Vegetation Types in the Phase I Wind Turbine Development Site Sierra Madre Wind Development Area



### 3.6.1.1 Summary of the CCSM Phase I Affected Environment for Vegetation

Table 3-9 summarizes vegetation acreages within the Infrastructure Component Site, as disclosed in the EA for Infrastructure Components (BLM 2014a), and within the Phase I Wind Turbine Development Site. The EA for Infrastructure Components and this EA, addressing Phase I of the CCSM Project, use an updated vegetation data layer that further refines the vegetation layer used in the CCSM Project FEIS; however, the vegetation communities in Phase I of the CCSM Project are consistent with those identified in the CCSM Project FEIS.

**Table 3-9. Summary of Vegetation Communities for Phase I of the CCSM Project (acres)**

Vegetation Community	Infrastructure Components Site <sup>1</sup>	Phase I Wind Turbine Development Site	Activity Areas	Phase I Grand Total
Wyoming Big Sagebrush Communities	336.9	716.5	83.9	1,137.3
Mountain Big Sagebrush Communities	141.3	669.0	110	920.3
Shadscale Saltbush Communities	326.3	418.9	76.6	821.8
Black Sagebrush Communities	6.1	466.6	41.7	514.4
Gardner’s Saltbush Communities	269.4	196.7	27.9	494
Upland Grass Communities	69.3	327.2	43.4	439.9
Disturbed and Developed Areas	154.8	109.8	18.9	283.5
Greasewood Communities	83.2	60.4	22.4	166
Riparian/Lowland Communities	14.5	36.3	7.3	58.1
Basin Big Sagebrush Communities	10.9	8.3	3.7	22.9
Aspen Woodland Communities	5.3	16.0	1.7	23
Birdfoot Sagebrush Communities	6.5	1.4	0.3	8.2
Barren Slopes	2.5	4.3	0.4	7.2
Mixed Mountain Shrub Communities	1.0	3.6	1.6	6.2
Lowland Grass Communities	0.2	0	0	0.2
Riparian Woodland Communities	0.1	0	0	0.1
<b>Grand Total</b>	<b>1,428.3</b>	<b>3,035.0</b>	<b>439.8<sup>2</sup></b>	<b>4,903.1</b>

<sup>1</sup>Source: BLM 2014a.

<sup>2</sup>Numbers may not add up to the total 440 acres of activity areas due to rounding.

CCSM Chokecherry and Sierra Madre

### 3.6.2 Noxious Weeds and Invasive Species

The CCSM Project FEIS (BLM 2012b) provides a description of the general locations of documented noxious weeds and invasive species occurring within the CCSM Project Area and some adjacent areas. Subsequent to the publication of the CCSM Project FEIS (BLM 2012b), surveys were conducted for noxious and invasive species within the Phase I Wind Turbine Development Site. Between 2012 and



2014, surveys were conducted within areas proposed for surface disturbance and within activity areas for the Phase I Wind Turbine Development Site, plus a minimum 100-foot buffer; referred to as the weed survey area. Surveys focused on the potential occurrence of noxious weeds as well as other non-listed invasive weed species.

No new species of noxious/invasive weeds were observed during the surveys that were not previously known and disclosed in the CCSM Project FEIS (BLM 2012b). Table 3-10 lists potentially occurring noxious and invasive weed species, and their documented presence within the Phase I Wind Turbine Development Site weed survey area.

**Table 3-10. Noxious/Invasive Weeds Potentially Occurring in the CCSM Project Area**

Common Name	Identified within the Phase I Wind Turbine Development Site <sup>1</sup>		Identified within the CCSM Project Area <sup>2</sup>
	Chokecherry WDA	Sierra Madre WDA	
<i>Wyoming Weed and Pest Council Designated Noxious Weeds<sup>3</sup></i>			
Black henbane ( <i>Hyoscyamus niger</i> )	Not documented	Not documented	Yes
Canada thistle ( <i>Cirsium arvense</i> )	In adjacent areas, but not within weed survey area	Yes	Yes
Common burdock ( <i>Arctium minus</i> )	Not documented	Not documented	Not documented
Common tansy ( <i>Tanacetum vulgare</i> )	Not documented	Not documented	Not documented
Dalmatian toadflax ( <i>Linaria dalmatica</i> )	Not documented	Not documented	Not documented
Diffuse knapweed ( <i>Centaurea diffusa</i> )	Not documented	Not documented	Not documented
Field bindweed ( <i>Convolvulus arvensis</i> )	Not documented	Not documented	Not documented
Hoary cress (whitetop) ( <i>Cardaria draba</i> )	Not documented	Not documented	Yes
Houndstongue ( <i>Cynoglossum officinale</i> )	Not documented	Not documented	Not documented
Leafy spurge ( <i>Euphorbia esula</i> )	Not documented	Not documented	Yes
Musk thistle ( <i>Carduus nutans</i> )	Not documented	Yes	Yes
Oxeye daisy ( <i>Leucanthemum vulgare</i> )	Not documented	Not documented	Not documented
Perennial pepperweed ( <i>Lepidium latifolium</i> )	Not documented	Not documented	Yes
Perennial sowthistle ( <i>Sonchus arvensis</i> )	Not documented	Not documented	Yes
Quackgrass ( <i>Elymus repens</i> )	Not documented	Not documented	Not documented
Russian knapweed ( <i>Acroptilon repens</i> )	Yes	Yes	Yes
Russian olive ( <i>Elaeagnus angustifolia</i> )	Not documented	Not documented	Yes
Saltcedar (tamarisk) ( <i>Tamarix spp.</i> )	Not documented	Not documented	Yes
Spotted knapweed ( <i>Centaurea stoebe ssp. Micranthos</i> )	Not documented	Not documented	Not documented
Yellow toadflax ( <i>Linaria vulgaris</i> )	Not documented	Not documented	Not documented

**Table 3-10. Noxious/Invasive Weeds Potentially Occurring in the CCSM Project Area**

Common Name	Identified within the Phase I Wind Turbine Development Site <sup>1</sup>		Identified within the CCSM Project Area <sup>2</sup>
	Chokecherry WDA	Sierra Madre WDA	
<i>Other Invasive Species of Concern</i>			
Cheatgrass ( <i>Bromus tectorum</i> )	Yes	Yes	Yes
Common cocklebur ( <i>Xanthium strumarium</i> )	Not documented	Not documented	Not documented
Halogeton ( <i>Halogeton glomeratus</i> )	In adjacent areas, but not within weed survey area	Yes	Yes

<sup>1</sup>Source: PCW 2015a. Includes areas within 100 feet of initial disturbance areas.

<sup>2</sup>Source: BLM 2012b.

<sup>3</sup>Source: WWPC 2015. Only includes those Designated Noxious Weed species that have been documented in Carbon County and that have not been eradicated.

CCSM Chokecherry and Sierra Madre  
WDA wind development area

Map 3-5 shows the noxious weeds and invasive species occurrences described in the CCSM Project FEIS (BLM 2012b) as well as the results of the 2012 to 2014 noxious weed and invasive species surveys. See Section 3.11.3 (page 3.11-15) of the CCSM Project FEIS (BLM 2012b) for additional information on where specific noxious weeds and invasive species have been found within the CCSM Project Area.

The Weed Management Plan, included as Appendix J of the Phase I Wind Turbine Development SPOD (PCW 2015a), provides additional information about noxious and invasive species, as well as species descriptions and management options for noxious and invasive species observed within the disturbance areas associated with the Proposed Action.

### 3.6.2.1 Summary of the CCSM Phase I Affected Environment for Noxious/Invasive Species

Table 3-11 provides a comparison of the documented noxious/invasive weeds potentially occurring in the CCSM Project Area, as identified in the CCSM Project FEIS (BLM 2012b), with those occurring within the Infrastructure Component Site, as disclosed in the EA for Infrastructure Components (BLM 2014a), and with those occurring within the Phase I Wind Turbine Development Site, as disclosed in this EA. In general, the noxious/invasive weeds documented in Phase I of the CCSM Project are consistent with those identified as occurring in the entire CCSM Project Area; however, as identified in the table below, a few species identified for the entire CCSM Project Area were not found in Phase I of the CCSM Project.

**Table 3-11. Summary of Noxious/Invasive Weeds Potentially Occurring in the CCSM Project Area**

Common Name	Project Component		Identified within the CCSM Project Area <sup>2</sup>
	Infrastructure Component Site <sup>1</sup>	Phase I Wind Turbine Development Site	
<b>Wyoming Weed and Pest Council Designated Noxious Weeds<sup>3</sup></b>			
Canada thistle ( <i>Cirsium arvense</i> )	Haul Road, Quarry	Yes	Yes
Common burdock ( <i>Arctium minus</i> )	Not documented	Not documented	Not documented
Common tansy ( <i>Tanacetum vulgare</i> )	Not documented	Not documented	Not documented
Dalmatian toadflax ( <i>Linaria dalmatica</i> )	Not documented	Not documented	Not documented
Diffuse knapweed ( <i>Centaurea diffusa</i> )	Not documented	Not documented	Not documented
Field bindweed ( <i>Convolvulus arvensis</i> )	Not documented	Not documented	Not documented
Hoary cress (whitetop) ( <i>Cardaria draba</i> )	Haul Road	Not documented	Yes
Houndstongue ( <i>Cynoglossum officinale</i> )	Not documented	Not documented	Not documented
Leafy spurge ( <i>Euphorbia esula</i> )	Haul Road	Not documented	Yes
Musk thistle ( <i>Carduus nutans</i> )	Haul Road	Yes	Yes
Oxeye daisy ( <i>Leucanthemum vulgare</i> )	Not documented	Not documented	Not documented
Perennial pepperweed ( <i>Lepidium latifolium</i> )	Haul Road, Rail Facility	Not documented	Yes
Perennial sowthistle ( <i>Sonchus arvensis</i> )	Not documented	Not documented	Yes
Quackgrass ( <i>Elymus repens</i> )	Not documented	Not documented	Not documented
Russian knapweed ( <i>Acroptilon repens</i> )	Rail Facility, Haul Road	Yes	Yes
Russian olive ( <i>Elaeagnus angustifolia</i> )	Not documented	Not documented	Yes
Saltcedar (tamarisk) ( <i>Tamarix spp.</i> )	Not documented	Not documented	Yes
Spotted knapweed ( <i>Centaurea stoebe ssp. Micranthos</i> )	Not documented	Not documented	Not documented
Yellow toadflax ( <i>Linaria vulgaris</i> )	Not documented	Not documented	Not documented
Black henbane ( <i>Hyoscyamus niger</i> )	Not documented	Not documented	Yes
<b>Other Invasive Species of Concern</b>			
Cheatgrass ( <i>Bromus tectorum</i> )	Quarry, Haul Road, Rail Facility	Yes	Yes
Common cocklebur ( <i>Xanthium strumarium</i> )	Not documented	Not documented	Not documented
Halogeton ( <i>Halogeton glomeratus</i> )	Haul Road, Rail Facility	Yes	Yes

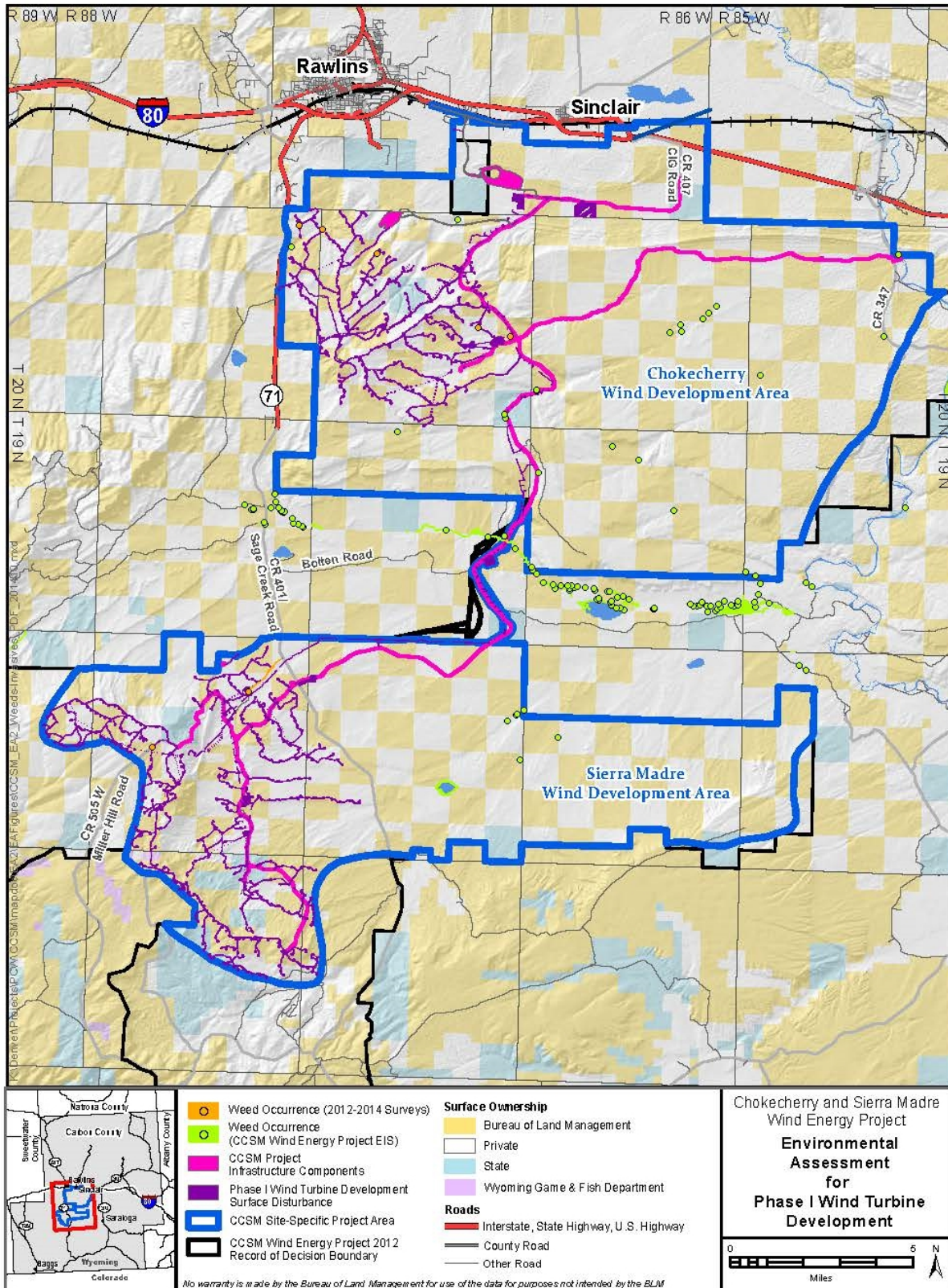
<sup>1</sup>Source: BLM 2014a.

<sup>2</sup>Source: BLM 2012b.

<sup>3</sup>Source: WWPC 2015. Only includes those Designated Noxious Weed species that have been documented in Carbon County and that have not been eradicated.

CCSM Chokecherry and Sierra Madre

Map 3-5. Noxious Weeds and Invasive Species Occurrences Identified in the CCSM Project Area



### 3.6.3 Wetlands and Riparian Zones

The CCSM Project FEIS (BLM 2012b, pp. 3.11-16 and 3.11-17) summarizes the publically available wetlands and stream data (e.g., National Wetlands Inventory and National Hydrography Dataset) mapped within the CCSM Project Area. Based on these data, the CCSM Project FEIS (BLM 2012b, p. 3.12-6) discloses that the CCSM Project would result in an estimated 348 stream crossings, including crossing of 343 ephemeral streams and five perennial streams. In accordance with Applicant Committed BMP A-3-91 and Mitigation Measure WET-1, described in Appendix D of the CCSM Project ROD (BLM 2012a), PCW conducted delineations of all WUS, including both non-wetland and wetland WUS under the jurisdiction of the U.S. Army Corps of Engineers (USACE) within the Phase I Wind Turbine Development Site. Figures showing the location of these WUS in relation to the proposed infrastructure components are provided in the aquatic resources inventory report, included as Appendix K of the Phase I Wind Turbine Development SPOD (PCW 2015a). Methods conform to USACE regulations and are described in more detail in Appendix K of the Phase I Wind Turbine Development SPOD (PCW 2015a), which also includes detailed descriptions of these jurisdictional areas.

The WUS delineation effort mapped a total of 5.20 acres of jurisdictional WUS within the Phase I Wind Turbine Development Site, located in 68 distinct crossing locations (PCW 2015a; Appendix K). Non-wetland WUS comprise 0.13 acre, and wetland WUS comprise 5.07 acres. All of the WUS in the Phase I Wind Turbine Development Site are assumed to have a surface connection to a known, traditionally navigable water, such as the North Platte River.

#### 3.6.3.1 Summary of the CCSM Phase I Affected Environment for Wetlands

Table 3-12 summarizes the jurisdictional WUS acreages and number of stream crossings within the Infrastructure Component Site, as disclosed in the EA for Infrastructure Components (BLM 2014a), and within the Phase I Wind Turbine Development Site. Where possible, Table 3-12 compares these data to the CCSM Project FEIS (BLM 2012b).

**Table 3-12. Summary of Jurisdictional Wetlands and Stream Crossings for Phase I of the CCSM Project**

Resource	Infrastructure Components Site <sup>1</sup>	Phase I Wind Turbine Development Site	Phase I Total	CCSM Project FEIS
Wetland Waters of the U.S. (acres)	7.89	5.07	12.96	NA
Non-wetland Waters of the U.S. (acres)	1.18	0.13	1.31	NA
Total Jurisdictional Waters of the U.S. (acres)	9.07	5.20	14.27	NA
Number of Stream Crossings	60	68	128	343

<sup>1</sup>Source: BLM 2014a.

CCSM Chokecherry and Sierra Madre  
 NA Not available

## **3.7 Water Resources**

The CCSM Project FEIS (BLM 2012b) water resources affected environment section (pages 3.13-1 through 3.13-12) includes discussion regarding: (1) surface water resources, (2) surface water quality, (3) surface water use, (4) floodplains, (5) groundwater, (6) groundwater quality, and (7) groundwater use. As described in the CCSM Project FEIS (BLM 2012b), the CCSM Project Area falls within two water resource regions, the Missouri River Region and the Upper Colorado River Region. The surface water resources section includes a description of the sub-watershed hydrologic units within the CCSM Project Area. Further, surface water quality is assessed and categorized for sub-watersheds within the CCSM Project Area, and two watersheds in particular, Upper Muddy Creek and Sage Creek, are discussed due to water quality improvement efforts.

The affected environment for water resources in the CCSM Project FEIS (BLM 2012b) was reviewed in accordance with the Tiering Procedures. No changes to the surface water resources, surface water quality, surface water use, or to groundwater resources, groundwater quality, or groundwater use patterns described for the CCSM Project Area have occurred since publication of the CCSM Project FEIS (BLM 2012b). Proposed uses of groundwater from the CCSM Project have not changed since publication of the CCSM Project FEIS (BLM 2012b), and therefore groundwater resources are not addressed in this EA. The section below identifies site-specific detail regarding surface water resources in the Phase I Wind Turbine Development Site.

### **3.7.1 Surface Water Resources**

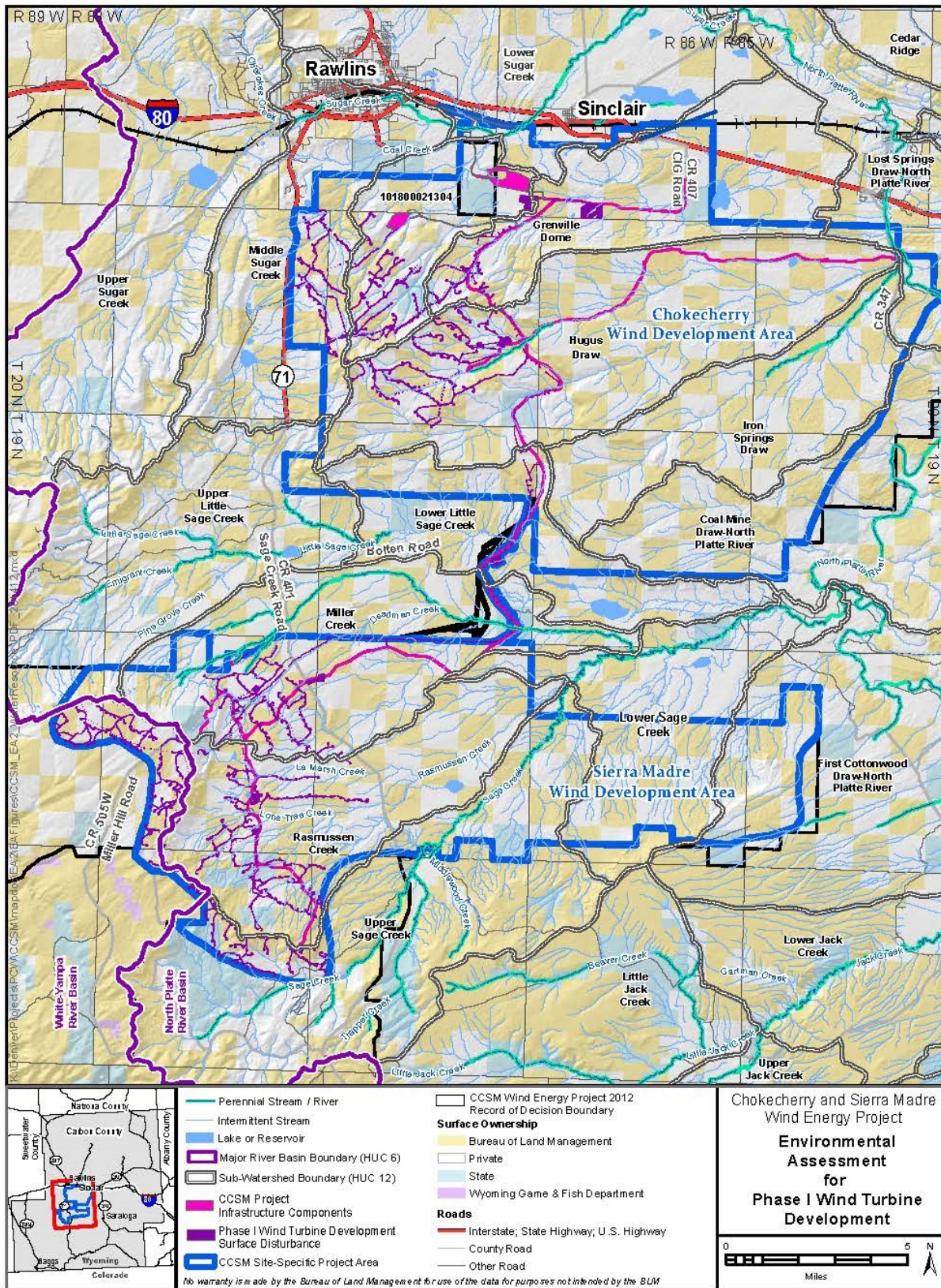
The Phase I Wind Turbine Development Site is wholly within the analysis area for surface water resources discussed in the CCSM Project FEIS (BLM 2012b). The analysis area was defined as all 6<sup>th</sup> order, 12-digit Hydrologic Unit Code (HUC-12) sub-watersheds that have a portion of the CCSM Project Area included within its boundary (BLM 2012b). Map 3-6 shows sub-watersheds and major drainages in the Phase I Wind Turbine Development Site.

No additional streams near the CCSM Project Area have been designated as impaired streams under Section 303(d) of the Clean Water Act nor have any streams been removed from this designation (Wyoming DEQ 2013) since publication of the CCSM Project FEIS (BLM 2012b). No changes to the surface water use patterns within the CCSM Project Area or to the anticipated surface water use resulting from the CCSM Project have occurred since publication of the CCSM Project FEIS (BLM 2012b). Based on a review of the Federal Emergency Management Agency Community Status Book (FEMA 2014), no changes to the Flood Insurance Rate Maps have occurred to communities in the vicinity of the CCSM Project Area (i.e., Rawlins, Sinclair, and Saratoga) since publication of the CCSM Project FEIS (BLM 2012b).

#### **3.7.1.1 Summary of the CCSM Phase I Affected Environment for Surface Water Resources**

The affected environment for surface water resources described above in this EA is the same as the affected environment disclosed in the EA for Infrastructure Components (BLM 2014a). Therefore, the affected environment for Phase I of the CCSM Project is as disclosed above.

Map 3-6. Sub-watersheds and Major Drainages in the CCSM Project Area



## 3.8 Wildlife and Fisheries Resources

The CCSM Project FEIS (BLM 2012b) wildlife and fisheries resources affected environment section (pages 3.14-1 through 3.14-28) includes discussions regarding: (1) habitat, (2) wildlife, and (3) fisheries. The primary types of big game, small game and furbearers, and nongame that reside within the Application Area are described in detail in the wildlife section. The fisheries section summarizes the native and nonnative fish species potentially occurring within the CCSM Project Area and the associated water bodies in which they occur. The habitat section details the two Wildlife Habitat Management Areas, the Red Rim/Grizzly Wildlife Habitat Management Area and the Upper Muddy Creek Watershed/Grizzly Wildlife Habitat Management Area, that occur within the CCSM Project Area. The Proposed Action of this EA does not propose any surface disturbance within either of these Wildlife Habitat Management Areas, and, therefore, these areas will not be discussed further.

The affected environment for wildlife and fisheries resources in the CCSM Project FEIS (BLM 2012b) was reviewed in accordance with the Tiering Procedures. No changes to the documented big game or small game and furbearer species observed within the CCSM Project Area have occurred since publication of the CCSM Project FEIS (BLM 2012b). No changes to the documented native and nonnative fisheries have occurred since publication of the CCSM Project FEIS (BLM 2012b). The following sections provide updated information on migration corridors for two big game species, which have changed since publication of the CCSM Project FEIS (BLM 2012b), and on recent management actions concerning mule deer. These sections also provide updated information regarding the use of the Project Area by bat species and migratory birds based on surveys conducted since publication of the CCSM Project FEIS (BLM 2012b).

### 3.8.1 Big Game

Consistent with the CCSM Project FEIS (BLM 2012b), the big game species that may be present within the Phase I Wind Turbine Development Site are mule deer (*Odocoileus hemionus*), elk (*Cervus canadensis*), and pronghorn (*Antilocapra americana*). The following sections clarify herd units that occur in the Phase I Wind Turbine Development Site and summarize changes to possible big game migration corridors (WGFD 2012a) for mule deer and pronghorn, as well as mule deer management strategies finalized since publication of the CCSM Project FEIS (BLM 2012b). Currently there are no officially designated corridors for big game species (Flanderka 2016). No changes to the elk affected environment conditions (e.g., migration corridors) have occurred since publication of the CCSM Project FEIS (BLM 2012b).

#### 3.8.1.1 Mule Deer

The Phase I Wind Turbine Development Site occurs within the Platte Valley (Unit #541) and Baggs (Unit #427) Mule Deer Herd Units. Portions of the Phase I Wind Turbine Development in the northern section of the Chokecherry WDA are within crucial wintering habitat for mule deer (WGFD 2012a) (Map 3-7).

After publication of the CCSM Project FEIS (BLM 2012b), the Wyoming Game and Fish Department (WGFD) added one possible mule deer migration corridor to the statewide migration route mapping (WGFD 2012a) at the southern edge of the Chokecherry WDA. This possible migration corridor crosses the proposed electrical transmission right-of-way, within which towers and overhead transmission lines are proposed (Map 3-7).



The WGFD prepared the Platte Valley Mule Deer Plan<sup>1</sup> (WGFD 2012b) in 2012 in response to various management concerns related to this herd unit. The WGFD manages the Platte Valley mule deer population within 10 percent of the “post-season” population size of 20,000 mule deer, reflecting the number of deer in the population after the hunting season. In the Platte Valley Herd Unit, it was estimated there were approximately 11,000 mule deer after the 2011 hunting season. Based on trends of mule deer numbers, harvest, and fawn production and recruitment, this mule deer population has been declining since approximately 2006 (WGFD 2012b), likely due to a combination of factors, including degraded habitat conditions and fawn recruitment. The Platte Valley Mule Deer Plan addresses management issues such as population management, habitat improvement projects, and predator management (WGFD 2012b). Proposed habitat management actions recommended in the Platte Valley Mule Deer Plan (WGFD 2012b) include:

- Restoration and improvement of all seasonal habitat types for mule deer throughout the Platte Valley.
- Increased monitoring of mule deer habitat.
- Minimization of impacts on Platte Valley mule deer from energy development, including a recommendation for the WGFD to work with the BLM and U.S. Forest Service to require energy development consistent with the WGFD’s and Western Association of Fish and Wildlife Agency’s Energy Development Guidelines for Mule Deer (Lutz et al. 2011). The document includes general guidelines and additional mitigation recommendations, as well as habitat mitigation options for reducing impacts to mule deer.
- Modifying fencing and maintaining or restoring migration routes.

### **3.8.1.2 Pronghorn**

The Phase I Wind Turbine Development Site occurs within the Iron Springs (Unit #630) Pronghorn Herd Unit. In the Chokecherry WDA, the Phase I Wind Turbine Development Site overlaps two possible pronghorn migration corridors (Map 3-8) that were analyzed in the CCSM Project FEIS (BLM 2012b). WGFD added a possible pronghorn migration corridor to the statewide mapping (WGFD 2012a) in the northern portion of the Sierra Madre WDA after publication of the CCSM Project FEIS (BLM 2012b). The Phase I Wind Turbine Development Site would cross this possible migration corridor in two locations (Map 3-8): (1) at the northern Sierra Madre WDA where transmission line right-of-way and associated infrastructure (e.g., electrical transmission towers and overhead transmission lines) are proposed, and (2) in the western portion of the Sierra Madre WDA where wind turbine development and associated infrastructure is proposed.

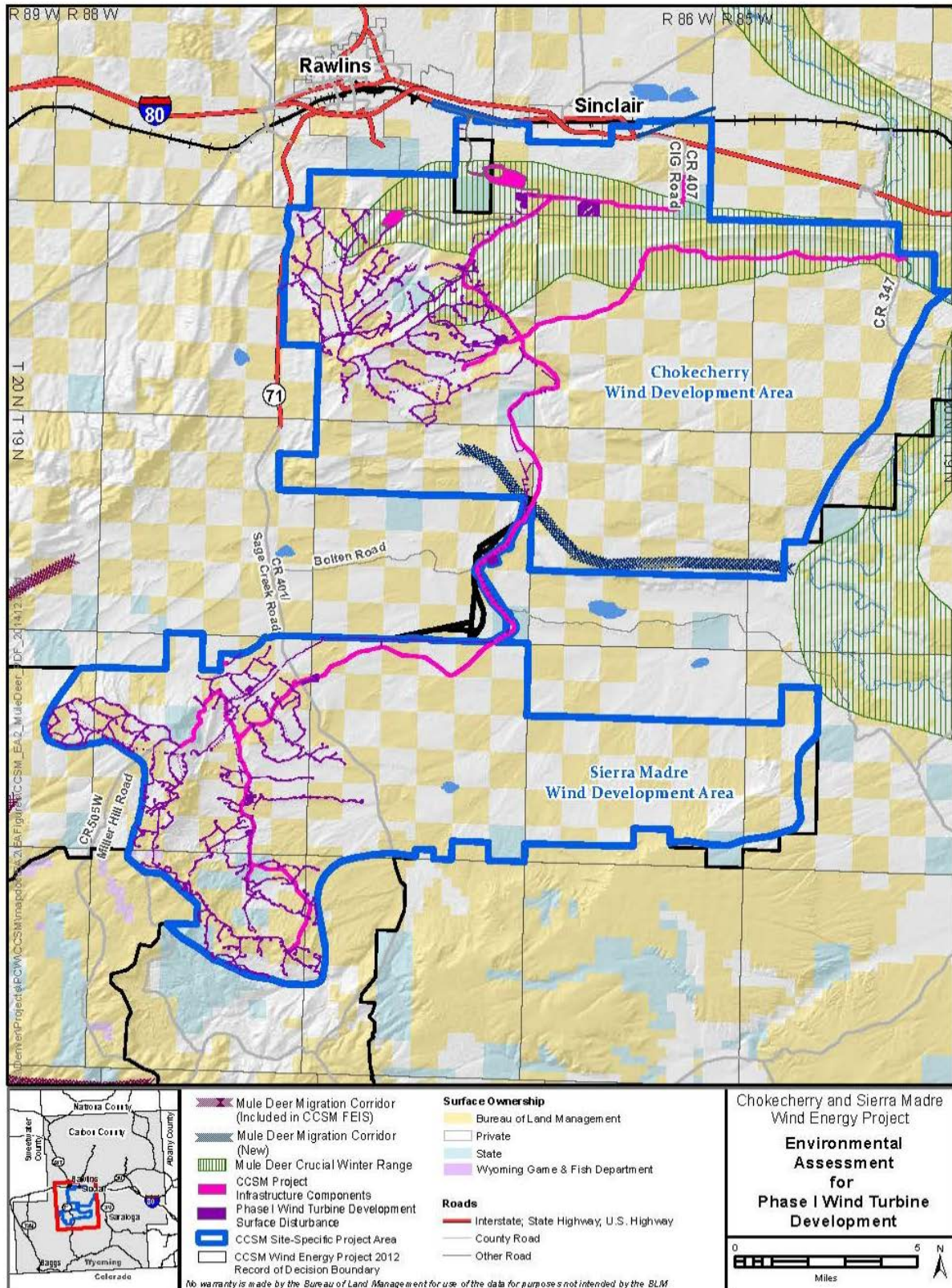
### **3.8.1.3 Summary of the CCSM Phase I Affected Environment for Big Game**

The affected environment for big game described above in this EA is the same as the affected environment disclosed in the EA for Infrastructure Components (BLM 2014a). Therefore, the affected environment for Phase I of the CCSM Project is as disclosed above.

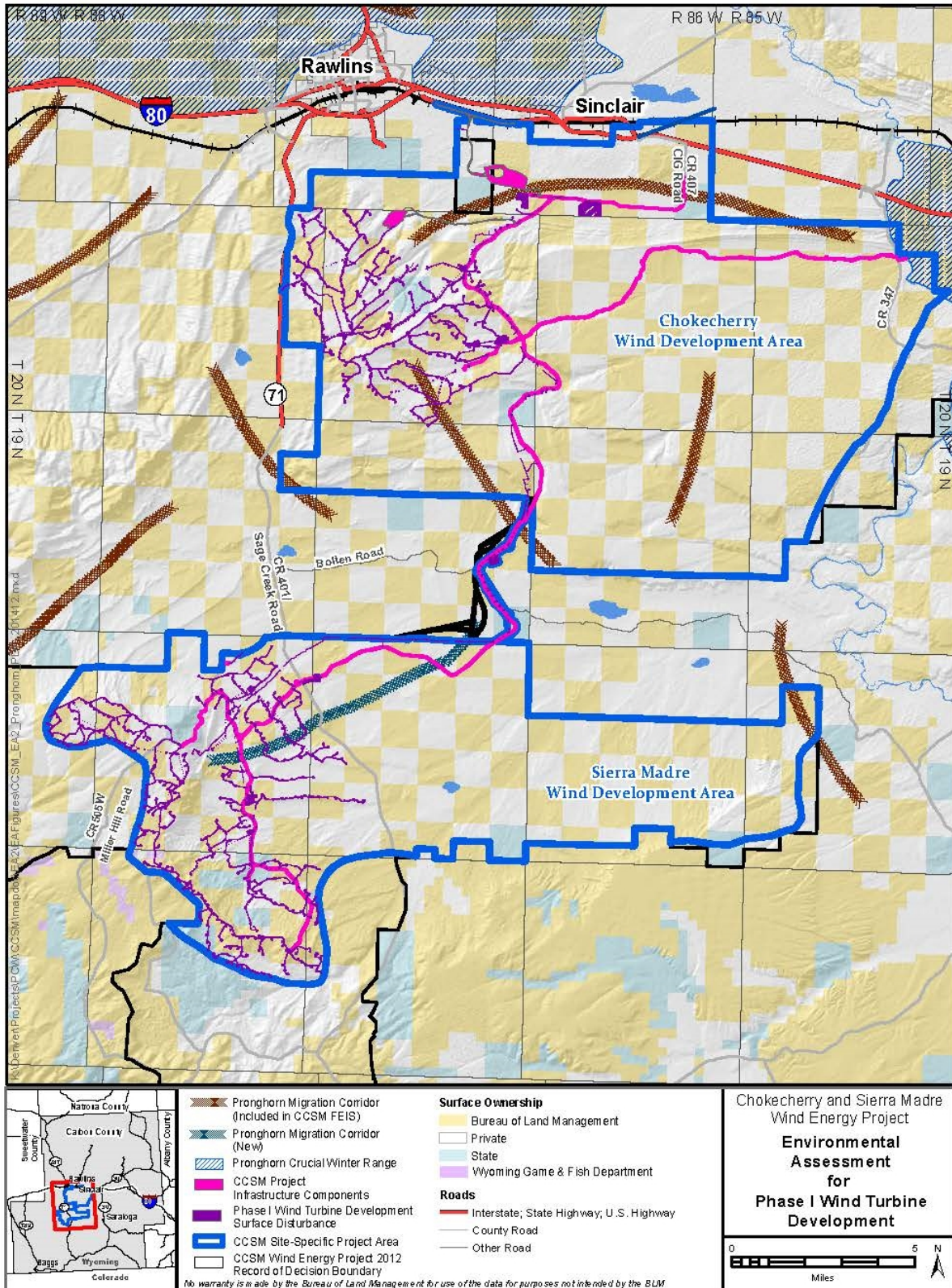
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<sup>1</sup> *The Platte Valley Mule Deer Plan is tiered from the statewide Mule Deer Initiative approved by the Wyoming Game and Fish Commission in July 2007.*

Map 3-7. Mule Deer Crucial Winter Range and Possible Migration Corridors in the CCSM Project Area



Map 3-8. Pronghorn Crucial Winter Range and Possible Migration Corridors in the CCSM Project Area



### 3.8.2 Nongame

Consistent with the CCSM Project FEIS (BLM 2012b), the nongame species that may be present within the Phase I Wind Turbine Development Site are small mammals, passerines, raptors, reptiles, and amphibians. No changes to the reptiles and amphibians affected environment conditions have occurred since publication of the CCSM Project FEIS (BLM 2012b); therefore, these species are not analyzed in this EA.

In 2012, USFWS issued its Land-based Wind Energy Guidelines (USFWS 2012a) to address risks to wildlife from land-based wind energy development, including risks to nongame wildlife species such as migratory birds and bats. As recommended by the USFWS guidelines, PCW conducted surveys for migratory birds and bats and presented the results of those surveys in the Phase I BBCS (PCW 2016a). PCW submitted the Phase I BBCS to USFWS on August 3, 2015. On September 18, 2015, the USFWS determined that PCW’s application for a Phase I ETP, which included the Phase I ECP and BBCS, was complete and that it would proceed with its review; PCW then provided the BLM with the BBCS for its review and consideration. The USFWS issued a letter of concurrence to the BLM on the ECP and BBCS on January 13, 2017. (USFWS 2017b) The migratory bird and bat surveys described in the BBCS include 2011 and 2012 acoustic bat surveys, 2011 and 2012 migratory bird surveys, and 2011, 2012, and 2013 avian radar surveys. The survey results are summarized below.

#### 3.8.2.1 Bats

In 2011 and 2012, PCW conducted acoustic bat surveys coupled with avian radar surveys. Methods for these surveys and survey results are presented in the Phase I BBCS (PCW 2015c). Table 3-13 identifies the bats potentially occurring in the CCSM Project Area.

**Table 3-13. Bat Species Potentially Occurring in the Phase I Wind Turbine Development Site**

Common Name	Scientific Name
Big brown bat	<i>Eptesicus fuscus</i>
California myotis	<i>Myotis californicus</i>
Eastern red bat	<i>Lasiurus borealis</i>
Fringed myotis	<i>Myotis thysanodes</i>
Hoary bat	<i>Lasiurus cinereus</i>
Little brown bat	<i>Myotis lucifugus</i>
Long-eared myotis	<i>Myotis evotis</i>
Long-legged myotis	<i>Myotis volans</i>
Pallid bat	<i>Antrozous pallidus</i>
Silver-haired bat	<i>Lasionycteris noctivagans</i>
Townsend’s big-eared bat	<i>Corynorhinus townsendii</i>
Western small-footed myotis	<i>Myotis ciliolabrum</i>
Yuma myotis	<i>Myotis yumanensis</i>

Sources: USFWS 2016; PCW 2016a.

Acoustic bat monitoring was completed from June 15 to October 20, 2011 and June 27 to August 29, 2012 at five locations (Chokecherry Bench, Smith Draw, Upper Iron Springs, McKinney Creek, and Pine Grove) co-located with the radar system to characterize nightly bat activity. In total, 185 and 134 bat passes were recorded in 2011 and 2012, respectively, for an average of 2.0 bat passes/detector-night (PCW 2016a), substantially lower than the 4.29 bat passes/detector-night presented in the CCSM Project FEIS (BLM 2012b). This discrepancy is likely due to the inclusion of an outlier in the 2008 data used in the FEIS caused by placement of an acoustic bat monitoring location in a low-lying riparian area where wind turbine generators would not be located. The results of the 2011 and 2012 acoustic bat monitoring are within the 2008 survey results provided in the CCSM Project FEIS (BLM 2012b); however, they generally indicate lower bat activity than that disclosed in the CCSM Project FEIS. The bat activity levels observed during the 2011 and 2012 acoustic bat monitoring (2.0 bat passes per detector-night) are similar to the bat activity levels observed at the nearby Foote Creek Rim wind energy facility (2.2 bat passes per detector-night) that were presented in the CCSM Project FEIS (BLM 2012b).

PCW also conducted avian radar surveys from March 2011 through the end of March 2013 at nine locations across the CCSM Project Site covering all of the Phase I wind turbine generator locations, including the acoustic bat survey locations. The avian radar is a radar system that runs continuously, collecting data for movements of birds and bats throughout the day and night. The avian radar system is unable to distinguish between birds and bats; however, the radar collected more than 5,000 hours of data that consistently demonstrate that the highest average number of birds and bats per hour occur at night during the spring, summer, and fall seasons. Avian radar data also demonstrated that the mean and median height of these birds and bats are well above the rotor height of the wind turbine generators indicating that the majority (93% from 2011-2012) of the targets are not at risk of collision.

### ***Summary of the CCSM Phase I Affected Environment for Bats***

No new bat data were available during the earlier preparation of the EA for Infrastructure Components (BLM 2014a). Therefore, the affected environment for Phase I of the CCSM Project is as disclosed above.

#### **3.8.2.2 Migratory Birds**

In 2011 and 2012, PCW conducted migratory bird surveys in accordance with USFWS guidance and recommendations. The migratory bird survey methods and results are included in the Phase I BBBS (PCW 2016a). In total, PCW identified 117 species of migratory birds within the CCSM Project Site, including Phase I. Of these, 22 species are identified as USFWS Birds of Conservation Concern, BLM sensitive species, or WGFD Species of Greatest Conservation Need (PCW 2016a, Table 1.1). From April 2011 through March 2012, PCW completed 295 migratory bird point count surveys at 15 locations across the CCSM Project Area with 136 of those surveys completed at 7 locations within the Phase I WDAs. During these surveys, PCW recorded 753 individuals representing 34 species in the Phase I WDAs. Horned lark was the most commonly observed individual accounting for more than half of the observations (PCW 2016a, Table 4.6). Use of the CCSM Project Area in winter months was much lower than that observed in the other three seasons (PCW 2016a). These results are similar to and within the 2008 survey results provided in the CCSM Project FEIS (BLM 2012b).

In addition to migratory bird surveys, PCW used an avian radar system to continuously collect data on bird and bat use of the CCSM Project Site from March 2011 through the end of March 2013. The avian radar collected more than 5,000 hours of data on birds and bats at nine locations across the CCSM Project Site covering all of the Phase I wind turbine generator locations. The avian radar system is unable to distinguish between birds and bats; however, the data consistently demonstrated that the highest average number of birds and bats per hour occurred at night during the spring, summer, and fall seasons, which is consistent with expected migratory pulses passing through the area. Avian radar data also show that for

2011-2012, 93% of bird and bat use at night occurs well above the height of the wind turbine generator rotors indicating that the majority of these birds and bats are not at risk of collision. Radar data also demonstrate that during migration events, migratory birds and bats generally pass over the CCSM Project Site, indicating that the area is not used as a migratory bird stopover location.

The USFWS FEIS states “Since publication of the BLM FEIS, ongoing bird surveys have been conducted at the Phase I development and infrastructure areas with emphasis on surveying raptors and special status bird species. Site use by raptors and other migratory birds was documented in numerous surveys conducted since 2008.” These surveys are described in the USFWS FEIS and are included by reference. The data from these new surveys did not show any difference in the amount of use of the project area by migratory birds from what was described in CCSM Project FEIS.

### ***Summary of the CCSM Phase I Affected Environment for Migratory Birds***

No new migratory bird data were included in the earlier preparation of the EA for Infrastructure Components (BLM 2014a); however the USFWS FEIS (USFWS 2016) included impacts to migratory birds from the entire Phase I development and that information has been included by reference above. Therefore, the affected environment for Phase I of the CCSM Project is as disclosed above.

## **3.9 Special Status Species**

The CCSM Project FEIS (BLM 2012b) Special Status Species affected environment section (pages 3.15-1 through 3.15-20) includes discussion regarding: (1) threatened and endangered species protected under the Endangered Species Act (ESA) of 1973 (as amended) and (2) species designated as sensitive by the BLM (BLM 2008c). The Federally Listed Species section details those listed species found in Wyoming, including species found in the Platte River system and those found in the Colorado River system. The BLM Sensitive Species section describes those plants, mammals, birds (including the Greater Sage-Grouse), amphibians, and fish that are considered sensitive species by the BLM. The CCSM Project FEIS (BLM 2012b) affected environment section provides an overview of the regulatory setting, habitat requirements, and abundance and distribution of these special status species.

In accordance with the ESA, as amended, the BLM in coordination with the USFWS must ensure that any federal action to be authorized, funded, or implemented would not adversely affect a federally listed threatened or endangered species or its critical habitat. BLM Manual 6840 - Special Status Species Management (BLM 2008c) states that, as a matter of policy, BLM sensitive species will be managed consistent with species and habitat management objectives in land use and implementation plans to promote their conservation and to minimize the likelihood and need for listing under the ESA.

The affected environment for special status species in the CCSM Project FEIS (BLM 2012b) was reviewed in accordance with the Tiering Procedures. The information in the affected environment section of the CCSM Project FEIS (BLM 2012b) is valid as updated in this section. The following sections provide updated information on the distribution and abundance of special status species for which field surveys were conducted from 2012 through 2014 in the Phase I Wind Turbine Development Site and also describe any relevant changes in the regulations or agency actions regarding these species since publication of the CCSM Project FEIS (BLM 2012b).

### 3.9.1 Federally Listed Species

The CCSM Project FEIS (BLM 2012b, pp. 3.15-1 through 3.15-20) provides information on the federally listed species potentially occurring within the Application Area, including the following species which are not known to occur within the CCSM Project Area:

- Black-footed ferret (*Mustela nigripes*, endangered);
- Ute ladies'-tresses orchid (*Spiranthes diluvialis*, threatened); and
- Colorado butterfly plant (*Gaura neomexicana* ssp. *coloradensis*, threatened).

Since publication of the CCSM Project FEIS (BLM 2012b), it has been determined that black-footed ferret is not present within Wyoming outside of known, currently occupied habitats, and the entire state has been block-cleared for this species (USFWS 2013b). In addition, Ute ladies'-tresses orchid and Colorado butterfly plant are not anticipated to be present within the Phase I Wind Turbine Development Site based on the Rare Plant Survey Report (Appendix O of the Phase I Wind Turbine Development SPOD [PCW 2015a]).

The CCSM Project FEIS (BLM 2012b, pp. 3.15-1 through 3.15-20) also provides information on the federally listed species associated with the Platte River system and the Colorado River system that, although they do not occur within CCSM Project Area, could be indirectly affected by the CCSM Project as a result of water depletions. The suite of species associated with the Platte River system include the whooping crane (*Grus americana*, endangered), interior least tern (*Sterna antillarum*, endangered), piping plover (*Charadrius melodus*, threatened), pallid sturgeon (*Scaphirhynchus albus*, endangered), and western prairie fringed orchid (*Platanthera praeclara*, threatened). The suite of species associated with the Colorado River system includes the Colorado pikeminnow (*Ptychocheilus luscious*, endangered), bonytail chub (*Gila elegans*, endangered), humpback chub (*Gila cypha*, endangered), and razorback sucker (*Xyrauchen texanus*, endangered).

A Biological Opinion was prepared by the USFWS and is included as Appendix F of the CCSM Project ROD (BLM 2012a) to address potential impacts on the four federally listed Colorado River fish species and the Platte River system species. In the Biological Opinion, the USFWS determined that the CCSM Project may affect and is likely to adversely affect four federally endangered fishes of the Upper Colorado River, and that The Recovery Implementation Program for Endangered Fish Species in the Upper Colorado River Basin adequately addresses effects on the species (BLM 2012a). With respect to the Platte River System Species, the USFWS determined in its Biological Opinion that the CCSM Project, as described, is not likely to jeopardize the continued existence of the federally endangered whooping crane, interior least tern, and pallid sturgeon, or the federally threatened northern Great Plains population of the piping plover, or the western prairie fringed orchid, in the central and lower Platte River (BLM 2012a).

The Proposed Action would not exceed the maximum annual water depletions considered by the USFWS in its Biological Opinion (BLM 2012a, Appendix F). Therefore, the amount of and extent of incidental take that may result from the Proposed Action would not exceed that analyzed by the USFWS in its Biological Opinion for both the Colorado River fish species and the Platte River system species. As a result, these species are identified as NI by the Proposed Action in the ID Team Checklist (see Appendix B of this EA).

#### 3.9.1.1 Summary of the CCSM Phase I Affected Environment for Federally Listed Species

The affected environment for federally listed species described above in this EA is the same as the affected environment disclosed in the EA for Infrastructure Components (BLM 2014a). Therefore, the affected environment for Phase I of the CCSM Project is as disclosed above.

## **3.9.2 BLM Sensitive Species**

The CCSM Project FEIS (BLM 2012b pp. 3.15-4 through 3.15-16) provides an overview of the BLM sensitive species potentially occurring within the CCSM Project Application Area. Surveys for BLM sensitive species were conducted from 2012 through 2014 in accordance with the Wildlife Monitoring and Protection Plan (Appendix G of the CCSM Project ROD [BLM 2012a]), and in accordance with applicable mitigation measures identified in the Summary of BLM Environmental Constraints, Applicant Committed Measures, Applicant Committed Best Management Practices and Proposed Mitigation Measures (Appendix D of the CCSM Project ROD [BLM 2012a]). Methods for these surveys and survey results are presented as appendices to the Phase I Wind Turbine Development SPOD (PCW 2015a). Non-avian wildlife survey results are attached as Appendix N, avian survey results are attached as Appendix M, and rare plant survey results are provided as Appendix O of the Phase I Wind Turbine Development SPOD (PCW 2015a). Survey results for BLM sensitive species are summarized below.

### **3.9.2.1 Mammals**

#### ***Pygmy Rabbit***

In accordance with Mitigation Measure SSS-1 of the CCSM Project ROD (BLM 2012a), and the Wildlife Monitoring and Protection Plan (Appendix G of the CCSM Project ROD [BLM 2012a]), PCW conducted presence/absence surveys for pygmy rabbit following approved protocols. Pygmy rabbit surveys were completed within the Phase I Wind Turbine Development Site in 2013 and 2014 (PCW 2015a). The results of these surveys confirm the presence of pygmy rabbit within the CCSM Project Area. The CCSM Project FEIS (BLM 2012b) determines that the CCSM Project is located within pygmy rabbit range and pygmy rabbit habitat is likely to occur within the CCSM Project Area.

Map 3-9 shows the occurrence data for pygmy rabbit resulting from the 2013 and 2014 surveys, and also includes the pygmy rabbit predictive model published by the Wyoming Natural Diversity Database (WYNDD) (2013). The WYNDD (2013) predicts that pygmy rabbit is present along a north-south trending arc in the western Sierra Madre WDA and absent in much of the northern portion of the CCSM Project Area.

Thirty five pygmy rabbit locations (21 active and 14 inactive) were recorded within 0.25 mile of the Phase I Wind Turbine Development Site, as shown on Map 3-9. Within the Phase I Wind Turbine Development Site of the Chokecherry WDA, 16 pygmy rabbit sites (8 active and 8 inactive) were located. Within the Phase I Wind Turbine Development Site of the Sierra Madre WDA 19 pygmy rabbit sites (13 active and 6 inactive) were identified, all of which were located in the Lower Miller Hill area.

#### **Summary of the CCSM Phase I Affected Environment for Pygmy Rabbit**

Table 3-14 summarizes the active and inactive pygmy rabbit locations, as disclosed in the EA for Infrastructure Components (BLM 2014a), and the active and inactive pygmy rabbit locations within the Phase I Wind Turbine Development Site. The active and inactive pygmy rabbit locations identified within Phase I of the CCSM Project are consistent with the information provided in the CCSM Project FEIS (BLM 2012b) that indicates it is likely that the Application Area is within range of and provides suitable habitat for the pygmy rabbit.



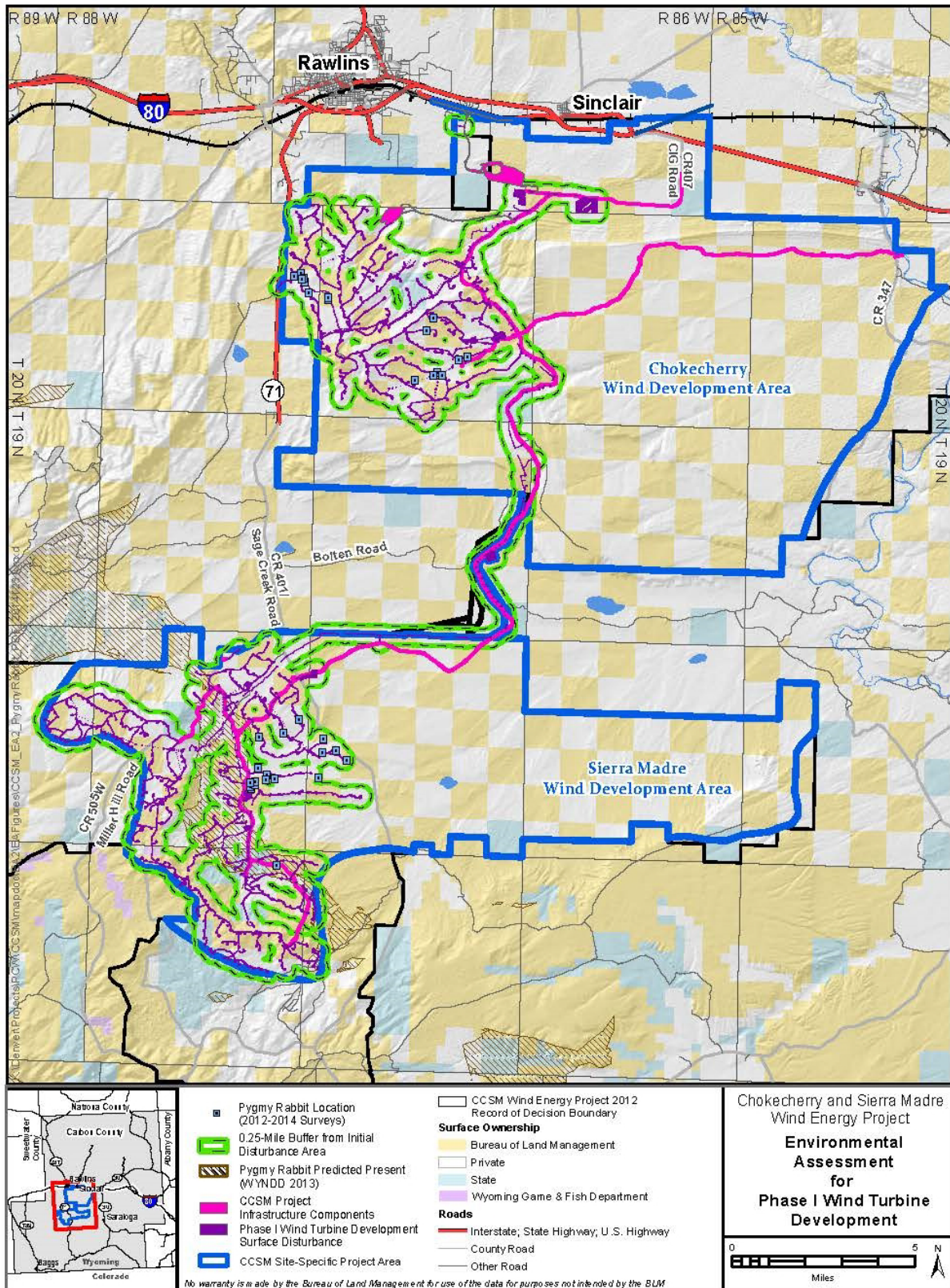
**Table 3-14. Summary of Pygmy Rabbit Locations in Phase I of the CCSM Project Area**

<b>Pygmy Rabbit Location Type</b>	<b>Infrastructure Component Site<sup>1</sup></b>	<b>Phase I Wind Turbine Development</b>	<b>Phase I Total</b>
Active	7	21	28
Inactive	2	14	16

<sup>1</sup>Source: BLM 2014a.

CCSM Chokecherry and Sierra Madre

Map 3-9. Pygmy Rabbit Occurrence in the Phase I Wind Turbine Development Site and Predicted Occurrence in the CCSM Project Area



**White-tailed Prairie Dog**

Numerous mapping and survey efforts for white-tailed prairie dog have occurred in the vicinity of the CCSM Project Area, as further described in the Wildlife Survey Report included as Appendix N to the Phase I Wind Turbine Development SPOD (PCW 2015a). In accordance with the Wildlife Monitoring and Protection Plan (Appendix G of the CCSM Project ROD [BLM 2012a]), PCW determined the presence/absence of prairie dog colonies within Phase I of the CCSM Project, of which the Phase I Wind Turbine Development is a part. Methods for these surveys are described in Appendix N of the Phase I Wind Turbine Development SPOD (PCW 2015a). Map 3-10 shows the distribution and abundance of white-tailed prairie dog colonies within the Phase I Wind Turbine Development Site.

White-tailed prairie dogs favor open habitats consistent with areas that have previously experienced disturbance, and the species disperse readily to other areas. Immigration of white-tailed prairie dogs appears to be an important part of the species’ population stability and may be useful for repopulation of colonies after sharp declines (Keinath 2004). Multiple white-tailed prairie dog colonies have been documented entirely outside of, and directly adjacent to, the Phase I Wind Turbine Development Site. PCW mapped a total of 3,483 acres (of which 2,882 acres were active) of white-tailed prairie dog colonies during 2013 surveys within the Phase I Chokecherry and Sierra Madre WDAs of the CCSM Project Area (Map 3-10).

White-tailed prairie dog activity was identified at 62 locations wholly or partially within the Phase I Wind Turbine Development Site, of which 44 locations (71 percent) were considered active at the time of survey. The total mapped extents of these 62 white-tailed prairie dog colonies comprise approximately 1,627 acres. Within the Phase I Wind Turbine Development Site of the Sierra Madre WDA there are 55 identified locations and within the Phase I Wind Turbine Development Site of the Chokecherry WDA there are four locations; the remaining three locations are located within the area between the Chokecherry and Sierra Madre WDAs along the proposed electrical transmission line. These three white-tailed prairie dog locations are relatively small (less than 10 acres) with low to moderate densities of burrows.

Summary of the CCSM Phase I Affected Environment for White-tailed Prairie Dog

Table 3-15 summarizes the active and inactive white-tailed prairie dog colonies as disclosed in the EA for Infrastructure Components (BLM 2014a), and the active and inactive white-tailed prairie dog colonies within the Phase I Wind Turbine Development Site. The active and inactive white-tailed prairie dog colonies identified within Phase I of the CCSM Project are consistent with the information provided in the CCSM Project FEIS (BLM 2012b) that indicates white-tailed prairie dogs were observed in the Application Area.

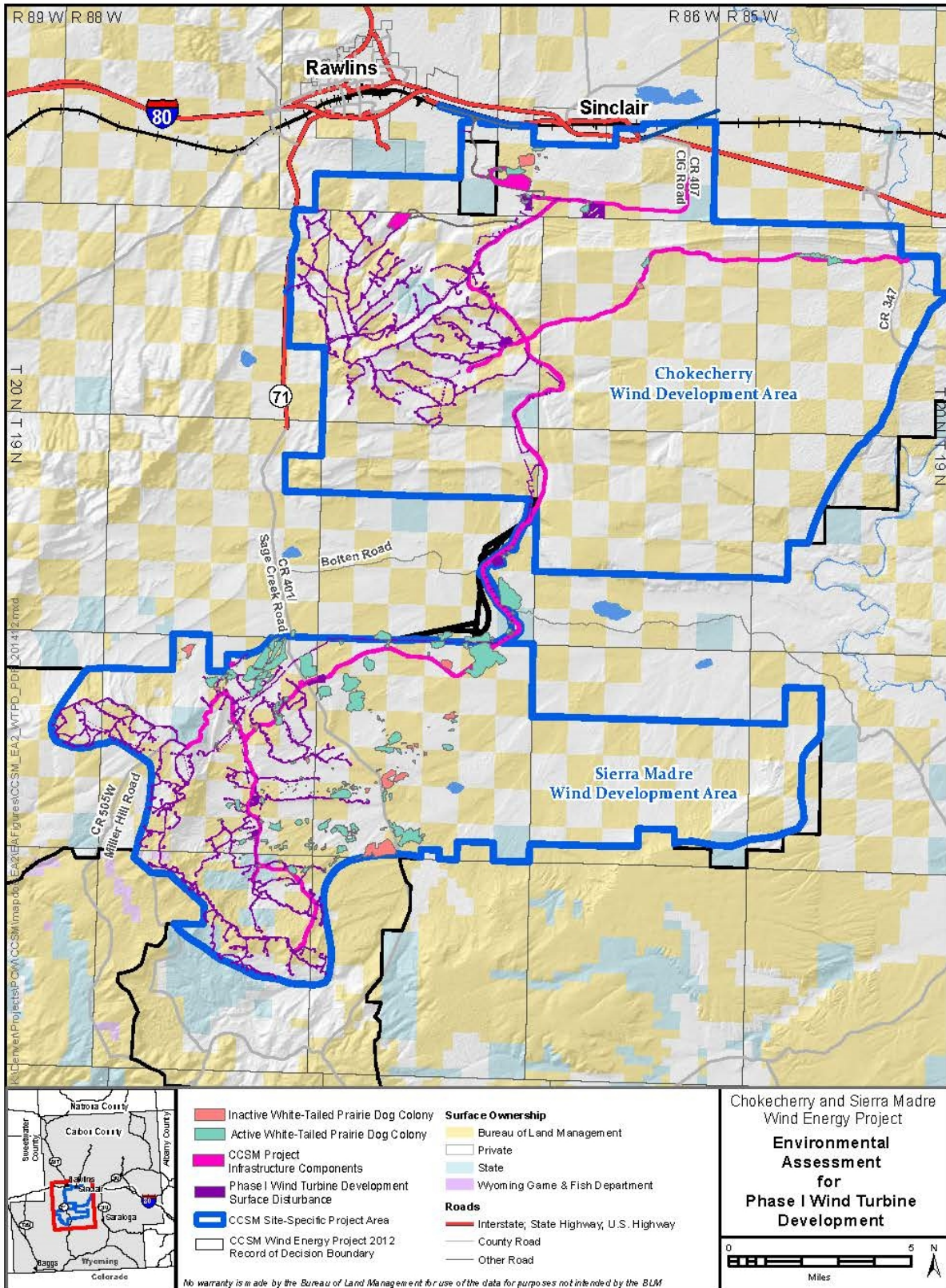
**Table 3-15. Summary of White-tailed Prairie Dog Colonies in Phase I of the CCSM Project Area**

Colony Type	Infrastructure Component Site <sup>1</sup>	Phase I Wind Turbine Development	Phase I Total
Active	16	44	60
Inactive	7	18	25

<sup>1</sup>Source: BLM 2014a.

CCSM Chokecherry and Sierra Madre

**Map 3-10. Active and Inactive White-tailed Prairie Dog Colonies in the Phase I Wind Turbine Development Site**



### ***Wyoming Pocket Gopher***

In accordance with Mitigation Measure SSS-2 of the CCSM Project ROD (BLM 2012a), and the Wildlife Monitoring and Protection Plan (Appendix G of the CCSM Project ROD [BLM 2012a]), PCW conducted presence/absence surveys for Wyoming pocket gopher following approved protocols. Pocket gopher mound surveys were completed between May and November 2013 for the Phase I Wind Turbine Development Site (PCW 2015a). The findings of these surveys are consistent with those in the CCSM Project FEIS (BLM 2012b), which states that Wyoming pocket gopher “likely occurs” within the CCSM Project Area.

Map 3-11 summarizes the distribution and abundance of Wyoming pocket gopher within disturbance areas associated with the Proposed Action. Map 3-11 also shows the WYNDD (2013) predictive model for Wyoming pocket gopher. The WYNDD (2013) model predicts that Wyoming pocket gopher is present across a total of 103,898 acres throughout the CCSM Project Area, including in much of the far northern portion of the CCSM Project Area, present in scattered locations in the western portion of the Chokecherry WDA, present in larger contiguous blocks in the eastern portion of the Chokecherry WDA, and present throughout much of the northern and central Sierra Madre WDA. The WYNDD predicts that Wyoming pocket gopher is present within approximately 3,475 acres of the Phase I Wind Turbine Development Site, which accounts for 3 percent of the total area that WYNDD predicts Wyoming pocket gopher to be present within the CCSM Project Area (103,898 acres).

During the Phase I Wind Turbine Development Site surveys, 273 active pocket gopher mounds and mound complexes were located within 75 meters of the limits of disturbance (Appendix N of PCW 2015a). An additional 17 locations were located within 75 meters of activity areas associated with the Phase I Wind Turbine Development, for a total of 290 mounds or mound complexes. Following the Griscom and Keinath (2010) model, 24 mound/mound complexes (approximately 8 percent of all pocket gopher activity) were predicted as Wyoming pocket gopher and 188 mound/mound complexes (approximately 65 percent of all pocket gopher activity) were predicted as northern pocket gopher. The remaining 78 mound/complexes could not be classified and were identified as unknown pocket gopher. Overall, predicted Wyoming pocket gopher mounds occurred in relatively flat areas with dominant Gardner’s saltbush cover, bare soil, and very little sagebrush cover. Predicted northern pocket gopher activity occurred in rolling terrain with dominant big sagebrush cover, increased perennial cover, and less saltbush.

### ***Summary of the CCSM Phase I Affected Environment for Pocket Gophers***

Table 3-16 summarizes the number of active pocket gopher mounds and mound complexes, as disclosed in the EA for Infrastructure Components (BLM 2014a), and the number of active pocket gopher mounds and mound complexes within the Phase I Wind Turbine Development Site. The active pocket gopher mounds and mound complexes identified within Phase I of the CCSM Project are consistent with the information provided in the CCSM Project FEIS (BLM 2012b) that indicates suitable habitat for the Wyoming pocket gopher likely occurs in the Application Area.

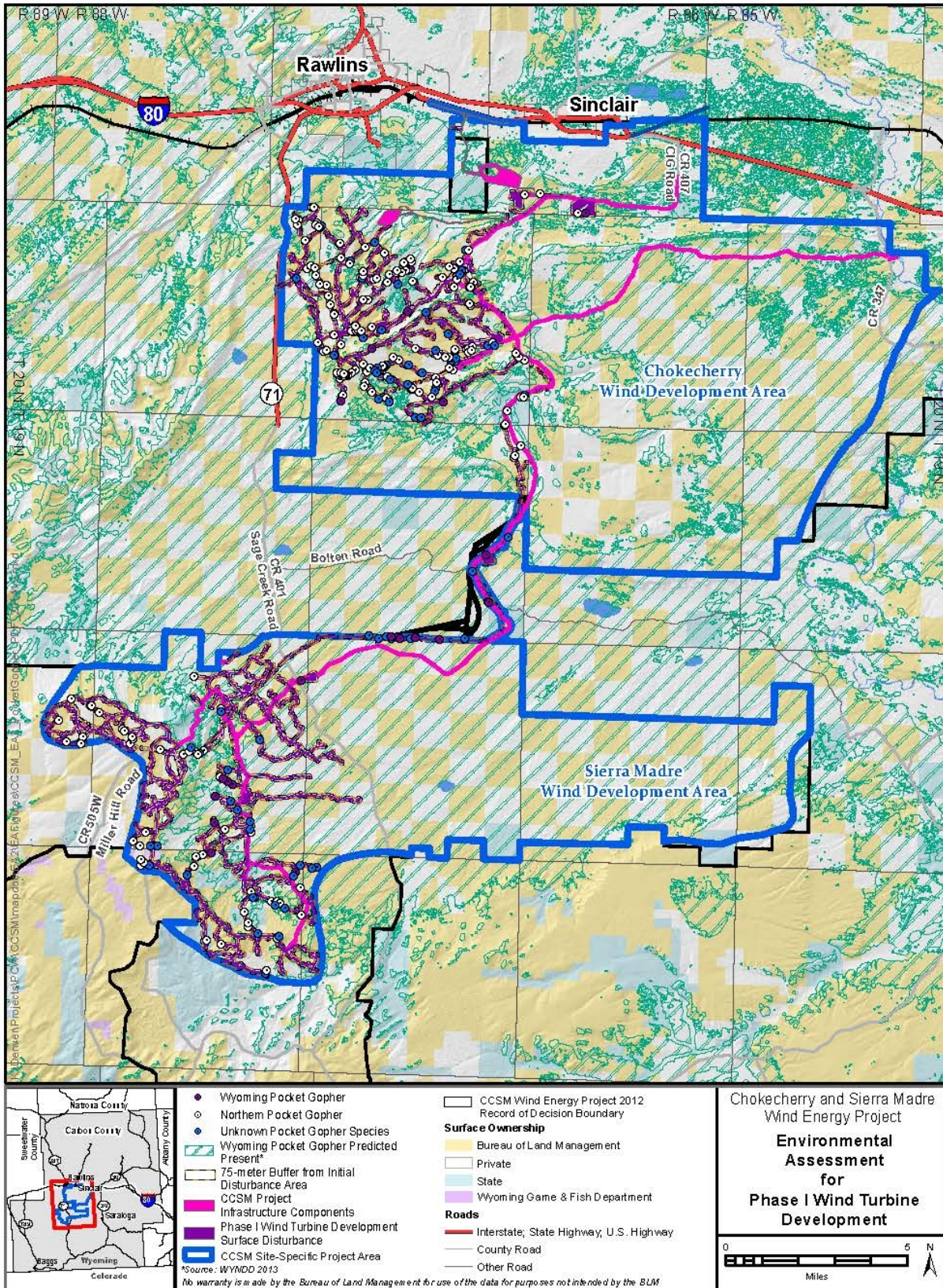
**Table 3-16. Summary of Active Pocket Gopher Mounds and Mound Complexes in Phase I of the CCSM Project Area**

Species	Infrastructure Component Site <sup>1</sup>	Phase I Wind Turbine Development	Phase I Total
Wyoming pocket gopher	25	24	49
Northern pocket gopher	21	188	209
Unknown pocket gopher	21	78	99

<sup>1</sup>Source: BLM 2014a.

CCSM Chokecherry and Sierra Madre

Map 3-11. Pocket Gopher Occurrence in the Phase I Wind Turbine Development Site



### **3.9.2.2 Birds**

#### ***Burrowing Owl***

Surveys conducted in 2012 and 2013 resulted in one observation of a transient, non-breeding burrowing owl in the northwest corner of the Sierra Madre WDA and additional information about potential suitable habitat for burrowing owls. This finding is consistent with the one occurrence of transient, non-breeding burrowing owl disclosed in the CCSM Project FEIS (BLM 2012b). Other potential habitat (i.e., white-tailed prairie dog colonies) was observed during surveys, but no additional burrowing owls or signs of activity were observed (PCW 2015a).

#### ***Summary of the CCSM Phase I Affected Environment for Burrowing Owl***

The affected environment for burrowing owl described above in this EA is the same as the affected environment disclosed in the EA for Infrastructure Components (BLM 2014a). Therefore, the affected environment for Phase I of the CCSM Project is as disclosed above.

#### ***Greater Sage-Grouse***

The CCSM Project FEIS (BLM 2012b, pp. 3.15-11 through 3.15-16) summarizes the distribution and abundance of Greater Sage-Grouse individuals, leks, and nesting and brood-rearing habitat within the CCSM Project Area known at the time that document was prepared. Since publication of the CCSM Project ROD (BLM 2012a): (1) the USFWS has issued a technical report and listing decision for the Greater Sage-Grouse; (2) the State of Wyoming has published a revised Greater Sage-Grouse core area policy (Executive Order 2015-4); (3) BLM has issued the Regional ROD and Wyoming ARMPA for Greater Sage-Grouse (BLM 2015a); and (4) PCW has collected additional Greater Sage-Grouse survey data.

#### ***USFWS Technical Report and Listing Decision***

At the time the CCSM Project FEIS and ROD were published, the Greater Sage-Grouse was a BLM sensitive species and a candidate for listing under the ESA. In an effort to guide Greater Sage-Grouse conservation and management activities, in 2011, the USFWS convened a Conservation Objectives Team of state and USFWS representatives to produce recommendations regarding the degree to which threats to Greater Sage-Grouse need to be reduced or ameliorated to conserve the species so that it would no longer be in danger of extinction or likely to become in danger of extinction in the foreseeable future. The final Conservation Objectives Team Report (USFWS 2013c) delineates conservation objectives based upon the best scientific and commercial data available at the time of its release. One key component of the Conservation Objectives Team Report is the identification of Priority Areas of Conservation which are described as key habitats that are essential for Greater Sage-Grouse conservation. The USFWS Priority Areas of Conservation in the state of Wyoming are consistent with the core areas used in the CCSM Project FEIS analysis (BLM 2012b). The CCSM Project is located outside of the USFWS Priority Areas of Conservation.

On September 22, 2015, the USFWS announced that the Greater Sage-Grouse is not warranted for listing under the ESA. The listing decision was finalized and published in the Federal Register on October 2, 2015 (80 FR 59857). The USFWS decision was largely based on the fact that there are federal and state regulatory mechanisms in place that provide adequate protection for the Greater Sage-Grouse, specifically, enforceable and comprehensive state and federal science-based conservation plans. In Wyoming, these plans include the Wyoming Greater Sage-Grouse core area policy (Executive Order 2015-4) and the BLM Regional ROD (BLM 2015a) and Wyoming ARMPA (BLM 2015a, Attachment 4).



Wyoming Greater Sage-Grouse Core Area Policy

The Wyoming Greater Sage-Grouse core area policy has been in place since 2008. The CCSM Project FEIS evaluated impacts to sage-grouse using the core area boundaries established by the State of Wyoming in Executive Order 2011-5 (Attachment A, Sage-Grouse Core Breeding Areas Version 3, shown on Map 3-12). PCW has committed that it will not develop in core area habitats designated in Wyoming Governor’s Executive Order 2011-5, and the CCSM Project ROD specifically requires PCW to follow all stipulations in Executive Order 2011-5 pertaining to development in non-core areas. Since publication of the CCSM Project ROD, the State of Wyoming has issued a revised core area policy (Executive Order 2015-4). With respect to the CCSM Project, the maps and requirements of Executive Order 2015-4 are consistent with those included in Executive Order 2011-5. The CCSM Project is located outside of core area as designated in either Executive Order 2011-5 or Executive Order 2015-4.

BLM Regional ROD and Wyoming ARMPA

Following issuance of the CCSM Project ROD (BLM 2012a), the BLM issued the Regional ROD (BLM 2015a) including the Wyoming ARMPA for Greater Sage-Grouse (BLM 2015a, Attachment 4). The Regional ROD states that the Wyoming ARMPA is built on the foundation for Greater Sage-Grouse management established by the Wyoming Governor’s Executive Order 2011-5 (BLM 2015a, p. 1-30). On July 29, 2015, the State of Wyoming issued Executive Order 2015-4 which replaced Executive Orders 2011-5 and 2013-3. The Governor’s Consistency Review of the Wyoming ARMPA determined that the guidance and recommendations provided in Executive Order 2015-4 were consistent with the ARMPA.

The decision area for the Wyoming ARMPA is BLM-administered lands in Greater Sage-Grouse habitat management areas, including surface and split-estate lands with BLM subsurface mineral rights, and it consists of lands allocated as Priority Habitat Management Areas (PHMAs) and General Habitat Management Areas (GHMAs). PHMAs include BLM-administered lands identified as having the highest value to maintaining sustainable Greater Sage-Grouse populations. These areas include breeding, late brood-rearing, winter concentration areas, and migration or connectivity corridors. GHMAs include BLM-administered lands where some special management will apply to sustain Greater Sage-Grouse populations; these are areas of occupied seasonal or year-round habitat outside of PHMAs. The Wyoming ARMPA also identifies specific Sagebrush Focal Areas, which are a subset of PHMAs. The CCSM Project is located outside of the PHMAs and there are no Sagebrush Focal Areas in the vicinity of the CCSM Project.

The CCSM Project Area is within GHMAs (BLM 2015a, Attachment 4, p.118). In the Regional ROD (BLM 2015a), GHMAs in Wyoming are neither exclusion nor avoidance areas for wind energy development. Instead, the Regional ROD indicates that in Wyoming, wind energy development is allowed in GHMAs (BLM 2015a, p. 1-31). Specifically, the Regional ROD states that the “BLM’s Wyoming plans also allow for wind energy development in GHMAs with RDFs [required design features] and best management practices (BMPs).” (BLM 2015a, p. 1-31). The Wyoming ARMPA then provides that RDFs are only “required for certain activities in priority GRSG [Greater Sage-Grouse] habitat” and not in GHMAs. (BLM 2015a, Attachment 4 p. 96 and Appendix C – Required Design Features).

The Wyoming ARMPA designates GHMAs as open to wind energy development (BLM 2015a, Attachment 4 p. 25) and identifies Best Management Practices that may be applied by BLM in sage-grouse habitats, including BMPs that may be required as Conditions of Approval in GHMAs. (BLM 2015a, Attachment 4 Appendix C – Greater Sage-Grouse Habitat pp. 133-134). The Phase I Wind Turbine Development complies with the Wyoming ARMPA BMPs applicable to wind projects sited in GHMAs. Table 3-17 lists the Wyoming ARMPA BMPs (BLM 2015a, Attachment 4 Appendix C) and the equivalent project-specific Applicant committed BMPs and/or Applicant committed measures that correspond to the BLM BMPs.

**Table 3-17. Wyoming ARMPA BMPs and the Corresponding CCSM Project Applicant Committed BMPs and Applicant Committed Measures**

Wyoming ARMPA Greater Sage-Grouse Best Management Practice <sup>1</sup>	CCSM Project Applicant Committed Best Management Practice/ Applicant Committed Measure <sup>2</sup>
<b>Roads</b>	
Design roads to an appropriate standard, no higher than necessary, to accommodate their intended purpose.	A-3-51
Do not issue ROWs to counties on energy development roads, unless for a temporary use consistent with all other terms and conditions included in this document.	Not applicable
Establish speed limits to reduce vehicle/wildlife collisions or design roads to be driven at slower speeds.	A-3-59
Coordinate road construction and use among ROW holders.	Not applicable
Construct road crossing at right angles to ephemeral drainages and stream crossings.	A-1-17, A-3-89
Use dust abatement practices on roads and pads.	A-3-04
Close and reclaim duplicate roads by restoring original landform and establishing desired vegetation.	A-1-30, A-3-64
<b>Operations</b>	
Cluster disturbances, operations (fracture stimulation, liquids gathering, etc.), and facilities.	A-3-18
Use directional and horizontal drilling to reduce surface disturbance.	Not applicable
Clean up refuse.	A-3-81
Restrict the construction of tall facilities and fences to the minimum number needed.	A-1-23, A-1-24
Cover (e.g., fine mesh netting or use other effective techniques) all drilling and production pits and tanks regardless of size to reduce sage-grouse mortality.	Not applicable
Equip tanks and other above ground facilities with structures or devices that discourage nesting of raptors and corvids.	A-1-03
Use remote monitoring techniques for production facilities and develop a plan to reduce the frequency of vehicle use.	A-3-13, A-3-18
Control the spread and effects from non-native plant species. (e.g., by washing vehicles and equipment).	A-1-31, A-3-78
Restrict pit and impoundment construction to reduce or eliminate augmenting threats from West Nile virus.	Not applicable
<b>Reclamation</b>	
Include restoration objectives to meet sage-grouse habitat needs in reclamation practices/sites. Address post-reclamation management in reclamation plan such that goals and objectives are to enhance or restore sage-grouse habitat.	A-1-15, A-3-43, A-3-96

<sup>1</sup>Source: BLM 2015a, Attachment 4.

<sup>2</sup>Source: BLM 2012a; also listed in Appendix C of this EA.

ARMPA Approved Resource Management Plan Amendment  
 BMP best management practice  
 CCSM Chokecherry and Sierra Madre

In addition, Section 4.2.9.2 of this EA identifies the Greater Sage-Grouse avoidance, minimization, and other mitigation measures and environmental constraints, Applicant committed measures, and Applicant committed BMPs that have been implemented or will be implemented for the CCSM Project, including the Phase I Wind Turbine Development.

#### Summary of Compliance

The USFWS, State of Wyoming, and the BLM have all developed consistent and complementary strategies to conserve Greater Sage-Grouse populations in Wyoming. In developing these strategies and identifying the areas to prioritize for conservation, the agencies used the best available scientific information. The resulting strategies from each of these separate state and federal processes have consistently identified and adopted the same key geographic areas as priorities for Greater Sage-Grouse conservation, i.e., the State of Wyoming core areas, the BLM PHMAs, and the USFWS Priority Areas of Conservation. The CCSM Project is not located within any of these key geographic areas.

Based on the location of the CCSM Project outside of the designated Priority Areas of Conservation, core areas, and PHMAs, the application of design features that avoid or minimize impacts and/or implement mitigation (e.g., relocating disturbance, timing restrictions, etc.), and the utilization of BMPs, the CCSM Project, including the Phase I Wind Turbine Development, conforms with the Wyoming ARMPA (BLM 2015a, Attachment 4).

#### Additional Greater Sage-Grouse Surveys

Finally, since publication of the CCSM Project FEIS (BLM 2012b) and ROD (BLM 2012a), PCW has continued conducting surveys for Greater Sage-Grouse. These surveys resulted in additional observations of this species and information about potential suitable habitat, as described below. The findings of these surveys are consistent with those disclosed in the CCSM Project FEIS (BLM 2012b) for Greater Sage-Grouse. Map 3-12 summarizes the distribution of Greater Sage-Grouse and Greater Sage-Grouse habitat within the Phase I Wind Turbine Development Site.

Surveys within the Phase I Wind Turbine Development Site subsequent to the CCSM Project FEIS (BLM 2012b) confirmed that Greater Sage-Grouse habitat occurs throughout much of the Phase I Wind Turbine Development Site survey area, including in both the Chokecherry and Sierra Madre WDAs. Year-round use occurs across much of the Chokecherry and Sierra Madre WDAs although Greater Sage-Grouse do not use the Upper Miller Hill area during winter months (November to March) and use in Lower Miller Hill is very low during winter months. Additional detail on the seasonal use patterns and distribution of Greater Sage-Grouse is provided in Appendix M of the Phase I Wind Turbine Development SPOD (PCW 2015a).

#### Chokecherry WDA

Lekking, nesting, brood-rearing, and winter use occurs in the Chokecherry WDA within the Phase I Wind Turbine Development Site. Use within the Chokecherry WDA varies seasonally and is generally lower than that observed in surrounding Greater Sage-Grouse core area habitats (Map 3-12). Typically, brood-rearing hens and males leave the Chokecherry WDA and move to more mesic areas in surrounding Greater Sage-Grouse core area habitats during mid to late summer months.

During spring months, eight leks are located within two miles of the Phase I Wind Turbine Development Site. Of these, the Upper Iron Springs, Chokecherry Bench, Wild Horse Canyon, and Hugus Draw leks have been consistently attended during the past five years.

Sierra Madre WDA

Within the Lower Miller Hill portion of the Sierra Madre WDA, lekking, nesting, and brood-rearing activities occur. However, most birds use the area in early spring and then move to surrounding Greater Sage-Grouse core area habitats. Limited winter use has been documented in areas east of Highway 71 in the Phase I Wind Turbine Development Site. The Sage Creek Ranch, Deadman Creek, and Deadman Creek South leks are within two miles of the Phase I Wind Turbine Development Site. The Sage Creek Ranch and Deadman Creek leks have been attended over the past five years. The Deadman Creek South lek was identified as a new lek in 2013 and was active again in 2014. The Sage Creek Ranch lek is located outside the Sierra Madre WDA in designated Greater Sage-Grouse core area. Nesting and brood-rearing activities for birds associated with the Sage Creek Ranch lek occur almost entirely within designated Greater Sage-Grouse core area habitats. Many of the Greater Sage-Grouse that use the Deadman Creek lek nest and raise broods in Greater Sage-Grouse core area habitats on Miller Hill, outside the Sierra Madre WDA. Some nesting and brood-rearing activities occur west of Highway 71 along Miller Creek and Deadman Creek within the Phase I Wind Turbine Development Site. Winter use in the Sierra Madre WDA east of Miller Hill within the Phase I Wind Turbine Development Site is generally very low. This area is typically used by birds transitioning to winter use areas from nesting and brood-rearing habitats in Greater Sage-Grouse core area on Miller Hill. The Phase I Wind Turbine Development Site has been designed to avoid several patches of sagebrush that are used during these transition periods.

Within the Upper Miller Hill portion of the Sierra Madre WDA, two leks (Rawlins Reservoir and McKinney Crossing) are located within two miles of the Phase I Wind Turbine Development Site. Both of these leks are relatively small and birds using these leks primarily use only the areas within Greater Sage-Grouse core area habitat. Portions of Upper Miller Hill near the McKinney Creek headwaters are used for summer and brood-rearing activities. These activities primarily occur within designated Greater Sage-Grouse core area habitat, although some summer use overlaps with the Phase I Wind Turbine Development Site. Winter use (November to March) does not occur on Upper Miller Hill due to heavy snow cover.

Summary of the CCSM Phase I Affected Environment for Greater Sage-Grouse

Information on Greater Sage-Grouse leks provided in the EA for Infrastructure Components (BLM 2014a) is updated as follows: (1) the Sheep Mountain lek in the Chokecherry WDA is now active, and (2) there is a new lek in the Sierra Madre WDA, the Deadman Creek South lek. Table 3-18 provides a comparison of the number of active and inactive leks within two miles of Phase I of the CCSM Project Area and the number of leks identified in the CCSM Project FEIS (BLM 2012b).

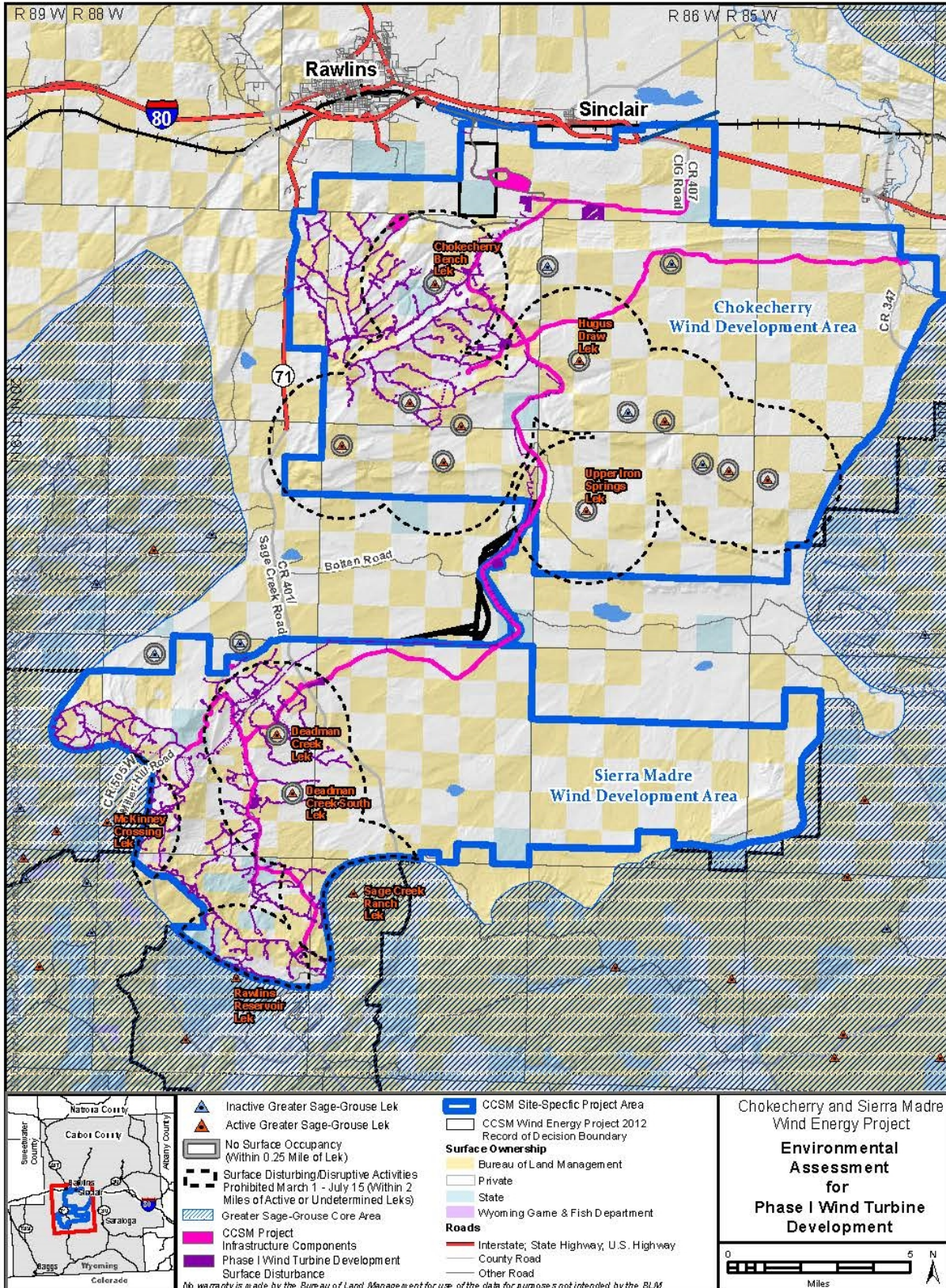
**Table 3-18. Summary of Greater Sage-Grouse Leks in the CCSM Project Area**

Lek Type	Phase I Total <sup>1</sup>	CCSM Project FEIS
Active	12	16
Inactive	7	12
<b>Total</b>	<b>19</b>	<b>28</b>

<sup>1</sup>Number of leks within two miles of Phase I of the CCSM Project, including leks identified for the Infrastructure Component Site (BLM 2014a) and the Phase I Wind Turbine Development Site, and removing overlap of those leks.

CCSM Chokecherry and Sierra Madre

Map 3-12. Greater Sage-Grouse Core Area and Leks in the CCSM Project Area



### ***Mountain Plover***

Surveys conducted in 2012 through 2014 resulted in additional incidental observations of mountain plover and additional information about potential suitable habitat, as described below. Map 3-13 shows the occurrence data and potentially suitable habitat for this species developed as a result of site-specific field investigations. Mountain plover habitat in the western periphery of its range, which includes the areas associated with the Phase I Wind Turbine Development Site, is primarily xeric, shrubland communities with extensive bare ground (PCW 2015a).

Potential mountain plover habitat is present in the Phase I Wind Turbine Development Site in areas consisting of flat to gentle slopes with low vegetation structure. Many areas of saltbush-dominated salt desert shrub habitat (i.e., Gardner's saltbush communities and shadscale saltbush communities) in the Phase I Wind Turbine Development Site are considered suitable potential mountain plover habitat (Map 3-13). Suitable habitat for mountain plover was identified in Gardner's saltbush, birdfoot sagebrush, shadscale saltbush, bluebunch wheatgrass, and threadleaf sedge dominated vegetation communities with extensive bare ground and relatively low herbaceous height. These areas were primarily identified in areas north of the Chokecherry WDA and in portions of the Sage Creek Basin and the Lower Miller Hill areas of the Sierra Madre WDA. The Phase I Wind Turbine Development Site intersects with 185 of the 11,283 acres (approximately 2 percent) of habitat that was identified during site-specific survey efforts.

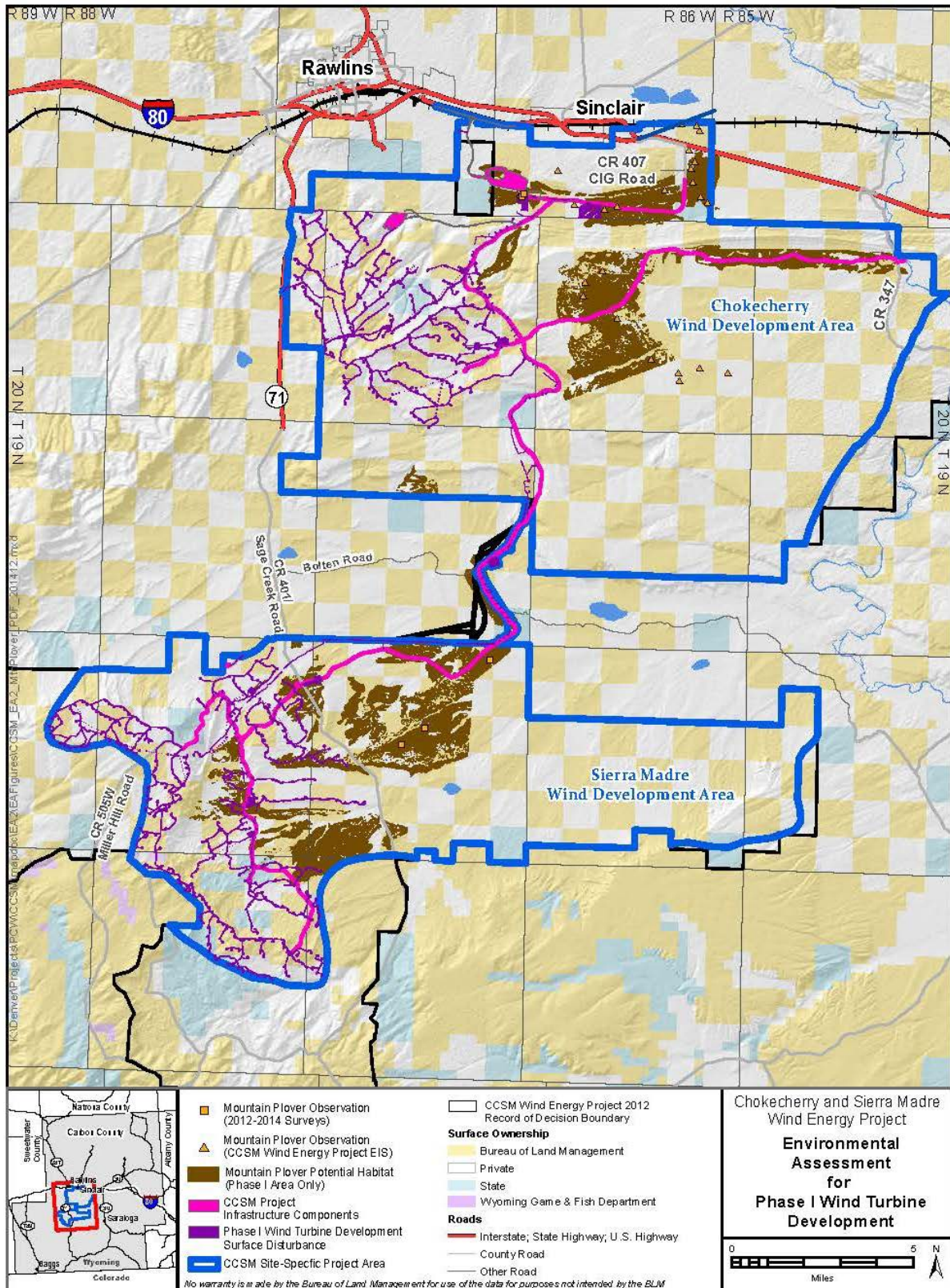
No mountain plover were observed during wildlife surveys completed in 2013 and 2014. Biological surveys conducted for the Infrastructure Components and identified in the EA for Infrastructure Components (BLM 2014a) resulted in two mountain plover observations in the vicinity of the Phase I Wind Turbine Development Site, specifically near the Overland Substation area in the northern portion of the CCSM Project Area. One of these occurrences is located within the area proposed for the Overland Substation, and the other observation was made approximately 230 feet north of the area proposed for the Overland Substation. Both detections occurred in association with a white-tailed prairie dog colony (Map 3-13) that overlaps with previously disturbed areas associated with the existing utility and pipeline corridor.

One mountain plover observation was made in the Sage Creek Basin, approximately 0.5 mile south of where the proposed transmission line crosses into the Sierra Madre WDA. Two other observations of mountain plover were made approximately 1.5 miles east of the nearest proposed surface disturbance areas associated with the Proposed Action in the Sierra Madre WDA (Map 3-13). These occurrences are shown on Map 3-13 to provide additional information regarding the general abundance and distribution of mountain plover within the CCSM Project Area. At the time of preparation of the CCSM Project FEIS (BLM 2012b), no mountain plovers had been observed within the Sierra Madre WDA.

### ***Summary of the CCSM Phase I Affected Environment for Mountain Plover***

A total of six mountain plovers were observed during surveys for Phase I of the CCSM Project, including three observations in the Sierra Madre WDA. The CCSM Project FEIS (BLM 2012b) identifies a total of 37 mountain plovers recorded in the Chokecherry WDA and no mountain plovers observed in the Sierra Madre WDA. Few mountain plovers were observed in Phase I of the CCSM Project; however, occurrence of the species is possible in suitable habitats that occur in the CCSM Project Area.

**Map 3-13. Mountain Plover Occurrences and Potential Habitat in the Phase I Wind Turbine Development Site**



### ***Raptors***

Raptor nest surveys were completed for the CCSM Project in 2008, 2011, 2012, 2013, and 2014. Survey data from 2008 and 2011 are summarized in the CCSM Project FEIS (BLM 2012b). No surveys were conducted for raptors in 2009 and 2010. As noted in Section 1.7, PCW submitted the BBCS and ECP for Phase I of the CCSM Project to the BLM on September 21, 2015. The Phase I BBCS contains additional detail on survey data for non-eagle raptors, and the Phase I ECP contains additional detail on survey data specific to eagles. The following sections summarize the eagle and non-eagle raptor survey results within the Phase I Wind Turbine Development Site for all survey years (i.e., 2008, 2011, 2012, 2013, and 2014). Detailed information on survey results can be found in Appendix M of the Phase I Wind Turbine Development SPOD (PCW 2015a) and in PCW's Phase I BBCS (PCW 2016a) and Phase I ECP (PCW 2015c). Map 3-14 identifies the raptor nests in the Phase I Wind Turbine Development Site and summarizes activity status noted during surveys.

The Phase I Wind Turbine Development was designed to avoid and minimize impacts to known raptor nests. Table 3-19 lists the species and locations of raptor nests identified during surveys conducted in 2008, 2011, 2012, 2013, and 2014 that fall within 825 feet (1,200 feet for ferruginous hawk) of the Phase I Wind Turbine Development Site, ordered alphabetically.

Between April 4, 2011, and July 24, 2012, biweekly long-watch raptor surveys were completed at 6 to 7 locations throughout the Phase I portions of the Chokecherry and Sierra Madre WDAs, including the Phase I Wind Turbine Development Site as well as significant areas outside of the site. Long-watch raptor surveys were conducted for 4 to 8 hours at each site in 4,000-meter radius plots strategically distributed to maximize coverage for the purposes of identifying high raptor use areas and potential migratory pathways while maintaining observer confidence in species identification. From April 2011 through July 2012, 73,984 minutes (1,233.1 hours) of survey were completed within the Phase I portions of the Chokecherry and Sierra Madre WDAs, during which 305 minutes of non-eagle raptor flight (0.08 minutes of flight per 20 minutes of survey), 164 minutes of golden eagle flight (0.04 minutes of flight per 20 minutes of survey), and 32 minutes of bald eagle flight (0.009 minutes of flight per 20 minutes of survey) were recorded within 800 meters of the long-watch raptor survey locations. American kestrel, red-tailed hawk, Swainson's hawk, and northern harrier were the most commonly observed non-eagle raptors.

Between August 2012 and August 2013, 895 hours of eagle and raptor surveys were completed across 33, 800-meter plots distributed throughout the Phase I Wind Turbine Development Site. A total of 127 raptors, of which 34 were golden eagles, were observed during these surveys. These data were used to calculate the average number of raptors and eagles per survey plot per 20 minutes of survey to enable direct comparison with the values presented in the CCSM Project FEIS (BLM 2012b). In the Phase I Wind Turbine Development Site there were 0.047 raptors observed/survey plot/20 minutes of survey, 0.013 golden eagles observed/survey plot/20 minutes of survey, and 0.001 bald eagles observed/survey plot/20 minutes of survey. American kestrel, red-tailed hawk, and northern harrier were the most commonly observed non-eagle raptors.



**Table 3-19. Raptor Nests Observed Since 2008 within 825 feet (1,200 feet for Ferruginous Hawks) of the Phase I Wind Turbine Development Site**

Common Name	Scientific Name	BLM Nest ID	Northing (UTM NAD 83)	Easting (UTM NAD 83)	Distance to Edge of Disturbance (feet)	Years Active
American kestrel <sup>1</sup>	<i>Falco sparverius</i>	--	4592178	312889	11	2013
Ferruginous hawk	<i>Buteo regalis</i>	FH20881301	4620081	312604	360	None
Golden eagle <sup>1</sup>	<i>Aquila chrysaetos</i>	GE20873601	4614839	321561	475 (334 feet from nearest activity area)	2014
Great horned owl (previously unknown raptor)	<i>Bubo virginianus</i>	--	4593306	310021	0	2014
Red-tailed hawk <sup>1</sup>	<i>Buteo jamaicensis</i>	GH18881801	4600683	303369	795	2011
Red-tailed hawk <sup>1</sup>	<i>Buteo jamaicensis</i>	--	4594862	305478	765	2008 (Common raven active in this nest in 2014)
Unknown Raptor	--	--	4589471	312801	815	None
Unknown Raptor	--	--	4590889	312401	459	None
Unknown Raptor	--	--	4591367	311116	331	None
Unknown Raptor	--	--	4595634	304688	668	None
Unknown Raptor	--	--	4617630	312967	510	None
Unknown Raptor	--	--	4619206	316104	455	None
Unknown Raptor	--	--	4622655	320341	751	None
Unknown Raptor	--	--	4620575	320048	88	None
Unknown Raptor	--	--	4614047	317122	757	Common raven active in this nest in 2014

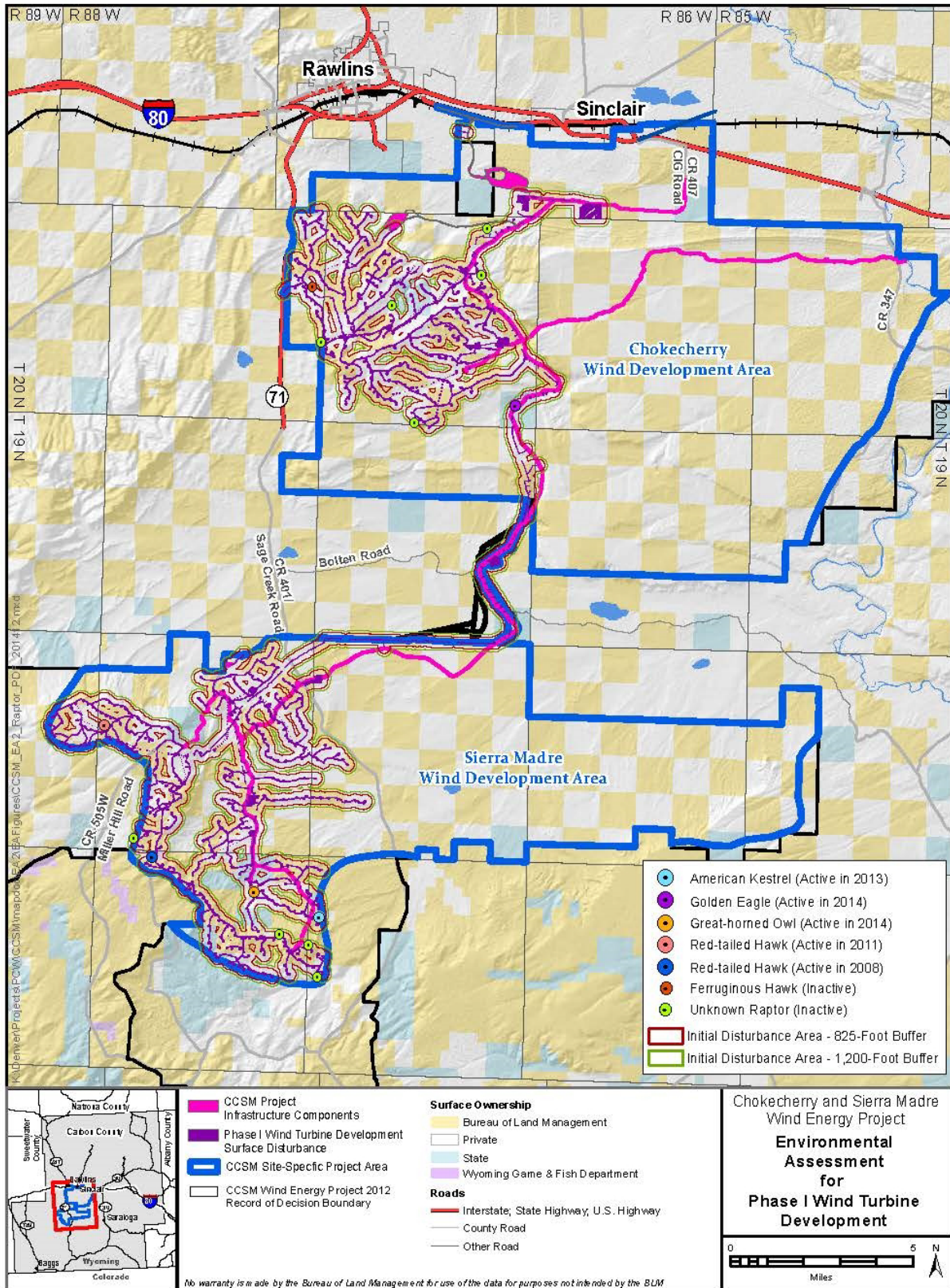
Source: PCW 2015a.

<sup>1</sup>As identified in Chapter 2, for this nest location, PCW is requesting a waiver of the no surface occupancy restriction. The restriction prohibits well locations, roads, ancillary facilities or other surface structures requiring a repeated human presence within 825 feet of active raptor nests (1,200 feet of a ferruginous hawk nests).

Summary of the CCSM Phase I Affected Environment for Raptors

As identified in the CCSM Project FEIS (BLM 2012b), 24 active raptor nests were located in the Application Area. The EA for Infrastructure Components (BLM 2014a) identified 13 raptor nests within 825 feet (1,200 feet for ferruginous hawks) of the Infrastructure Component Site, of which three nests were active during at least one survey year (2008, 2010 through 2014). As identified above, five active raptor nests were identified in the Phase I Wind Turbine Development Site. Therefore, eight total active raptor nests (i.e., active during at least one survey year) were located in Phase I of the CCSM Project.

**Map 3-14. Raptor Nests within 825 feet (1,200 feet for Ferruginous Hawks) of the Phase I Wind Turbine Development Site**



## CHAPTER 4 – ENVIRONMENTAL CONSEQUENCES

This Chapter describes the environmental consequences, also referred to as “impacts” or “effects,” of implementing the alternatives described in Chapter 2 (*Proposed Action and Alternatives*) of this EA. The Environmental Consequences described analyzes the full 500 wind turbine generators Proposed Action. The analysis in this EA is tiered to and incorporates by reference the analysis in the CCSM Project FEIS (BLM 2012b). The CCSM Project FEIS analyzes and discloses environmental impacts, including significant impacts to some environmental resources. This EA screens the Phase I Wind Turbine Development SPOD against the analysis conducted in the CCSM Project FEIS to assess and disclose any additional or new environmental impacts and whether any such new impacts are significant. Additional site-specific analysis and information is provided in this Chapter, where appropriate, to inform decision-making on the Proposed Action. Environmental impacts are discussed for resources identified as “PI” (potentially impacted) in Chapters 1 (*Introduction and Need for Proposed Action*) and 3 (*Affected Environment*) of this EA.

The types of impacts discussed in this EA are consistent with those in the CCSM Project FEIS (BLM 2012b) and include the following:

- Direct Impacts – The effects that are caused by the action and occur at the same time and place.
- Indirect Impacts – The effects that are indirectly caused by the action. They occur later in time or are farther removed in distance, but are still reasonably foreseeable and related to the action by a chain of cause and effect.
- Cumulative Impacts – The effects that result from incremental impacts when added to other past, present, and reasonably foreseeable future actions regardless of what person or agency (federal or non-federal) undertakes those actions. Cumulative impacts are described for the Proposed Action in Chapter 5 of this EA.

The significance criteria used in this EA are consistent with the significance criteria established for each resource in the CCSM Project FEIS (BLM 2012b) and are hereby incorporated by reference. The significance criteria are used to determine if the impacts on a particular resource resulting from the Proposed Action would be significant. A significance determination under NEPA requires considerations of both context and intensity of the effects of an action, as detailed in 40 CFR 1508.27. Impacts on potentially impacted resources resulting from Alternative A – No Action and Alternative B – Proposed Action are described below.

In addition, for each PI resource this EA incorporates by reference the information and analysis from the EA for Infrastructure Components (BLM 2014a) and presents a summary of impacts for Phase I of the CCSM Project. This summary is created by combining the information contained in both the EA for Infrastructure Components (BLM 2014a) and this EA. The total impacts for Phase I of the CCSM Project are then compared to the total impacts identified in the CCSM Project FEIS (BLM 2012b) to determine if the site-specific impacts are consistent with the impacts disclosed in the CCSM Project FEIS (BLM 2012b) and to determine if there are any new significant impacts beyond those disclosed in the CCSM Project FEIS.

### 4.1 Alternative A – No Action Alternative Environmental Impacts

This section analyzes the impacts of the No Action Alternative on the potentially impacted resources described in the affected environment (Chapter 3). Under the No Action Alternative, there would be no impacts because the BLM Authorized Officer would deny approval of a ROW grant for the Phase I Wind Turbine Development SPOD filed by PCW. Under the No Action Alternative, currently approved land

uses, such as livestock grazing, in the CCSM Project Area would continue. Table 3-1 identifies the sections of the CCSM Project FEIS (BLM 2012b) addressing impacts of the No Action Alternative that are consistent with those anticipated from the No Action Alternative of this EA, and are hereby incorporated by reference.

**Table 4-1. CCSM Project FEIS No Action Alternative Impacts**

Resource	CCSM Project FEIS Section	CCSM Project FEIS Page
Cultural Resources and Native American Concerns	4.2.1	4.2-3
National Scenic and Historic Trails	4.7.1	4.7-5
Paleontological Resources	4.5.1	4.5-2
Range Resource	4.6.1	4.6-3
Soils	4.9.1	4.9-3
Vegetation	4.11.1	4.11-5
Water Resources	4.13.1	4.13-4
Wildlife and Fisheries Resources	4.14.1	4.14-9
Special Status Species	4.15.1	4.15-5

Source: CCSM Project FEIS (BLM 2012b).

CCSM Chokecherry and Sierra Madre  
 FEIS Final Environmental Impact Statement

## **4.2 Alternative B – Proposed Action Environmental Impacts**

This section analyzes the environmental impacts of the Proposed Action on the Potentially Impacted (PI) resources described in the affected environment (Chapter 3 of this EA). The Proposed Action consists of construction of the Phase I Wind Turbine Development in support of the CCSM Project, including 500 wind turbine generators and associated facilities as described in the Phase I Wind Turbine Development SPOD filed with the BLM by PCW (PCW 2015a).

### **4.2.1 Cultural Resources and Native American Concerns**

The CCSM Project FEIS (BLM 2012b p. 4.2-4) provides a qualitative assessment of anticipated direct and indirect impacts on cultural resources and properties of traditional, cultural, and religious importance to Native Americans as a result of the CCSM Project. Direct impacts included displacement of soil containing cultural materials, damage to or destruction of artifacts and features, and loss of archaeological data. Indirect impacts included changes in erosion patterns due to construction, inadvertent damage, and increases in illegal artifact collection due to increased access to the CCSM Project Area (BLM 2012b, p. 4.2-4). The CCSM Project FEIS also determines that, due to the large-scale nature of the proposed CCSM Project, significant adverse effects would occur to historic properties where setting is an aspect of integrity, such as the Overland Trail. The Overland Trail is discussed in greater detail in the Section 4.2.2 (National Scenic and Historic Trails) of this EA. Adverse effects to cultural resource sites eligible for NRHP listing (or “historic properties” as termed above) would be mitigated in accordance with the Cultural Resources Programmatic Agreement, included as Appendix E of the CCSM Project ROD (BLM 2012a), as amended in 2014.

The impact analysis presented in the CCSM Project FEIS (BLM 2012b) for cultural resources and Native American concerns concludes that places of traditional, cultural, and religious importance to the tribes would be identified through consultation and cooperation with affected Native American tribes, as well as informed by Class III cultural resource inventory results. Tribal consultation remains on-going for the CCSM Project in accordance with Section VI (Ongoing Tribal Consultation and Coordination) of the Cultural Resources Programmatic Agreement (BLM 2012a, Appendix E), which stipulates the BLM tribal consultation on matters and resources of tribal concern. No traditional cultural properties or other sites of traditional, cultural, and religious importance to Native Americans have been determined by the BLM at this time.

The analysis and conclusions in the CCSM Project FEIS (BLM 2012b) are consistent with impacts anticipated from the Proposed Action considering the new information available from the Class III cultural resource surveys conducted in 2013 and 2014 and ongoing Native American consultation. Avoidance, minimization, and treatment measures for cultural resources are incorporated into the CCSM Project through the CCSM Project Programmatic Agreement (BLM 2012a, Appendix E). Mitigation of effects for sites recommended eligible under Criterion D of the NRHP could include, but are not limited to, data recovery or excavation. Mitigation of effects for sites recommended under Criteria A, B, and C of the NRHP could include, but are not limited to, Historic American Building Survey, Historic American Engineering Record, and Compensatory Mitigation as provided for in the Programmatic Agreement. If unanticipated discoveries of cultural resources occur during project construction, all work in the immediate area would halt and the discovery would be handled in accordance with the CCSM Project Programmatic Agreement (BLM 2012a, Appendix E). Additional specificity is presented below regarding potential impacts to sites considered eligible for listing in the NRHP.

#### **4.2.1.1 Phase I Wind Turbine Development**

Eight sites considered eligible for listing in the NRHP were identified during the Class III cultural resources inventories within the Phase I Wind Turbine Development Site (PCW 2015a). The BLM considered avoidance and minimization measures for all NRHP-eligible cultural resources in the Area of Potential Effect (cf. PCW 2015a). Avoidance and minimization measures were sufficient to achieve no adverse effects at two NRHP-eligible sites (48CR4009 and 48CR9163), and these measures are incorporated into the Proposed Action. Best management practices were sufficient to achieve no adverse effects at one NRHP-eligible site (48CR2181); a project monitor will be required for this site. However, construction of the Phase I Wind Turbine Development would result in adverse effects on five NRHP-eligible historic and archaeological sites (48CR932, 48CR9097, 48CR9180, 48CR10089, 48CR10321), which cannot be fully avoided through redesign. As described in the CCSM Project FEIS (BLM 2012b), adverse effects from the Phase I Wind Turbine Development on historic properties would be assessed and resolved in accordance with the Programmatic Agreement and the ACMs identified in the CCSM Project ROD (BLM 2012a).

The Overland Trail is intersected by the Phase I Wind Turbine Development in one location at a segment that does not contribute to the NRHP eligibility of that historic property (48CR932\_193), and no adverse effects would directly result; however, the Phase I Wind Turbine Development would result in unavoidable adverse effects from indirect impacts, i.e., visual impacts, that diminish the integrity of the property's significant historic features. These adverse effects would be mitigated through implementation of BMPs, ACMs, and compensatory mitigation in accordance with the Programmatic Agreement (BLM 2012a, Appendix E). Additional information on potential impacts specific to the Overland Trail is provided in Section 4.2.2 (*National Scenic and Historic Trails*) of this EA.

Nine sites considered eligible for listing in the NRHP (48CR9236, 48CR10292, 48CR10294, 48CR10308, 42CR10326, 48CR10370, 48CR10391, 48CR10392, 48CR10393) were identified during the Class III cultural resources inventories of the Area of Potential Effect, but are located outside of the areas

of planned ground disturbance for the Phase I Wind Turbine Development (PCW 2015a). The Proposed Action would have no adverse effects on 48CR10292 (temporary fencing of the eastern edge of the site is recommended to ensure avoidance of impacts from construction activities) and 48CR10294 (this site should be avoided through spanning of the site by transmission lines, no placement of towers on the site, and rerouting of project traffic around the site). The Proposed Action would have no effects on 48CR9236, 48CR10308, 42CR10326, 48CR10370, 48CR10391, 48CR10392, and 48CR10393.

If design changes should result in an additional adverse effect at any NRHP-eligible resources in the area, mitigation measures would also be implemented for these in accordance with the CCSM Project Programmatic Agreement (BLM 2012a, Appendix E).

#### **4.2.1.2 Summary of CCSM Phase I Impacts to Cultural Resources**

As described above there are eight sites within the Phase I Wind Turbine Development Site considered eligible for listing in the NRHP, of which five sites are anticipated to be subject to adverse effects and require further mitigation. The cultural resources analysis in the EA for Infrastructure Components (BLM 2014a), which is incorporated by reference, discloses that, there are 13 sites within the Infrastructure Component Site considered eligible for listing in the NRHP, of which two sites (48CR9097, and 48CR10089) are anticipated to be subject to adverse effects and require further mitigation (BLM 2014a). The five sites potentially affected by the Phase I Wind Turbine Development include the two sites disclosed in the EA for Infrastructure Components. As a result, in Phase I of the CCSM Project, there are a total of five sites that are eligible for listing in the NRHP that are anticipated to experience adverse effects. All adverse effects would be resolved in accordance with the CCSM Project Programmatic Agreement (BLM 2012a, Appendix E).

#### **4.2.2 National Scenic and Historic Trails**

The CCSM Project FEIS (BLM 2012b) evaluates impacts to the CDNST, the only congressionally-designated National Trail in the CCSM Project Area, in several sections, including Lands and Realty (Section 4.4.2.8; page 4.4-11), Recreation (Section 4.7: pages 4.7-5 through 4.7-9) and Visual Resources (Section 4.12; pages 4.12-6 through 4.12-43). The CCSM Project FEIS (BLM 2012b) also evaluates historic trails in several sections where there is overlap between trail resources and other resources, including Cultural Resources (Section 4.2), Recreation (Section 4.7), and Visual Resources (Section 4.12). Following publication of the CCSM Project ROD (BLM 2012a), the BLM published Manual 6280 requiring a resource section devoted to National Scenic and Historic Trails (BLM 2012c) in NEPA analysis documents.

The CCSM Project FEIS anticipates that viewers would experience visual impacts from construction and operation of the wind turbine generators, transmission lines, substations, step-up transformers, overhead collection lines, roads, operations and maintenance facilities, and underground facilities such as electric lines and communication lines (BLM 2012b; page 4.12-6). Significance criteria in the CCSM Project FEIS include “development [that] has a substantial adverse effect on a designated scenic vista” (BLM 2012b; p. 4.12-5). The CCSM Project FEIS finds that the scale of activities and visibility from sensitive viewpoints (including scenic and historic trails) would result in substantial, adverse visual impacts (BLM 2012b; page 4.12-8). Generally, the CCSM Project FEIS identifies strong visual contrasts to the setting of the CDNST, and moderate to strong visual contrasts to the setting of the Historic Overland Trail, with visual contrasts decreasing in proportion to distance from the CCSM Project throughout the 30-mile analysis area (BLM 2012b; pages 4.12-10, 4.12-12 through 4.12-14).

The impact analysis presented in the CCSM Project FEIS (BLM 2012b) for the CDNST and Overland Trail is consistent with the overall nature and types of potential impacts anticipated from the Proposed Action in this EA. Additional specificity regarding potential impacts to the CDNST, Overland Trail, and

Cherokee Trail is presented below, based on final engineering and viewshed analysis of the Phase I Wind Turbine Development. The overall location of the Wind Development Areas has not changed substantially from what was analyzed in the CCSM Project FEIS (BLM 2012b), though the location of the wind turbine generators within the Wind Development Areas has been revised through micro-siting and the additional engineering design detail allows for further site-specific analysis in this EA. Impacts of the Phase I Wind Turbine Development to the CDNST, Overland Trail and Cherokee Trail were assessed utilizing guidance provided in BLM Manual 6280 including NRHP criteria and the BLM's VRM system.

#### **4.2.2.1 Phase I Wind Turbine Development**

Map 4-1 presents the viewshed analysis of areas that would have a view of the Phase I wind turbine generators including the CDNST and trails under feasibility study, which include the Overland and Cherokee trails. The computer-generated viewshed mapping was projected from the 100-meter tall nacelles of Phase I wind turbine generators out to a 5-foot eye level for a distance of 30 miles, using a 30-m USGS digital elevation model. The viewshed mapping concludes that the Phase I wind turbine generators would be visible from portions of the CDNST and the trails under feasibility study. A comparison of the viewshed map with Figure 4.12-1 of the CCSM Project FEIS (BLM 2012b; page 4.12-2) demonstrates that the visibility of the Phase I Wind Turbine Development is consistent with that disclosed in the CCSM Project FEIS.

#### ***Continental Divide National Scenic Trail***

The CCSM Project FEIS (BLM 2012b) finds that strong visual contrasts would be evident within 5 miles of the CDNST in the western portion of the Chokeycherry WDA and the southwest and northwest portions of the Sierra Madre WDA, as documented from KOPs 11, 12, and 13 along the CDNST and from four KOPs (1, 9, 14, 16) near the CDNST (BLM 2012b; pages 4.12-12 through 4.12-14 and page 4.12-20). It further discloses that some wind turbine generators and 230 kV transmission facilities located outside of the 5-mile CDNST corridor would be visible in the background distance zone (areas seen between 5 miles to 15 miles away); due to their large scale and light colors (BLM 2012b; page 4.12-20). Finally, the CCSM Project FEIS finds that low-profile facilities, such as roads and laydown areas, would be less discernible in relation to wind turbine generators and the surrounding landscape beyond 5 miles (BLM 2012b; page 4.12-20). The CCSM Project FEIS concludes that though resulting in a strong visual contrast, the CCSM Project would not substantially interfere with the nature and purposes of the CDNST (BLM 2012b; page 4.12-20). The CCSM Project ROD further finds that the selected alternative generally avoids the more sensitive viewsheds along the CDNST and moves the transmission line away from the CDNST, and no disturbance occurs within the CDNST (BLM 2012a; page 3-7).

Effects to the CDNST SRMA within the context of the National Trail System Act are disclosed in Section 4.7 of the CCSM Project FEIS (BLM 2012b; page 4.7-8). The CCSM Project FEIS (BLM 2012b) identifies the CDNST SRMA as an exclusion area; no construction or operation activities or facilities would occur within the 0.25-mile CDNST SRMA or cross any CDNST segment. No proposed facilities would occur within 1 mile of the CDNST, and the CCSM Project FEIS (BLM 2012b) concludes that the CCSM Project complies with the prescribed middle country setting for the CDNST SRMA.

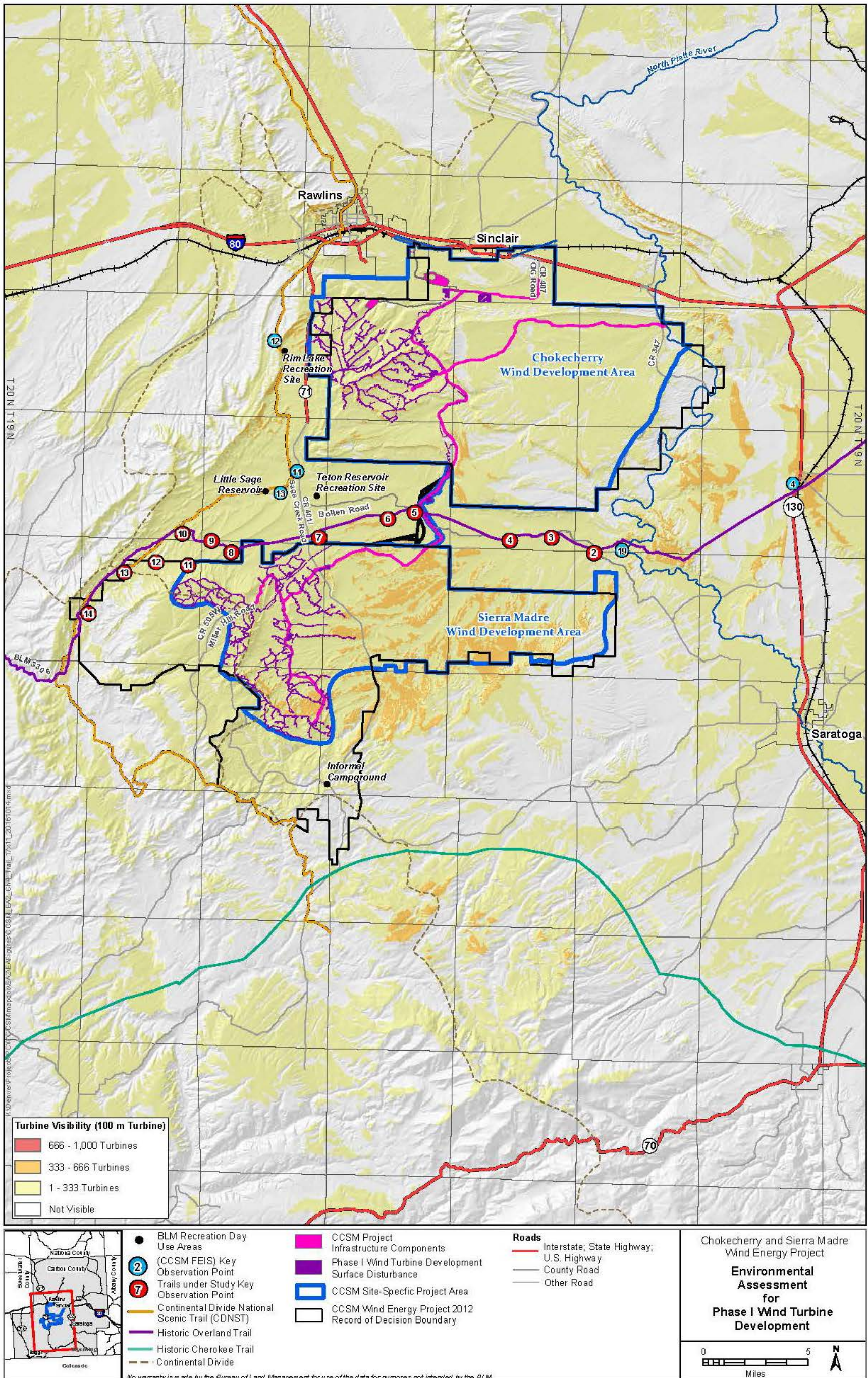
The Phase I Wind Turbine Development elements visible from the CDNST would include the wind turbine generators, as well as other components such as the 230 kV transmission line, roads and meteorological towers. The 230 kV transmission line, roads and other components would likely be visible but would appear subordinate to the visual effects of the wind turbine generators. The ten meteorological towers (3 in the Chokeycherry WDA and 7 in the Sierra Madre WDA) located at the perimeter of the WDAs would likely attract attention due to their approximately 100 meter tall height and aviation warning light; however, they would still likely be subordinate to the visual effects of the wind turbine generators.

The Phase I Wind Turbine Development in the Chokecherry WDA would occur within 2 to 4 miles from the CDNST. Visual effects would be most pronounced at Rim Lake Recreation Site where the Phase I Wind Turbine Development would be within 2 miles of the CDNST. Due to terrain screening, the eastern one-third of the Phase I Wind Turbine Development in the Chokecherry WDA would not be visible, as shown in Map 3-1. The Phase I Wind Turbine Development in the Sierra Madre WDA would occur between 2 to 6 miles from the CDNST. Visual effects would be most pronounced along the Bridger Pass Road and those segments of BLM Road 3306 where Phase I Wind Turbine Development would be within 2 miles and 3 miles of the CDNST; however, terrain screening would limit views along much of BLM road 3306 (Map 4-1).

The Phase I Wind Turbine Development is visible from KOPs 11, 12, and 13 along the CDNST, as shown on Map 4-1 and in Table 4-2. Visual contrast ratings were completed for these KOPs in the CCSM Project FEIS (BLM 2012b; pages 4.12-12 through 4.12-14). As the location of the Phase I Wind Turbine Development is consistent with that analyzed in the CCSM Project FEIS the ratings have not changed.



Map 4-1. Phase I Wind Turbine Development Viewshed Analysis



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**Table 4-2. CDNST Visual Resource Contrast Ratings and VRM Class Consistency for the Phase I Wind Turbine Development**

KOP No. <sup>1</sup>	Location	Visibility of and Distance from the Phase I Wind Turbine Development	SQRU Inventory <sup>2</sup>	SLRU Inventory <sup>3</sup>	VRM Class <sup>4</sup>	FEIS Contrast Rating <sup>5</sup>	VRM Class Achieved?
11	CDNST towards Chokecherry	The Phase I Wind Turbine Development would be seen in the Middleground (approx. 3.5 miles away)	C [Low]	High	IV	Strong	Yes
12	CDNST Above Rim Lake	The Phase I Wind Turbine Development would be seen in the Foreground (approx. 1.5 miles away)	B [Moderate]	High	IV	Strong	Yes
13	CR 3301 - Bridger Pass Road along CDNST	The Phase I Wind Turbine Development would be seen in the Middleground (approx. 3.1 miles away)	C [Low]	High	IV	Strong	Yes

Source: BLM 2012b.

<sup>1</sup>KOP numbers are as defined in the CCSM Project FEIS (BLM 2012b).

<sup>2</sup>A Scenic Quality Rating Unit inventory divided public lands in the RFO on the basis of similar existing factors: landform, vegetation, water, color, influence of adjacent scenery, scarcity, and cultural modification. The Visual Resource Inventory assigned a relative scenic quality rating (A [High], B [Moderate], or C [Low]) to each SQRU on BLM lands (BLM 2012b).

<sup>3</sup>A Sensitivity Level Rating Unit inventory assigned public lands in the RFO high, medium, or low ratings by analyzing factors that include: type of users, amount of use, public interest, adjacent land uses, management objectives of special areas, and other indicators of sensitivity (BLM 2012b).

<sup>4</sup>VRM Classes are as defined by the location of the Phase I Wind Turbine Development.

<sup>5</sup>Contrast ratings are as defined in the CCSM Project FEIS (BLM 2012b, pages 4.12-12 through 14). Contrast ratings assess all phases of the project and may be less for Phase I alone.

KOP Key Observation Point  
 SLRU Sensitivity Level Rating Unit  
 SQRU Scenic Quality Rating Unit  
 VRM Visual Resource Management

The CCSM Project FEIS concludes that the CCSM Project would meet VRM Class IV objectives, which provide for major modifications of the existing character of the landscape. The impacts of the Phase I Wind Turbine Development are consistent with those disclosed in the CCSM Project FEIS. Therefore, no visual impacts to the CDNST are anticipated as a result of the Phase I Wind Turbine Development beyond what was identified in the CCSM Project FEIS (BLM 2012b). In addition, no disturbance would occur within the CDNST SRMA. Impacts to the nature and purposes, resources, qualities, values or associated settings, or the primary use of the CDNST are also consistent with those disclosed in the CCSM Project FEIS (BLM 2012b).

***Overland Trail (under feasibility study)***

The CCSM Project FEIS (BLM 2012b) addresses visual impacts resulting from the introduction of visual elements that are out of character to historic properties, where setting is an aspect of integrity, such as the Overland Trail. The CCSM Project FEIS (BLM 2012b) concludes that “significant impacts and adverse effects would occur to those properties where setting is an aspect of integrity, including but not limited to...historic trails” (BLM 2012b; page 4.2-4). The CCSM Project FEIS analyzed two KOPs along the Overland Trail (KOPs 4 and 19) and found that moderate to strong visual contrasts would occur (BLM 2012b; pages 4.12-12 through 4.12-14 and page 4.12-20). A setting assessment of the Overland Trail completed for the CCSM Project FEIS concludes that due to the large-scale nature of the proposed CCSM Project, adverse effects to the integrity of the Overland Trail's setting would occur (BLM 2012b; pages

4.2-4). In addition, the CCSM Project FEIS discloses that the transmission line would cross a non-contributing segment of the Overland Trail (BLM 2012b; page 4.2-5). Mitigation of adverse effects to the integrity of historic trails includes setbacks for project components as defined in Appendix D of the CCSM Project ROD (BLM 2012a) and mitigation measures defined in the CCSM Project Programmatic Agreement (BLM 2012a; Appendix E).

Segments of the Overland Trail are located in proximity to the Phase I Wind Turbine Development. The majority of the Phase I Wind Turbine Development is at least one mile away from the Overland Trail; however, the 230 kV transmission line spans the Overland Trail. While the Overland Trail is eligible for listing in the NRHP, some segments of the Overland Trail affected by the Phase I Wind Turbine Development are non-contributing elements (these segments do not possess character-defining features that contribute to the overall eligibility of the trail) (Table 4-3). The 230 kV transmission line spans the Overland Trail in a non-contributing segment.

The Phase I Wind Turbine Development falls within the viewshed of the Overland Trail where the trail traverses east-west between the Chokecherry and Sierra Madre WDAs as shown in Map 4-1. The mapping used to create Map 4-1 is sufficient to conclude that the Phase I Wind Turbine Development would be visible from the Overland Trail.

The CCSM Project FEIS analyzed two KOPs along the Overland Trail, KOPs 4 and 19 (BLM 2012b; pages 4.12-12 through 4.12-14). A Visual Impact Assessment for the Setting of Documented Historic Properties from the Chokecherry and Sierra Madre Wind Energy Project in Carbon County, Wyoming (SWCA 2012) analyzed effects of the CCSM Project from 15 additional KOPs along the Overland Trail. The Phase I Wind Turbine Development would be visible from 15 of the 16<sup>2</sup> KOPs as shown in Table 4-3 and Map 4-1. Eastern segments of the Overland Trail (KOPs 1 through 4) are in proximity to future phases of turbine development but are less affected by the Phase I Wind Turbine Development due to distance, which is 10 miles or more from these viewpoints. The Phase I Wind Turbine Development would have moderate to no adverse effect on eastern portions of the Overland Trail. As the location of the Phase I Wind Turbine Development is consistent with that analyzed in the CCSM Project FEIS and A Visual Impact Assessment for the Setting of Documented Historic Properties from the Chokecherry and Sierra Madre Wind Energy Project in Carbon County, Wyoming (SWCA 2012), the ratings are within the range disclosed in the CCSM Project FEIS. Contrast ratings for the CCSM Project from KOPs vary from weak to strong, generally in proportion to their distance from the wind turbines.

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<sup>2</sup> Note that KOP 1 (SWCA 2012) and KOP 19 (CCSM Project FEIS) are the same location.

**Table 4-3. Overland Trail and Cherokee Trail Impact Assessment and VRM Class Consistency for Phase I Wind Turbine Development**

KOP No. <sup>1</sup>	Location	Visibility and Distance from the Phase I Turbines	VRM Class <sup>2</sup>	Contrast Rating <sup>4</sup>	Segment Contributes to NRHP eligibility?
1 <sup>1</sup> and 19 <sup>3</sup>	Overland Trail (48CR932) at Overland Trail Cemetery on east side of North Platte River	The Phase I Wind Turbine Development would be seen in the Background (approx. 12 miles away). KOP 1 (SWCA 2012) and KOP 19 (CCSM Project FEIS) are the same location.	IV	Moderate	Yes
2	Overland Trail (48CR932), east of Bolten Ranch on Bolten Road	The Phase I Wind Turbine Development would be seen in the Background (approx. 11 miles away).	IV	Weak	Yes
3	Overland Trail (48CR932), west of Bolten Ranch on Bolten Road	The Phase I Wind Turbine Development would be seen in the Background (approx. 9 miles away).	IV	Weak	Yes
4	Overland Trail (48CR932), southeast of Kindt Reservoir on Bolten Road	The Phase I Wind Turbine Development would be seen in the Background (approx. 8 miles away).	IV	Weak	Yes
5	Overland Trail (48CR932), east of Stage Creek Station near Bolten Road.	The Phase I Wind Turbine Development would be seen in the Middleground (approx. 4 mile away).	IV	Strong	Yes
6	Overland Trail (48CR932), at the former Stage Creek Station site	The Phase I Wind Turbine Development would be seen in the Middleground (approx. 4 miles away).	IV	Strong	Yes
7	Overland Trail (48CR932), west of Highway 71	The Phase I Wind Turbine Development would be seen in the Foreground (approx. 1 mile away).	IV	Strong	Yes
8	Overland Trail (48CR932), on ridge spine southeast of Pine Grove Creek cemetery site	The Phase I Wind Turbine Development would be seen in the Foreground (approx. 2 miles away).	IV	Strong	Yes
9	Overland Trail (48CR932), at Pine Grove Creek cemetery site	The Phase I Wind Turbine Development would be seen in the Foreground, the closest approx. 2 miles away.	IV	Strong	Yes
10	Overland Trail (48CR932), at fence corner intersection at Bridger Pass Road	The Phase I Wind Turbine Development would be seen in the Foreground, the closest approx. 3 miles away.	IV	Strong	Yes
11	Overland Trail (48CR932) – Thayer Alternate at NNW base of Miller Hill	The Phase I Wind Turbine Development would be seen in the Foreground, the closest approx. 1 mile away.	IV	Strong	Yes

**Table 4-3. Overland Trail and Cherokee Trail Impact Assessment and VRM Class Consistency for Phase I Wind Turbine Development**

KOP No. <sup>1</sup>	Location	Visibility and Distance from the Phase I Turbines	VRM Class <sup>2</sup>	Contrast Rating <sup>4</sup>	Segment Contributes to NRHP eligibility?
12	Overland Trail (48CR932) – Thayer Alternate at NNW base of Miller Hill, SE of Bridger Pass Road	The Phase I Wind Turbine Development would be seen in the Foreground, the closest approx. 2 miles away.	IV	Strong	Yes
13	Overland Trail (48CR932) at the Bridger Pass sign post and elevation marker on Bridger Pass Road	The Phase I Wind Turbine Development would be seen in the Foreground, the closest approx. 3 miles away.	IV	Strong	Yes
14	Overland Trail (48CR932) nearest Bridger Stage Station on Bridger Pass Road	The Phase I Wind Turbine Development would be seen in the Middleground, the closest approx. 4 miles away.	IV	Strong	Yes
15	-	Not Applicable	-	-	-
16	S. Cherokee Trail (48CR3651), at publicly accessible point on Jack Creek Road nearest Twin Grove trail site	The Phase I Wind Turbine Development would be screened by terrain from this location.	IV	None	N/A
4 <sup>3</sup>	State Highway 130 at Overland Trail Historical Marker	The Phase I Wind Turbine Development would be seen in the Background (approx. 22 miles away).	IV	Moderate	N/A

Sources: BLM 2012b, SWCA 2012.

<sup>1</sup>KOP numbers are as defined in *A Visual Impact Assessment for the Setting of Documented Historic Properties from the Chokecherry and Sierra Madre Wind Energy Project in Carbon County, Wyoming* (SWCA 2012).

<sup>2</sup>VRM Classes are as defined by the location of the Phase I Wind Turbine Development Area.

<sup>3</sup>KOP numbers are as defined in the CCSM Project FEIS (BLM 2012b).

<sup>4</sup>Contrast ratings assess all phases of the project and may be less for Phase I alone.

KOP Key Observation Point  
VRM Visual Resource Management

The CCSM Project FEIS discloses that: (a) the CCSM Project would dominate the view of the casual observer and would result in moderate to high levels of change in the landscape for approximately 10 miles from sensitive viewpoints such as the Overland Trail (BLM 2012b, page 4.12-14, 4.12-22, 4.12-26); and (b) transmission line structures would dominate foreground views within an approximate 1- to 2-mile distance of the Overland Trail (BLM 2012b, page 4.12-16). The visual contrast resulting from the Phase I Wind Turbine Development, as analyzed in this EA, would not exceed the rating of “strong” as disclosed in the CCSM Project FEIS and would meet the VRM Class IV objectives. Therefore, impacts to the values, characteristics, and setting of the Overland Trail from the Phase I Wind Turbine Development would not exceed the impacts disclosed in the CCSM Project FEIS (BLM 2012b).

### ***Cherokee Trail (under feasibility study)***

The CCSM Project FEIS discloses that the scale, number, size, and spatial extent of wind turbine generators would be visible from sensitive viewpoints including historic trails up to 30 miles from the CCSM Project, and that in the background distance zone, wind turbine generators would be perceived as part of a larger landscape context (BLM 2012b, pages 4.12-8 through 4.12-10, and 4.12-26). As shown in Map 4-1, the Phase I Wind Turbine Development would be visible from portions of the Cherokee Trail. At its closest point, the Phase I Wind Turbine Development would be located at a distance of approximately 7 miles from the Cherokee Trail within the background distance zone. As demonstrated by comparing Map 4-1 with Figure 4.12-1 of the CCSM Project FEIS, the viewshed analysis for the Phase I Wind Turbine Development is consistent with the viewshed analysis contained in the CCSM Project FEIS. *A Visual Impact Assessment for the Setting of Documented Historic Properties from the Chokecherry and Sierra Madre Wind Energy Project in Carbon County, Wyoming* (SWCA 2012) analyzed effects of the CCSM Project from one additional KOP (#16) along the Cherokee Trail near the Twin Grove trail site as shown in Table 4-3 and Map 4-1, and found that the CCSM Project would not be visible from that location.

The Phase I Wind Turbine Development would result in a weak to no visual contrast from portions of the Cherokee Trail. At this distance, impacts to sensitive viewpoints such as the Cherokee Trail from the Phase I Wind Turbine Development would not exceed the impacts disclosed in the CCSM Project FEIS (BLM 2012b) and would meet VRM Class IV objectives. Therefore, impacts to the values, characteristics, and setting of the Cherokee Trail from the Phase I Wind Turbine Development would not exceed the impacts disclosed in the CCSM Project FEIS (BLM 2012b).

#### **4.2.2.2 Summary of CCSM Phase I Impacts to National Scenic Trails and Trails under Feasibility Study**

The impacts identified above would be in addition to the impacts to the CDNST and Overland Trail resources discussed in the EA for Infrastructure Components (BLM 2014a). No impacts to the Cherokee Trail were identified in the EA for Infrastructure Components (BLM 2014a). Effects from the Infrastructure Components are limited to the same settings of the CDNST and Overland Trail that would be affected by the Phase I Wind Turbine Development.

When the impacts disclosed in the EA for Infrastructure Components (BLM 2014a) are combined with the impacts disclosed in this EA, no visual impacts to the CDNST are anticipated as a result of Phase I of the CCSM Project beyond what was identified in the CCSM Project FEIS (BLM 2012b). In addition, no disturbance would occur within the CDNST SRMA. The impacts of Phase I of the CCSM Project on the CDNST, Overland Trail, and Cherokee Trail are consistent with the type and magnitude of the impacts disclosed in the CCSM Project FEIS.

#### **4.2.2.3 Mitigation Measures**

Impacts to the CDNST, Overland Trail, and Cherokee Trail would be mitigated through implementation of design features, ACMs, BLM BMPs, BLM-required mitigation measures (BLM 2012b; pages 4.12-42 to 4.12-43), and the site-specific reclamation plan, included as Appendix L of the Phase I Wind Turbine Development SPOD (PCW 2015a). In addition, adverse effects to historic properties would be mitigated in accordance with the Cultural Resources Programmatic Agreement, included as Appendix E of the CCSM Project ROD (BLM 2012a).

The following BLM environmental constraints, Applicant Committed BMPs, and mitigation measures, summarized in Appendix D of the CCSM Project ROD (BLM 2012a), would be implemented to reduce impacts on the CDNST and trails under feasibility study from the Proposed Action:

- BLM Environmental Constraints for historic trails and Special Management Areas (CCSM Project ROD [BLM 2012a, p. D-1])
- Applicant Committed BMPs A-2-01, and A-3-79 through A-3-80
- Mitigation Measures VR-1 through VR-5

### **4.2.3 Paleontological Resources**

The CCSM Project FEIS (BLM 2012b) discusses direct impacts (destruction or loss of scientifically important fossils) and indirect impacts (loss of fossil resources due to unauthorized collection) on paleontological resources anticipated primarily as a result of construction of the CCSM Project (BLM 2012b, p. 4.5-2). These impacts were determined to be adverse, long-term, and severe. It is also disclosed that the CCSM Project may have beneficial impacts on paleontological resources if important fossil resources are discovered during construction of the CCSM Project. The CCSM Project FEIS (BLM 2012b, p. 4.5-4) determines that even if construction monitoring is implemented, some scientifically valuable fossils may be disturbed and lost during excavating and grading over the large number of miles of roads that are expected to be built. As a consequence, there would be a small incremental loss of fossil material that would be offset by the materials that are recovered and preserved for scientific study purposes.

The impact analysis presented in the CCSM Project FEIS (BLM 2012b) for paleontological resources is consistent with the overall nature and types of potential impacts anticipated from the Proposed Action in this EA. Additional specificity regarding the extent and/or location of those potential impacts is presented below, based on results of pedestrian field surveys conducted in 2013.

#### **4.2.3.1 Phase I Wind Turbine Development**

Geologic units within the CCSM Project Area, particularly the Mesaverde Group (PFYC 3a), the Steele Shale (PFYC 5), and the Niobrara Formation (PFYC 5), have the potential to yield scientifically significant subsurface fossils based on the analysis of existing data and survey results. During on-the-ground pedestrian surveys for paleontological resources, in the Lower Miller Hill portion of the Sierra Madre WDA, the majority of fossils identified in the Niobrara formation were evaluated as non-significant marine invertebrate fossil locations. One location in the Mowry and Thermopolis Shales in the Lower Miller Hill portion of the Sierra Madre WDA contained marine vertebrate and invertebrate fossils and may meet the BLM's standards for significant paleontological resources set forth in IM 2009-011.

#### **4.2.3.2 Summary of CCSM Phase I Impacts to Paleontological Resources**

The impacts identified above would be in addition to the impacts to paleontological resources discussed in the EA for Infrastructure Components (BLM 2014a) and the paleontological resources analysis for the Infrastructure Component Site is incorporated here by reference. Within the Infrastructure Component Site, seven fossil localities were documented on BLM-administered land. Three areas met the BLM's criteria for significant fossil localities as defined in BLM IM 2009-11. Four of the localities were non-significant localities. Therefore, for Phase I of the CCSM Project, there are a total of four areas (three in the Infrastructure Component Site and one in the Phase I Wind Turbine Development Site) that may meet the BLM's criteria for significant fossil localities would be impacted. These impacts would be within those disclosed in the CCSM Project FEIS (BLM 2012b).



### 4.2.3.3 Mitigation Measures

As required in the CCSM Project ROD (BLM 2012a), PCW will have a paleontologist on-call and agrees to suspend construction activities within the immediate area if fossils are discovered on federal lands for up to 48 hours while the BLM evaluates the fossils' significance.

The following ACMs, Applicant Committed BMPs, and mitigation measures, summarized in Appendix D of the CCSM Project ROD (BLM 2012a), would be implemented to reduce impacts on paleontological resources from the Proposed Action:

- Applicant Committed Measure A-1-20
- Applicant Committed BMP A-3-07
- Mitigation Measures PALEO-1 and PALEO-2

### 4.2.4 Range Resources

The CCSM Project FEIS (BLM 2012b) assesses impacts on range resources by calculating the total loss of AUMs resulting from surface disturbance on 7,680 acres of rangeland, as well as the loss of rangeland resulting from dust deposition along 438 miles of unpaved roads. The combined losses of AUMs incurred as a result of dust deposition, coupled with the direct disturbance (temporary) loss, represented approximately nine percent of the currently available AUMs on the affected allotments within the CCSM Project Application Area (BLM 2012b, p. 4.6-4). This did not qualify as a potentially significant impact on overall rangeland health and livestock grazing, but would be locally significant within individual pastures (BLM 2012b, p. 4.6-4). Significance criteria, however, are based on AUM loss within allotments, and not individual pastures. Specifically, the CCSM Project FEIS (BLM 2012b) determines that development or operational activities that cause a reduction in forage availability resulting in greater than 10 percent permanent reduction in AUMs within any given allotment would constitute significant impacts.

#### 4.2.4.1 Phase I Wind Turbine Development

##### *Direct Loss of AUMs*

As identified in Chapter 3 (*Affected Environment*) of this EA, the BLM developed site-specific AUM estimates for the Proposed Action. Table 4-4 shows the total AUMs affected by surface disturbance associated with the Proposed Action within the Pine Grove/Bolten, Sage Creek, and Emigrant allotments. Approximately 2,399 acres of initial surface disturbance is anticipated within the Pine Grove/Bolten allotment, resulting in the temporary loss of approximately 339 AUMs of forage until effective reclamation is achieved. Long-term surface disturbance within the Pine Grove/Bolten allotment resulting from the Proposed Action would be approximately 461 acres, resulting in a long-term loss of approximately 63 AUMs of forage. Within the Sage Creek allotment, approximately 150 acres of initial surface disturbance is anticipated, resulting in the temporary loss of approximately 26 AUMs of forage until effective reclamation is achieved. Long-term surface disturbance within the Sage Creek allotment resulting from the Proposed Action would be approximately 24 acres, resulting in a long-term loss of approximately 4 AUMs of forage. Within the Emigrant allotment, approximately 0.3 acre of initial disturbance is anticipated, resulting in the temporary loss of 0.03 AUM of forage until effective reclamation is achieved. No long-term surface disturbance would occur within the Emigrant allotment.

In addition, the Proposed Action would result in short-term direct losses of forage in the activity areas. These losses would be considered short-term in nature because mowing or trimming would not disturb the

root structure of the affected plants. Therefore, activity areas are not included in the assessment of long-term AUM losses discussed below.

***Indirect Loss of AUMs***

With construction of unpaved roads in the affected allotments, dust deposition on vegetation is expected to further reduce AUMs of forage, consistent with the analysis in the CCSM Project FEIS (BLM 2012b). Assuming the affected area is approximately 150 feet wide on either side of the unpaved roads, also consistent with the analysis in the CCSM Project FEIS (BLM 2012b), the Proposed Action would reduce AUMs of forage on approximately 4,509 acres<sup>3</sup>, resulting in the loss of 602 AUMs of forage within the Pine Grove/Bolten allotment, 39 AUMs of forage within the Sage Creek allotment, and 1 AUM of forage within the Grizzly allotment if the entire area is rendered unpalatable. No indirect loss of AUMs is anticipated for the Emigrant allotment.

***Impact Summary***

As stated in Chapter 3 (*Affected Environment*) of this EA and identified in the BLM Rangeland Administration System (BLM 2014d), the total AUMs in Pine Grove/Bolten allotment is 18,006 AUMs. Within the Sage Creek, Grizzly, and Emigrant allotments, there are 10,703 AUMs, 6,715 AUMs, and 755 AUMS, respectively.

As summarized in Table 4-4, the combined losses incurred as a result of dust deposition, coupled with the direct loss of forage from surface disturbance, represents approximately 4 percent of the currently available AUMs in the Pine Grove/Bolten allotment within the CCSM Project Area, and less than 1 percent of the currently available AUMs in the Sage Creek and Grizzly allotments. There would be no permanent AUM reduction in the Emigrant allotment within the CCSM Project Area. The initial disturbance would result in an additional loss of AUMs that would be returned once reclamation is achieved.

**Table 4-4. Animal Unit Months Affected by the Proposed Action**

Allotment	AUM Reduction from Surface Disturbance		AUM Reduction from Dust Deposition from Unpaved Roads	AUM Reduction (Long-Term Surface Disturbance + Dust Deposition)	Percent Long-Term AUM Reduction (AUM Reduction/ Total AUMs in Allotment)
	Initial Disturbance	Long-term Disturbance			
Pine Grove/ Bolten	339	63	602	665	4
Sage Creek	26	4	39	43	<1
Grizzly	0	0	1	1	<1
Emigrant	0.03	0	0	0	0
<b>Total</b>	365	67	642	709	2

AUM animal unit month

<sup>3</sup> To avoid double counting loss of AUMs, this figure includes only the area outside of the surface disturbance areas. Loss of AUMs associated with surface disturbance is calculated in the direct AUM loss analysis described in the paragraph above.

**4.2.4.2 Summary of CCSM Phase I Impacts to Range Resources**

Table 4-5 identifies the total loss of forage when both the Infrastructure Components and the Phase I Wind Turbine Development are considered. The range resources analysis for the Infrastructure Component Site (BLM 2014a) is incorporated here by reference. The indirect impact areas associated with the Infrastructure Components overlap portions of the indirect impact areas associated with the Phase I Wind Turbine Development. Totals in Table 4-5 remove these areas of overlap.

**Table 4-5. Animal Unit Months Affected by the Proposed Action and Infrastructure Components**

Allotment	AUM Reduction (Long-Term Surface Disturbance + Dust Deposition)		AUM Reduction From Infrastructure Components and Phase I Wind Turbine Development with Overlap Removed <sup>1</sup>	Total AUMs in Allotment <sup>2</sup>	Percent AUM Impact (AUM Impact/Total AUMs in Allotment)
	Infrastructure Components <sup>3</sup>	Phase I Wind Turbine Development			
Pine Grove/ Bolten	178	665	835	18,006	5
Sage Creek	3	43	45	10,703	<1
Grizzly	0	1	1	6,715	<1
Emigrant	0	0	0	755	0
<b>Total</b>	<b>181</b>	<b>709</b>	<b>881</b>	<b>36,179</b>	<b>2</b>

<sup>1</sup>Indirect impact areas associated with the Phase I Wind Turbine Development overlap areas of indirect impacts associated with the Infrastructure Components. Using a geographic information system (GIS), these areas of overlap are removed so as to avoid double-counting these areas.

<sup>2</sup>Source: BLM 2014d.

<sup>3</sup>Source: BLM 2014a.

AUM animal unit month

The significance criteria established in the CCSM Project FEIS for Range Resources (BLM 2012b; page 4.6-2) considered impacts potentially significant if project development and operational activities cause a reduction in forage availability resulting in greater than 10 percent permanent reduction in AUMs within any given allotment. Applying this significance criterion to the updated AUMs affected by the Proposed Action, these impacts would not be considered significant because the impacts resulting from Phase I Wind Turbine Development are less than the 10 percent permanent reduction in AUMs (4, less than 1, and less than 1 percent in the Pine Grove/Bolten, Sage Creek, and Grizzly allotments, respectively). Further, the impacts from both the Infrastructure Components and the Phase I Wind Turbine Development would not be considered significant because the impacts are less than the 10 percent permanent reduction in AUMs (5, less than 1, and less than 1 percent in the Pine Grove/Bolten, Sage Creek, and Grizzly allotments, respectively) (Table 4-5). There would be no permanent AUM reduction in the Emigrant allotment.

#### **4.2.4.3 Mitigation Measures**

The following Applicant Committed BMPs, and mitigation measures, summarized in Appendix D of the CCSM Project ROD (BLM 2012a), would be implemented to reduce impacts on range resources from the Proposed Action:

- Applicant Committed BMPs A-3-01 through A-3-05; and A-3-16 through A-3-18
- Mitigation Measure RANGE-1, including Emigrant allotment

#### **4.2.5 Soils**

The CCSM Project FEIS (BLM 2012b) determines that, because it is not feasible to completely avoid areas of severe and poor soil limitations, significant impacts on soil resources would be anticipated (BLM 2012b, p. 4.9-7). The CCSM Project FEIS (BLM 2012b) identifies that soil loss of less than 2 tons per acre per year is considered to be similar to background levels; therefore, surface disturbance to soil resources and loss of soil cover that would lead to soil erosion greater than 2 tons per acre per year (greater than background levels) is considered to be significant. Further, the CCSM Project FEIS (BLM 2012b) discloses that some amount of topsoil would be lost (to erosive forces) or degraded (contaminated or diluted) and that as a result, soil productivity would be reduced in some areas to a level that prevents the disturbed area from recovering to pre-disturbance productivity levels. These impacts were also determined to be significant and that an irretrievable loss of soil productivity and quality would be lost on approximately 1,544 acres associated with turbine locations, road network, electrical network, and support facilities (BLM 2012b, p. 4.9-9). Similarly, CCSM Project roads would result in an irretrievable commitment of soil resources on approximately 866 acres (BLM 2012b).

The impact analysis presented in the CCSM Project FEIS (BLM 2012b) for soil resources is consistent with the overall types and nature of impacts anticipated from the Proposed Action. Vegetation trimming within designated activity areas is not anticipated to result in additional long-term impacts to soil resources beyond the types of impacts already disclosed in the CCSM Project FEIS (BLM 2012b), primarily because roots and portions of the above-ground vegetative matter would be left intact and not contribute to additional soil erosion or runoff. Additional specificity regarding the extent and/or location of potential impacts on soils is provided below. This analysis uses the BLM Order III Soil Survey, as well as the site-specific soil data collected subsequent to the publication of the CCSM Project ROD (BLM 2012a).

As identified in Chapter 2, PCW is requesting a waiver of the prohibition of surface disturbance for wind turbine staging areas on slopes greater than 25 percent for a total of six acres of initial disturbance (Appendix B of PCW 2015a). The impacts from this six acre disturbance on slopes greater than 25 percent are considered in the analysis below.

##### **4.2.5.1 Phase I Wind Turbine Development**

Using the Order III Soil Survey data, Table 3-5 identifies the Phase I Wind Turbine Development Site soil factors by disturbance type (initial and long-term).

**Table 4-6. Acres of BLM Order III Soil Survey Factors within the Phase I Wind Turbine Development Site – Initial and Long-Term Disturbance**

Soil Factor	Disturbance Type	
	<i>Initial</i>	<i>Long-Term</i>
<b><i>Water Erosion</i></b>		
Slight	37.2	6.9
Slight/ Moderate	108.7	6.3
Slight/ Severe	1,620.1	281.5
Moderate/ Severe	317.6	47.8
Severe	951.4	142.9
<b><i>Wind Erosion</i></b>		
Slight	40.8	4.4
Slight/ Moderate	837.6	140.9
Moderate	2,058.0	322.7
Moderate/ Severe	83.6	11.6
Severe	14.9	5.6
<b><i>Runoff Potential</i></b>		
Low to High	34.0	6.1
Low to Moderate	52.3	7.2
Moderate	123.3	10.8
Moderate to High	645.4	103.0
High	2,179.9	358.2
<b><i>Topsoil Rating</i></b>		
Good	1,282.5	208.6
Fair	733.4	124.3
Poor	878.0	134.4
No Data	141.0	17.9
<b><i>Road Rating<sup>1</sup></i></b>		
Slight	203.3	37.8
Slight/ Moderate	1.3	0.6
Moderate	1,815.9	285.5
Severe	873.4	143.4
No Data	141.0	17.9

Source: BLM 2012b.

<sup>1</sup>Road rating based on severity of soil limitations

Based on a comparison between Table 3-5, above, and Table 4.9-2 of the CCSM Project FEIS (BLM 2012b), surface disturbance to soils with these five soil limitations as a result of the Proposed Action would be less than surface disturbance disclosed for the CCSM Project in the CCSM Project FEIS (BLM 2012b).

### *Sensitive Soils*

Using guidance from the BLM, PCW developed spatial data to identify sensitive soil resources within the CCSM Project Area, as described in Chapter 3 (*Affected Environment*) of this EA. Specifically, PCW identified chemically and physically sensitive soils, which include shallow soil areas as well as the saline lowland soils having salinities that make them sensitive. Initial and long-term disturbance is proposed within 1,588 acres and 256 acres, respectively, of sensitive soil resources areas as a result of the Proposed Action. Impacts within these sensitive soil areas could result in impacts such as increased erosion and run-off potential, and loss of soil productivity and quality, consistent with impacts described in the CCSM Project FEIS (BLM 2012b, pp. 4.9-3, 4.9-5 through 4.9-7) and summarized above.

Table 4-7 identifies the acreage of sensitive soils, defined by ecological site, within the Phase I Wind Turbine Development Site. Sensitive soils, as defined by their chemical and physical characteristics, may potentially occur in the following ecological sites (Table 3-6): (1) all shallow ecological sites (i.e., shallow loamy, shallow sandy, very shallow), (2) saline ecological sites (i.e., deep shale, saline lowland, saline upland, shale); (3) ecological sites with soils containing clayey textures (i.e., clays and silty clays) or sandy textures (i.e., sands); and, (4) ecological sites with pH greater than 8.4 and fine textures.

**Table 4-7. Acreage of Surface Disturbance Proposed within Sensitive Soil Resource Areas Defined by Ecological Site**

Ecological Site	Phase I Wind Turbine Development (acres)	
	<i>Initial</i>	<i>Long Term</i>
<b><i>7-9 Inch Precipitation Zone</i></b>		
Clayey 7-9	42.4	8.2
Clayey Overflow 7-9	3.1	0.5
Deep Shale 7-9	119.6	10.0
Saline Lowland 7-9	10.2	0.6
Saline Upland 7-9	12.5	5.7
Sandy 7-9	146.2	33.4
Shallow Loamy 7-9	214.0	33.8
Very Shallow 7-9	15.5	6.2
<b><i>10-14 Inch Precipitation Zone</i></b>		
Clayey 10-14	245.3	34.0
Deep Shale 10-14	104.3	14.8
Loamy Overflow 10-14	14.7	2.4
Saline Upland 10-14	12.5	1.4
Sandy 10-14	4.3	2.4
Shale 10-14	29.7	3.9
Shallow Loamy 10-14	258.9	39.0
Shallow Sandy 10-14	9.1	2.6
<b><i>15-19 Inch Precipitation Zone</i></b>		
Mountain Windswept Ridge 15-19	317.2	53.4
Shallow Loamy 15-19	29.0	4.1

#### 4.2.5.2 Summary of CCSM Phase I Impacts to Soils

The impacts identified above would be in addition to the impacts to soil resources discussed in the EA for Infrastructure Components (BLM 2014a). The soils analysis for the Infrastructure Component Site (BLM 2014a) is incorporated here by reference. Table 4-8 provides a comparison of the initial and long-term surface disturbance by BLM Order III soil survey factor for the Phase I of the CCSM Project (i.e., the Infrastructure Component Site and the Phase I Wind Turbine Development Site), including the impacts from the six acres of disturbance on slopes greater than 25 percent, and the CCSM Project FEIS (BLM 2012b). As demonstrated by Table 4-8, impacts in all categories are within those disclosed in the CCSM Project FEIS (BLM 2012b).

**Table 4-8. Summary of Initial and Long-Term Surface Disturbance of Soils by BLM Order III Soil Survey Factors (acres)**

Soil Factor	Phase I						CCSM FEIS <sup>2</sup>	
	<i>Infrastructure Component Site<sup>1</sup></i>		<i>Phase I Wind Turbine Development Site</i>		<i>Phase I Total</i>		<i>Initial</i>	<i>Long-term</i>
	<i>Initial</i>	<i>Long-term</i>	<i>Initial</i>	<i>Long-term</i>	<i>Initial</i>	<i>Long-term</i>		
<b><i>Water Erosion</i></b>								
Slight	394	122	37.2	6.9	431.2	128.9	381	97
Slight/Moderate	196	46	108.7	6.3	304.7	52.3	287	48
Slight/Severe	435	120	1,620.1	281.5	2,055.1	401.5	3,519	738
Moderate	56	18	0	0	56.0	18.0	466	104
Moderate/Severe	117	32	317.6	47.8	434.6	79.8	877	149
Severe	231	27	951.4	142.9	1,182.4	169.9	2,086	392
No Data	0	0	0	0	0	0	80	14
<b><i>Wind Erosion</i></b>								
Slight	9	1	40.8	4.4	49.8	5.4	67	10
Slight/Moderate	130	31	837.6	140.9	967.6	171.9	1,425	238
Moderate	1,269	325	2,058.0	322.7	3,327.0	647.7	5,979	1,262
Moderate/Severe	2	1	83.6	11.6	85.6	12.6	44	7
Severe	18	5	14.9	5.6	32.9	10.6	100	12
No Data	0	0	0	0	0	0	80	14
<b><i>Runoff Potential</i></b>								
Very Low	0	0	0	0	0	0	5	1
Low	29	8	0	0	29.0	8.0	45	9
Low to Moderate	10	3	52.3	7.2	62.3	10.2	18	3
Low to High	11	3	34.0	6.1	45.0	9.1	27	6
Moderate	260	75	123.3	10.8	383.3	85.8	1,074	231



**Table 4-8. Summary of Initial and Long-Term Surface Disturbance of Soils by BLM Order III Soil Survey Factors (acres)**

Soil Factor	Phase I						CCSM FEIS <sup>2</sup>	
	Infrastructure Component Site <sup>1</sup>		Phase I Wind Turbine Development Site		Phase I Total		Initial	Long-term
	Initial	Long-term	Initial	Long-term	Initial	Long-term		
Moderate to High	296	73	645.4	103.0	941.4	176.0	1,386	243
High	823	202	2,179.9	358.2	3,002.9	560.2	5,047	1,034
Very High	0	0	0	0	0	0	19	3
No Data	0	0	0	0	0	0	75	13
<b>Topsoil Rating</b>								
Good	370	95	1,282.5	208.6	1,652.5	303.6	3,001	597
Fair	356	94	733.4	124.3	1,089.4	218.3	1,829	350
Poor	689	172	878.0	134.4	1,567.0	306.4	2,541	537
No Data	14	4	141.0	17.9	155.0	21.9	322	59
<b>Road Rating<sup>1</sup></b>								
Slight	0	0	203.3	37.8	203.3	37.8	254	41
Slight/Moderate	13	6	1.3	0.6	14.3	6.6	51	32
Moderate	805	206	1,815.9	285.5	2,620.9	491.5	4,514	903
Severe	598	149	873.4	143.4	1,471.4	292.4	2,553	508
No Data	14	4	141.0	17.9	155.0	21.9	322	59

<sup>1</sup>Source: BLM 2014a.<sup>2</sup>Source: BLM 2012b.<sup>1</sup>Road rating based on severity of soil limitations.CCSM Chokecherry and Sierra Madre  
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Table 4-9 identifies the total acreage and percentage of sensitive soils within the Phase I Wind Turbine Development, as well as within the Infrastructure Component Site discussed in the EA for Infrastructure Components (BLM 2014a). While long-term significant impacts to soils are anticipated from the CCSM Project; no new significant impacts to soils are anticipated above those disclosed in the CCSM Project FEIS (BLM 2012b).

**Table 4-9. Acreage of Surface Disturbance Proposed within Sensitive Soil Resource Areas**

Project Component	Impact to Sensitive Soils (acres)		Total Area within Project Component	Percent of Total Area with Sensitive Soils within Initial Surface Disturbance Areas
	Initial	Long-Term		
Infrastructure Components <sup>1</sup>	757	206	1,428	53
Proposed Action (Phase I Wind Turbine Development)	1,588	256	3,035	52
<b>Total</b>	<b>2,345</b>	<b>462</b>	<b>4,463</b>	<b>53</b>

<sup>1</sup>Source: BLM 2014a.

### 4.2.5.3 Mitigation Measures

To minimize erosion potential and effects on soil resources from the Proposed Action, PCW would implement the measures described in the Phase I Wind Turbine Development SPOD (PCW 2015a), including the Erosion Control Plan (Appendix H of PCW 2015a), the site-specific stormwater pollution prevention plan (Appendix I of PCW 2015a), and the site-specific reclamation plan (Appendix L of PCW 2015a), as well as the measures included in the CCSM Project ROD (BLM 2012a). These measures control surface runoff and erosion and ensure biophysical conditions are maintained for reclamation.

The following environmental constraints, Applicant Committed BMPs, and mitigation measures, summarized in Appendix D of the CCSM Project ROD (BLM 2012a), would be implemented to reduce impacts on soil resources from the Proposed Action:

- BLM Environmental Constraints for soil resources (CCSM Project ROD [BLM 2012a, p. D-1])
- Applicant Committed BMPs A-3-65 through A-3-74
- Mitigation Measures SOIL-1 through SOIL-6

## 4.2.6 Vegetation

### 4.2.6.1 Vegetation Cover Types

The CCSM Project FEIS (BLM 2012b) discloses the anticipated short- and long-term, direct and indirect impacts on vegetation resources resulting from the CCSM Project (BLM 2012b, pp. 4.11-5 through 4.11-14). Direct impacts (trampling/compaction of vegetation, direct removal of vegetation, etc.) were determined to be temporary in nature when those impacts occurred on herbaceous-dominated vegetation communities, and long-term in nature on shrub- and woody-dominated vegetation communities due to the long time frame required for successful reclamation of those community types (BLM 2012b, p. 4.11-5). The CCSM Project FEIS (BLM 2012b) also discusses how construction phasing of the CCSM Project and subsequent reclamation activities would limit the amount of time that native vegetation communities are affected by CCSM Project activities.

The qualitative discussion of impacts from the Proposed Action on primary vegetation communities, including long- and short-term direct and indirect impacts, is consistent with the impacts disclosed in the CCSM Project FEIS (BLM 2012b). Impacts resulting from vegetation clearing activities within designated activity areas are consistent with the direct, short-term impacts (e.g., trampling/compaction of vegetation, removal of vegetation) disclosed in the CCSM Project FEIS (BLM 2012b) for all vegetation types (herbaceous, shrub-dominated, and woody-dominated). Although vegetation trimming would occur in these activity areas, roots and above-ground portions of the vegetation would remain in place, thus facilitating recovery of these areas.

### ***Phase I Wind Turbine Development***

Table 4-10 identifies the initial and long-term impacts on vegetation communities resulting from the Proposed Action, as well as impacts to vegetation resulting from the vegetation trimming within activity areas. The majority of the initial disturbance is proposed within Wyoming big sagebrush, mountain big sagebrush, black sagebrush, and shadscale saltbush communities. Smaller areas of upland grass and Gardner's saltbush communities also occur within both the initial and long-term disturbance areas. Areas mapped as riparian/mesic lowland communities were assessed as part of the aquatic resource inventory for the Phase I Wind Turbine Development Site (Appendix K of PCW 2015a) and any impacts to wetland or non-wetland WUS from the Proposed Action would be permitted in accordance with USACE Section 404 regulations.

**Table 4-10. Impacts on Vegetation Communities within the Phase I Wind Turbine Development Site**

Vegetation Community	Surface Disturbance (acres)		Vegetation Trimming in Activity Areas (acres)
	<i>Initial</i>	<i>Long-Term</i>	
Wyoming Big Sagebrush Communities	716.5	130.3	83.9
Mountain Big Sagebrush Communities	669.0	99.4	110
Black Sagebrush Communities	466.6	75.9	41.7
Shadscale Saltbush Communities	418.9	66.2	76.6
Upland Grass Communities	327.2	49.8	43.4
Gardner's Saltbush Communities	196.7	19.3	27.9
Disturbed and Developed Areas	109.8	25.9	18.9
Greasewood Communities	60.4	9.8	22.4
Riparian/Mesic Lowland Communities	36.3	4.0	7.3
Aspen Woodland Communities	16.0	1.9	1.7
Basin Big Sagebrush Communities	8.3	1.3	3.7
Barren Slopes	4.3	1.0	0.4
Mixed Mountain Shrub Communities	3.6	0.5	1.6
Birdfoot Sagebrush Communities	1.4	0.0	0.3
<b>Total</b>	<b>3,035.0</b>	<b>485.3</b>	<b>439.8<sup>1</sup></b>

Source: SWCA 2014b.

<sup>1</sup>Numbers may not add up to the total 440 acres of activity areas due to rounding.

***Summary of CCSM Phase I Impacts to Vegetation Communities***

The impacts identified above would be in addition to the impacts to vegetation communities discussed in the EA for Infrastructure Components (BLM 2014a). The vegetation community analysis for the Infrastructure Component Site (BLM 2014a) is incorporated here by reference. Table 4-11 identifies the acreage of vegetation impacts within the Phase I Wind Turbine Development Site, as well as within the Infrastructure Component Site discussed in the EA for Infrastructure Components (BLM 2014a). A comparison of the total acreage of impacts indicates the impacts to vegetation from Phase I of the CCSM Project would be less than those identified in the CCSM Project FEIS (BLM 2012b). As disclosed in the CCSM Project FEIS (BLM 2012b), long-term impacts to vegetation are anticipated; the impacts from Phase I of the CCSM Project would be within those impacts disclosed in the CCSM Project FEIS (BLM 2012b).

**Table 4-11. Summary of Surface Disturbance Impacts on Vegetation Communities in Phase I of the CCSM Project**

Vegetation Community	Infrastructure Components <sup>1</sup>		Phase I Wind Turbine Development			Phase I Total		CCSM Project FEIS <sup>2</sup>	
	Initial (acres)	Long-term (acres)	Initial (acres)	Long-term (acres)	Activity Areas (acres)	Initial (acres) <sup>3</sup>	Long-term (acres)	Initial (acres)	Long-term (acres)
Wyoming Big Sagebrush Communities	336.9	66.3	716.5	130.3	83.9	1,137.3	196.6	NA	NA
Mountain Big Sagebrush Communities	141.3	30.1	669.0	99.4	110	920.3	129.5	NA	NA
Black Sagebrush Communities	6.1	0.4	466.6	75.9	41.7	514.4	76.3	NA	NA
Shadscale Saltbush Communities	326.3	75.0	418.9	66.2	76.6	821.8	141.2	NA	NA
Upland Grass Communities	69.3	11.8	327.2	49.8	43.4	439.9	61.6	NA	NA
Gardner's Saltbush Communities	269.4	103.3	196.7	19.3	27.9	494.0	122.6	NA	NA
Disturbed and Developed Areas	154.8	46.6	109.8	25.9	18.9	283.5	72.5	NA	NA
Greasewood Communities	83.2	23.4	60.4	9.8	22.4	166.0	33.2	NA	NA
Riparian/Mesic Lowland Communities	14.5	3.3	36.3	4.0	7.3	58.1	7.3	NA	NA
Aspen Woodland Communities	5.3	0.7	16	1.9	1.7	23.0	2.6	NA	NA
Basin Big Sagebrush Communities	10.9	1.0	8.3	1.3	3.7	22.9	2.3	NA	NA
Barren Slopes	2.5	0.6	4.3	1	0.4	7.2	1.6	NA	NA
Mixed Mountain Shrub Communities	1.0	0.2	3.6	0.5	1.6	6.2	0.7	NA	NA
Birdfoot Sagebrush Communities	6.5	1.5	1.4	0.0	0.3	8.2	1.5	NA	NA
Lowland Grass Communities	0.2	0.1	0.0	0.0	0.0	0.2	0.1	NA	NA
Riparian Woodland Communities	0.1	0.0	0.0	0.0	0.0	0.1	0.0	NA	NA
<b>Total</b>	<b>1,428.3</b>	<b>364.3</b>	<b>3,035.0</b>	<b>485.3</b>	<b>439.8</b>	<b>4,903.1</b>	<b>849.6</b>	<b>7,691</b>	<b>1,540</b>

<sup>1</sup>Source: BLM 2014a.<sup>2</sup>Source: BLM 2012b.<sup>3</sup>Includes impacts to activity areas.

NA not available

#### **4.2.6.2 Noxious Weeds and Invasive Species**

The CCSM Project FEIS (BLM 2012b) discusses the connection between soil disturbance and increased opportunities for the spread and establishment of weeds, as well as how roads provide corridors in which weeds can spread and become established. The qualitative discussion of impacts on noxious weeds and invasive species resulting from the Proposed Action of this EA (e.g., increased risks of spreading invasive species) is consistent with that disclosed in the CCSM Project FEIS (BLM 2012b, p. 4.11-10). The general abundance, species, and distribution of noxious weeds and invasive species disclosed in the CCSM Project FEIS (BLM 2012b, pp. 3.11-14 and 3.11-15) is consistent with the 2012 through 2014 survey results for noxious weeds and invasive species, as discussed in Chapter 3 (*Affected Environment*) of this EA.

#### ***Phase I Wind Turbine Development***

Areas proposed for vegetation trimming within designated activity areas would be subject to increased risk of the spread of invasive species and noxious weeds due to vehicle and foot traffic potentially spreading noxious weed and invasive species propagules (i.e., seeds) into these activity areas, and the reduction of competition for nutrients, water, and light. Davies et al. (2012) studied the effects of mowing Wyoming big sagebrush communities over a three-year period and found that the density of cheatgrass (*Bromus tectorum*), an exotic annual grass, was greater in the mowed than untreated control treatment in the third year post-treatment. Annual forb cover, largely consisting of exotic species, was also greater in the mowed treatment compared to the untreated control in the third year post-treatment. Mowing does not appear to promote native herbaceous vegetation in degraded Wyoming big sagebrush plant communities and may facilitate the conversion of shrublands to exotic annual grasslands without additional efforts (Davies et al. 2012). Activity areas are subject to the mitigation measures described below, which would minimize the risk of invasive species spread and conversion of shrublands to herbaceous communities. Impacts would be within those disclosed in the CCSM Project FEIS (BLM 2012b) and no significant impacts are anticipated.

#### ***Summary of CCSM Phase I Impacts to Noxious Weeds and Invasive Species***

The impacts to noxious weeds and invasive species identified above and in the EA for Infrastructure Components (BLM 2014a) are consistent with the qualitative discussion of impacts identified in the CCSM Project FEIS (BLM 2012b). The noxious weeds and invasive species analysis for the Infrastructure Component Site (BLM 2014a) is incorporated here by reference. No new species of noxious/invasive weeds were observed during the surveys that were not previously known and disclosed in the CCSM Project FEIS (BLM 2012b). Implementation of the mitigation measures would minimize the risk of invasive species spread, including in the activity areas; therefore, impacts would be within those disclosed in the CCSM Project FEIS (BLM 2012b) and no significant impacts are anticipated.

#### ***Mitigation Measures***

Direct impacts to general vegetation resources, as well as direct impacts associated with the introduction and spread of noxious weeds and invasive species, would be mitigated through implementation of the site-specific weed management plan, included as Appendix J of the Phase I Wind Turbine Development SPOD (PCW 2015a) and the site-specific reclamation plan, included as Appendix L of the Phase I Wind Turbine Development SPOD (PCW 2015a).

The following ACMs, Applicant Committed BMPs, and mitigation measures, summarized in Appendix D of the CCSM Project ROD (BLM 2012a), would be implemented to reduce impacts on general vegetation resources and reduce the spread of noxious weed and invasive species from the Proposed Action:

- Applicant Committed Measures A-1-13 and A-1-15
- Applicant Committed BMP A-3-78
- Mitigation Measures VEG-1 through VEG-3

#### **4.2.6.3 Wetlands and Associated Riparian Zones**

As disclosed in the CCSM Project FEIS (BLM 2012b, pp. 4.11-10 through 4.11-14), impacts on wetlands and associated riparian zones include direct loss of wetland habitat due to construction of the CCSM Project infrastructure, such as roads, which cross wetlands. Indirect impacts include alteration of the hydrologic process due to project infrastructure soil compaction and altered surface runoff patterns (collection, concentration, and conveyance). The CCSM Project FEIS (BLM 2012b) discloses that initial impacts are anticipated to affect 14,989 linear feet of areas that are likely to contain wetland and riparian zones, based primarily on a desk-top analysis of water features discussed in Section 3.11.3 of the CCSM Project FEIS (BLM 2012b).

#### ***Phase I Wind Turbine Development***

Within the Phase I Wind Turbine Development Site, PCW conducted surveys to identify Waters of the U.S. (WUS). As identified in Chapter 3 of this EA, a total of 5.20 acres of jurisdictional WUS within the Phase I Wind Turbine Development Site were identified, with wetland WUS comprising 5.07 acres and non-wetland WUS comprising 0.13 acre. PCW identified 3,945 linear feet (5.07 acres) of impacts to wetland WUS, of which 192 linear feet (0.29 acre) is within the long-term surface disturbance areas. PCW identified impacts to non-wetland waters considered to be under the USACE jurisdiction comprising 1,596 linear feet (0.13 acre), of which 149 linear feet (0.01 acre) is within the long-term surface disturbance areas. This is well below the total length of anticipated impacts on wetlands disclosed in the CCSM Project FEIS (BLM 2012b, p. 4.11-13). Impacts to these WUS resources will be subject to USACE permit requirements.

An additional 2,105 linear feet (1.73 acres) of impacts to WUS occur within activity areas associated with the Proposed Action. Of those, 425 linear feet (0.12 acre) of impacts is to non-wetland WUS, and 1,680 linear feet (1.61 acres) of impacts are to wetland WUS. While mowing of vegetation in activity areas located within wetland and non-wetland waters would temporarily remove habitat for riparian/wetland-dependent wildlife species and may increase the risk of invasive species spread, no surface disturbance would occur in these activity areas.

#### ***Summary of CCSM Phase I Impacts to Wetlands and Riparian Areas***

The impacts identified above would be in addition to the impacts to wetlands discussed for the Infrastructure Component Site in the EA for Infrastructure Components (BLM 2014a). The wetlands and riparian areas analysis for the Infrastructure Component Site (BLM 2014a) is incorporated here by reference. The EA for Infrastructure Components (BLM 2014a) identified 7,544 linear feet (7.28 acres) of impacts to wetland WUS. Therefore, for Phase I of the CCSM Project, 11,489 linear feet (12.35 acres) of wetland WUS would be impacted. The EA for Infrastructure Components (BLM 2014a) identified 1.18 acres of impacts to non-wetland WUS. Therefore, for Phase I of the CCSM Project, 1.43 acres of non-wetland WUS would be impacted. These impacts are less than the anticipated impacts to wetlands disclosed in the CCSM Project FEIS (BLM 2012b).

### ***Mitigation Measures***

The following environmental constraints, ACMs, Applicant Committed BMPs, and mitigation measures, summarized in Appendix D of the CCSM Project ROD (BLM 2012a), would be implemented to reduce impacts on wetlands and associated riparian zones from the Proposed Action:

- BLM Environmental Constraints for water resources (CCSM Project ROD [BLM 2012a, p. D-1])
- Applicant Committed Measures A-1-16 and A-1-17, A-1-21
- Applicant Committed BMPs A-3-87 through A-3-92
- Mitigation Measures WR-1 and WR-2

In addition, the following plans would be implemented to minimize impacts on wetlands and riparian zones potentially resulting from the Proposed Action:

- Watershed Monitoring Plan, included as Appendix H of the CCSM Project FEIS (BLM 2012b)
- Master Reclamation Plan, included as Appendix D of the CCSM Project FEIS (BLM 2012b), as well as the site-specific reclamation plan, included as Appendix L of the Phase I Wind Turbine Development SPOD (PCW 2015a)
- CCSM Project Erosion Control Plan, included as Appendix H of the Phase I Wind Turbine Development SPOD (PCW 2015a)
- Site-specific Stormwater Pollution Prevention Plan, included as Appendix I of the Phase I Wind Turbine Development SPOD (PCW 2015a)
- Site-specific Spill Prevention, Control, and Countermeasure Plan, included as Appendix Q of the Phase I Wind Turbine Development SPOD (PCW 2015a)
- Site-specific weed management plan, included as Appendix J of the Phase I Wind Turbine Development SPOD (PCW 2015a)

Further, all impacts to WUS would be mitigated and the appropriate Section 404 permit would be obtained from the USACE Wyoming Regulatory Office prior to the start of construction.

### **4.2.7 Water Resources**

The CCSM Project FEIS (BLM 2012b) discloses that impacts on water resources would occur as a result of construction, operation, maintenance, and decommissioning of the CCSM Project. These impacts include increased runoff and erosion from disturbed lands, increased stream channel instability from construction of road crossings, and potential degradation of water quality due to potential spills from hazardous materials. Impacts on water resources from the Proposed Action are consistent with the types of potential impacts disclosed in the CCSM Project FEIS (BLM 2012b, pp. 4.13-4 to 4.13-11).

For the analysis of the number of stream crossings, the CCSM FEIS (BLM 2012b) uses the National Hydrography Dataset to define the location of waterways. The CCSM Project FEIS (BLM 2012b, p. 4.13-4) documents the surface disturbance anticipated within each sub-watershed occurring in the CCSM Project Area, and specifically identifies sub-watersheds that would experience greater than one percent surface disturbance. The remainder of this section provides additional details on impacts to surface water resources from the Proposed Action of this EA with respect to stream crossings and surface disturbance within sub-watersheds.



#### **4.2.7.1 Phase I Wind Turbine Development**

The number of stream crossings identified for the Phase I Wind Turbine Development are based on the Phase I Wind Turbine Development SPOD (PCW 2015a) and on the jurisdictional delineations conducted for the Phase I Wind Turbine Development, which provide more site-specific information. Based on these delineations, 68 crossings of USACE-jurisdictional areas, including 27 non-wetland WUS and 41 wetland WUS, would be required to construct the Phase I Wind Turbine Development. Some of these crossings occur within the same stream reach, but are physically separated. Table 4-12 identifies the amount of initial and long-term surface disturbance, respectively, by sub-watershed for the Proposed Action based on the Phase I Wind Turbine Development SPOD (PCW 2015a). Neither the Upper Muddy Creek watershed improvement project area nor the Sage Creek watershed improvement project area would experience any greater degree of surface disturbance than disclosed in the CCSM Project FEIS (BLM 2012b, p. 4.13-8) as a result of the Proposed Action (Table 4-12).

#### **4.2.7.2 Summary of CCSM Phase I Impacts to Water Resources**

The water resources analysis for the Infrastructure Component Site (BLM 2014a) is incorporated here by reference. The EA for Infrastructure Components (BLM 2014a) identified 60 WUS crossings for the Infrastructure Components. When combined, the number of stream crossings for the Phase I Wind Turbine Development and the Infrastructure Components total 128 stream crossings for Phase I of the CCSM Project. The CCSM Project FEIS (BLM 2012b) discloses that impacts are anticipated to 348 stream crossings as a result of the CCSM Project. Therefore, no additional impacts to stream crossings beyond those disclosed in the CCSM Project FEIS (BLM 2012b) are anticipated as a result of Phase I of the CCSM Project.

Table 4-12 includes the sub-watershed impacts from the infrastructure components as identified in the EA for Infrastructure Components (BLM 2014a) and compares the total watershed impacts from Phase I of the CCSM Project with the watershed impacts disclosed in the CCSM Project FEIS (BLM 2012b). Table 4-12 is consistent with the information presented in Table 4.13-2 of the CCSM Project FEIS (BLM 2012b). The Proposed Action would result in surface disturbance within sub-watersheds that were identified as having surface disturbance in Table 4.13-2 of the CCSM Project FEIS (BLM 2012b). No sub-watershed would be impacted other than those disclosed in the CCSM Project FEIS (BLM 2012b).

**Table 4-12. Initial and Long-term Surface Disturbance of Sub-Watersheds Associated with Phase I of the CCSM Project (acres)**

Watershed/ Sub-Watershed	Watershed/ Sub-Watershed Total Area (acres)	Phase I Wind Turbine Development			Infrastructure Components		Grand Total for Phase I of the CCSM Project		Grand Total in CCSM Project FEIS	
		Initial Acres	Long-Term Acres	Activity Areas	Initial Acres	Long-Term Acres	Initial Acres	Percent	Construction Acres	Percent
<i>North Platte Basin</i>										
<b>Jack Creek Watershed</b>	<b>35,771</b>	--	--	--	--	--	--	--	--	<b>0.0</b>
Little Jack Creek	35,771	--	--	--	--	--	--	--	--	<b>0.0</b>
<b>North Platte River – Cow Creek Watershed</b>	<b>46,942</b>	--	--	--	--	--	--	--	<b>326</b>	<b>0.7</b>
North Platte River-First Cottonwood Draw	46,942	--	--	--	--	--	--	--	326	0.7
<b>North Platte River - Iron Springs Draw-Watershed</b>	<b>157,599</b>	<b>782</b>	<b>117</b>	<b>107</b>	<b>430<sup>1</sup></b>	<b>109</b>	<b>1,212</b>	<b>0.8</b>	<b>3,104<sup>1</sup></b>	<b>2.0</b>
Grenville Dome	22,059	246	32	47	200	49	446	2.0	739	3.3
Hugus Draw	35,341	536	85	60	229	60	765	2.2	1,508	4.3
Iron Springs Draw	18,853	--	--	--	--	--	--	--	703	3.7
North Platte River - Coal Mine Draw	34,326	--	--	--	--	--	--	--	153	0.4
North Platte River - Lost Springs Draw	47,020	--	--	--	1	0	1	<0.1	1	<0.1
<b>Pass Creek Watershed</b>	<b>34,785</b>	--	--	--	--	--	--	--	--	<b>0.0</b>
Pass Creek-Stage Station Springs	34,785	--	--	--	--	--	--	--	--	0.0
<b>Sage Creek Watershed</b>	<b>160,703</b>	<b>1,163</b>	<b>176</b>	<b>209</b>	<b>464</b>	<b>122</b>	<b>1,627</b>	<b>1.0</b>	<b>2,784<sup>1</sup></b>	<b>1.7</b>
Lower Little Sage Creek	16,898	45	5	13	86	23	131	0.8	165	1.0
Lower Sage Creek – Upper North Platte River	20,079	--	--	--	15	4	15	0.1	507	2.5
Miller Creek	28,571	365	62	108	222	67	587	2.1	794	2.8

**Table 4-12. Initial and Long-term Surface Disturbance of Sub-Watersheds Associated with Phase I of the CCSM Project (acres)**

Watershed/ Sub-Watershed	Watershed/ Sub-Watershed Total Area (acres)	Phase I Wind Turbine Development			Infrastructure Components		Grand Total for Phase I of the CCSM Project		Grand Total in CCSM Project FEIS	
		Initial Acres	Long-Term Acres	Activity Areas	Initial Acres	Long-Term Acres	Initial Acres	Percent	Construction Acres	Percent
Rasmussen Creek	23,488	529	76	76	140	29	669	2.8	820	3.5
Upper Little Sage Creek	30,732	2	<1	<1	--	--	2	<0.1	4	0.0
Upper Sage Creek – North Platte River	40,935	223	32	11	1	0	224	0.5	494	1.2
<b>Sugar Creek Watershed</b>	<b>78,848</b>	<b>655</b>	<b>122</b>	<b>68</b>	<b>533</b>	<b>133</b>	<b>1,188</b>	<b>1.5</b>	<b>952<sup>1</sup></b>	<b>1.2</b>
101800021304	11,042	401	87	50	491	117	892	8.1	528	4.8
Lower Sugar Creek	42,909	1	--	--	43	16	44	0.1	235	0.5
Middle Sugar Creek	24,897	252	35	18	--	--	252	1.0	189	0.8
<b>North Platte Basin Subtotal</b>	<b>514,648</b>	<b>2,599<sup>1</sup></b>	<b>414<sup>1</sup></b>	<b>385<sup>1</sup></b>	<b>1,429</b>	<b>364</b>	<b>4,029</b>	<b>0.8</b>	<b>7,164<sup>1</sup></b>	<b>1.4</b>
<i>White-Yampa Basin</i>										
<b>Savery Creek Watershed</b>	<b>61,807</b>	--	--	--	--	--	--	--	--	--
Little Savery Creek	30,995	--	--	--	--	--	--	--	--	--
North Fork Savery Creek	30,812	--	--	--	--	--	--	--	--	--
<b>Upper Muddy Creek Watershed</b>	<b>62,692</b>	<b>436</b>	<b>71</b>	--	<b>0.4</b>	<b>&lt;0.1</b>	<b>436</b>	<b>0.7</b>	--	--
McKinney Creek	30,433	436	71	55	0.4	0	436	1.4	530	1.7
Muddy Creek-Littlefield Creek	32,259	--	--	--	--	--	--	--	--	--
<b>White-Yampa Basin Subtotal</b>	<b>124,499</b>	<b>436</b>	<b>71</b>	<b>55</b>	--	--	<b>436</b>	<b>0.4</b>	<b>530<sup>1</sup></b>	<b>0.4</b>
<b>Grand Total</b>	<b>639,147</b>	<b>3,035</b>	<b>485</b>	<b>440</b>	<b>1,429<sup>1</sup></b>	<b>364</b>	<b>4,464</b>	<b>0.7</b>	<b>7,694<sup>1</sup></b>	<b>1.2</b>

<sup>1</sup>Numbers may not add up to this total due to rounding.

### **4.2.7.3 Mitigation Measures**

The following environmental constraints, ACMs, Applicant Committed BMPs, and mitigation measures, summarized in Appendix D of the CCSM Project ROD (BLM 2012a), would be implemented to reduce impacts on water resources from the Proposed Action:

- BLM Environmental Constraints for water resources (CCSM Project ROD [BLM 2012a, p. D-1])
- Applicant Committed Measures A-1-16 and A-1-17, A-1-21
- Applicant Committed BMPs A-3-87 through A-3-92
- Mitigation Measures WR-1 and WR-2

In addition, the following plans would be implemented to minimize impacts on water resources potentially resulting from the Proposed Action:

- Watershed Monitoring Plan, included as Appendix H of the CCSM Project FEIS (BLM 2012b)
- Master Reclamation Plan, included as Appendix D of the CCSM Project FEIS (BLM 2012b), as well as the site-specific reclamation plan, included as Appendix L of the Phase I Wind Turbine Development SPOD (PCW 2015a)
- CCSM Project Erosion Control Plan, included as Appendix H of the Phase I Wind Turbine Development SPOD (PCW 2015a)
- Site-specific Stormwater Pollution Prevention Plan, included as Appendix I of the Phase I Wind Turbine Development SPOD (PCW 2015a)
- Site-specific Spill Prevention, Control, and Countermeasure Plan, included as Appendix Q of the Phase I Wind Turbine Development SPOD (PCW 2015a)

## **4.2.8 Wildlife and Fisheries Resources**

The CCSM Project FEIS (BLM 2012b, pp. 4.14-9 through 4.14-31) discusses the direct and indirect impacts on terrestrial and aquatic wildlife as a result of the CCSM Project. Disclosed impacts included direct loss of habitat, indirect habitat loss due to behavioral avoidance and alterations of movement patterns, degradation of surface water habitats, and mortalities resulting from wildlife-vehicle collisions and human interactions.

The impact analysis presented in the CCSM Project FEIS (BLM 2012b) for wildlife and fisheries resources is consistent with respect to the types and nature of impacts on these species anticipated from the Proposed Action. However, additional specificity regarding the extent and/or location of those potential impacts is presented below.

### **4.2.8.1 Big Game**

Impacts on big game species, which include mule deer, elk, and pronghorn, as described in the CCSM Project FEIS (BLM 2012b, p. 4.14-11), include direct habitat loss of seasonal ranges; behavioral changes, such as avoidance of certain areas; indirect habitat loss of seasonal ranges; disruption of possible migration corridors; and increased incidence of vehicle collisions and poaching. The environmental consequences section for wildlife and fisheries resources, as presented in the CCSM Project FEIS (BLM 2012b), was reviewed in accordance with the Tiering Procedures. The following section provides additional specificity regarding impacts on mule deer and pronghorn resulting from the Proposed Action, using information from the Phase I Wind Turbine Development SPOD (PCW 2015a), as well as updated possible migration corridor mapping published subsequent to the CCSM Project FEIS (BLM 2012b).

### ***Mule Deer***

The CCSM Project FEIS (BLM 2012b) determines that the direct loss of crucial winter range (CWR), combined with areas of potential indirect impacts during construction and operation of the CCSM Project, would likely result in habitat loss and disturbance levels exceeding significance criterion #3. This significance criterion states that a significant impact on a particular wildlife species would occur if management actions were implemented that result in substantial disruption or irreplaceable loss of vital and high value habitats, as defined in the WGFD Mitigation Policy (BLM 2012b, p. 4.14-6). Operation of Phase I of the CCSM Project would result in approximately 850 acres of spring-summer-fall habitat loss and winter-yearlong mule deer habitat loss.

#### ***Phase I Wind Turbine Development***

##### ***Crucial Winter Range***

The CCSM Project Area contains a portion of the 130,989-acre mule deer CWR area that generally follows the North Platte River from three miles north of Saratoga to the inflow of Seminole Reservoir approximately nine miles northwest of Fort Steele. Of this CWR area, 24,693 acres (approximately 19 percent) overlap with the CCSM Project Area.

The CCSM Project FEIS (BLM 2012b) estimates 232 acres of direct impacts on CWR, which is approximately 0.2 percent of the 130,989-acre CWR area and 0.9 percent of the 24,693 acres of CWR mapped within the CCSM Project Area (see Map 3-7 of this EA). The Proposed Action would result in 426 acres of direct impacts to CWR, approximately 0.3 percent of the 130,989-acre CWR area and 1.7 percent of the 24,693 acres of CWR mapped within the CCSM Project Area.

Direct impacts can be further analyzed by long-term direct and short-term direct impacts using the following assumptions:

- Consistent with the analysis in the CCSM Project FEIS (BLM 2012b), initial disturbance areas that are dominated by shrub communities are assumed to result in long-term disturbance to mule deer CWR because of the long timeframe for full shrub recovery.
- Impacts to herbaceous vegetation communities are assumed to result in a short-term impact because herbaceous vegetation recovers more quickly than shrub- or woody-dominated vegetation.
- Vegetation trimming within designated activity areas is assumed to be a short-term impact for all vegetation communities, including shrub- and woody-dominated communities because the root structure and a portion of the above-ground vegetation matter would remain intact.

Using these assumptions, the Proposed Action would result in 106 acres of CWR (within herbaceous vegetation communities and within activity areas) short-term direct impacts and 320 acres of CWR long-term direct impacts. Indirect impacts on mule deer within the mule deer CWR are considered in the CCSM Project FEIS (BLM 2012b) to extend no further than 0.62 mile from disturbance areas. The Proposed Action would result in indirect impacts on 8,002 acres of mule deer CWR within 0.62 mile of surface disturbance areas.

The Platte Valley Mule Deer Plan (WGFD 2012b) states that the Platte Valley mule deer herd has been in decline since approximately 2006. As described in the CCSM Project FEIS (BLM 2012b) and further confirmed by the Platte Valley Mule Deer Plan, winter habitat condition is considered the limiting factor in mule deer population growth in the Platte Valley herd (WGFD 2012b). As a result, implementation of the Proposed Action of this EA and the resulting impacts on CWR could result in declines in the overall carrying capacity of the CWR, an impact that is disclosed in the CCSM Project FEIS (BLM 2012b, p. 4.14-11). No new significant impacts beyond those disclosed in the CCSM Project FEIS (BLM 2012b) are anticipated from Phase I of the CCSM Project.

Per the 2008 Rawlins RMP and ROD (BLM 2008a), no surface-disturbing or disruptive activities are allowed on federal lands from November 15 to April 30 within mule deer CWR. PCW will also implement this timing stipulation for new construction activities on private and state lands within mule deer CWR between November 15 and April 30. These timing stipulations would reduce impacts on mule deer CWR by minimizing the amount of human activity associated with new construction activities and potential disruption of wintering mule deer in CWR.

### ***Migration Corridors***

A possible mule deer migration corridor (WGFD 2012a) not identified on the statewide migration corridor mapping at the time the CCSM Project FEIS (BLM 2012b) was prepared (refer to Map 3-7) crosses the Phase I Wind Turbine Development Site at the very southern end of the Chokecherry WDA. Electrical transmission line infrastructure is proposed in this area. The CCSM Project FEIS (BLM 2012b) states that mule deer are known to migrate through the CCSM Project Area, but the specific locations of migration corridors are largely unknown. Therefore, potential impacts on possible mule deer migration corridors resulting from the Proposed Action are consistent with those disclosed on page 4.14-12 of the CCSM Project FEIS (BLM 2012b) and do not constitute a substantial change from those disclosures.

### ***Summary of CCSM Phase I Impacts to Mule Deer***

The mule deer analysis for the Infrastructure Component Site (BLM 2014a) is incorporated here by reference. When considered in conjunction with the total direct impacts (short-term and long-term) anticipated from the Infrastructure Components (739 acres), as disclosed in the EA for Infrastructure Components (BLM 2014a), total direct impacts to CWR from Phase I are anticipated to be 1,165 acres. While the initial acres of shrub dominated habitats disturbed are greater than those identified in the CCSM Project FEIS, the Proposed Action would have no new significant impacts to mule deer CWR because the types and extents of impacts are consistent with the significance determinations made in the CCSM Project FEIS.

Portions of the indirect impact area overlap with the 0.62-mile indirect impact buffer associated with the Infrastructure Components. When overlap between these two buffered areas is removed, the total CWR in which indirect impacts are anticipated from both the Phase I Wind Turbine Development and the Infrastructure Components is 18,475 acres. This figure is less than the estimated indirect habitat loss of 20,158 acres of mule deer CWR disclosed in the CCSM Project FEIS (BLM 2012b), and represents approximately 14 percent of the 130,989-acre CWR area and 75 percent of the 24,693 acres of CWR mapped within the CCSM Project Area (see Map 3-7 of this EA).

### ***Pronghorn***

#### ***Phase I Wind Turbine Development***

The Proposed Action would not impact CWR for pronghorn. Impacts on pronghorn resulting from the Proposed Action would primarily be indirect impacts on possible migration corridors mapped by the WGFD (2012a). The CCSM Project FEIS (BLM 2012b, p. 4.14-14) discloses that fences constructed such that pronghorn cannot travel underneath them can create movement barriers and can block migration routes. These impacts were determined to result in no significant impacts on pronghorn. A possible pronghorn migration corridor (WGFD 2012a) not identified on the statewide migration corridor mapping at the time the CCSM Project FEIS (BLM 2012b) (refer to Map 3-8) crosses the Phase I Wind Turbine Development in two locations: (1) in the central portion of the Sierra Madre WDA and (2) where an electrical transmission structure is proposed between the Chokecherry and Sierra Madre WDAs. Although this one possible migration corridor was added since publication of the CCSM Project FEIS

(BLM 2012b), indirect impacts on pronghorn migration are consistent with those disclosed in the CCSM Project FEIS (BLM 2012b) and do not constitute a substantial change from those disclosures, nor a significant impact on pronghorn.

#### Summary of CCSM Phase I Impacts to Pronghorn

The pronghorn analysis for the Infrastructure Component Site (BLM 2014a) is incorporated here by reference. The impact analysis for pronghorn presented above in this EA is the same as that presented in the EA for Infrastructure Components (BLM 2014a). Therefore, the impacts to pronghorn from Phase I of the CCSM Project are as disclosed above. These impacts are consistent with those impacts disclosed in the CCSM Project FEIS (BLM 2012b) and no significant impacts are anticipated.

#### Mitigation Measures

Impacts on mule deer and pronghorn would be reduced through Applicant Committed BMPs A-3-05, A-3-94, and A-3-97, as provided in the CCSM Project ROD (BLM 2012a). Mitigation Measure WFM-2 would limit the length of snow fences, if used during construction of the CCSM Project, which would reduce impacts on migrating big game species, by facilitating movement.

### **4.2.8.2 Nongame**

#### ***Bats***

Impacts on bats, as described in the CCSM Project FEIS (BLM 2012b, p. 4.14-15), include potential fatalities from collisions with wind turbine generators and associated infrastructure and loss of foraging and roosting habitat as well as potential indirect impacts associated with habitat loss and modification. Additional indirect impacts are described in the BBCS for Phase I of the CCSM Project (PCW 2016a) and include fragmentation of large habitat blocks into smaller segments that do not support bat species, displacement and behavioral changes, increased predator population, and introduction of invasive plants which degrade suitable habitat. The magnitude of these impacts depends upon the number of wind turbine generators constructed and the amount of bat foraging and roosting habitat lost as a result of implementation of the project. The CCSM Project FEIS disclosed up to 6,300 potential bat fatalities per year for 1,000 wind turbine generators; this loss was considered significant (BLM 2012b). However, as disclosed in the CCSM Project FEIS (BLM 2012b), BLM expects that the CCSM Project would be a very low risk to the three BLM sensitive bat species (long-eared myotis, fringed myotis, and Townsend's big-eared bat) because they likely forage in spaces below turbine blades. As a result, the CCSM Project is anticipated to result in minor impacts to sensitive bat species that are non-migratory (BLM 2012b).

The environmental consequences section for wildlife and fisheries resources, as presented in the CCSM Project FEIS (BLM 2012b), was reviewed in accordance with the Tiering Procedures (Appendix A). The following section provides additional specificity regarding impacts on bats resulting from the Proposed Action, using information from the Phase I Wind Turbine Development SPOD (PCW 2015a), as well as additional survey information provided subsequent to the CCSM Project FEIS (BLM 2012b).

#### Phase I Wind Turbine Development

The CCSM Project FEIS (BLM 2012b) determined that fatalities from collisions with wind turbine generators are expected to be the primary impact on bats. The CCSM Project FEIS presented pre-construction bat activity for the CCSM Project of 4.29 bat passes per detector-night, and disclosed up to 6,300 potential bat fatalities per year for 1,000 wind turbine generators calculated using an average fatality rate of 2.1 bat fatalities/MW/year for wind energy facilities in western North America (BLM 2012b). PCW conducted additional bat surveys in 2011, 2012, and 2013 to further evaluate and address

risks to bats from the CCSM Project. As described in Section 3.8.2.1, the bat activity rate observed during the 2011-2012 surveys (2.0 bat passes per detector-night) was substantially lower than the bat activity rate presented in the CCSM Project FEIS (4.29 bat passes per detector-night) and was similar to the bat activity observed at the nearby Foote Creek Rim wind energy facility (2.2 bat passes per detector-night) where bat mortality is considered to be low (BLM 2012b). The lower bat activity rates and associated reduced mortality indicate that bat fatalities for the 500 wind turbine generators included in the Phase I Wind Turbine Development would be well within the number of bat fatalities disclosed in the CCSM Project FEIS. In addition, PCW used the bat survey data collected in 2011 and 2012 to inform its BBCS for Phase I of the CCSM Project (PCW 2016a), which includes measures to avoid and minimize impacts to bats. As contemplated in the CCSM Project FEIS, the avoidance, minimization, and conservation measures in the Phase I BBCS will further reduce risks to bats from Phase I of the CCSM Project. Finally, avian radar data collected for birds and bats indicate that a majority of the birds and bats that use the CCSM Project Site at night fly above the height of the wind turbine generator rotors and during migration events, birds and bats generally pass over the CCSM Project Site indicating there may be a lower risk of collision.

Based on overall bat activity on the Phase I Wind Turbine Development Site and the implementation of the Phase I BBCS, impacts to bats from the Phase I Wind Turbine Development are anticipated to be substantially less than those disclosed in the CCSM Project FEIS (BLM 2012b). In addition, mitigation measures for eagles and other avian species in the ECP and BBCS would reduce the risk to bats from Phase I of the CCSM Project.

The USFWS FEIS (USFWS 2016) states: “In its 2012 FEIS, the BLM predicted annual bat fatality from operation of the CCSM Project to be 2.1 bats per megawatt (MW) based on a meta-analysis of post-construction mortality studies at 21 wind facilities throughout the western United States, as compiled by Johnson and Stephens (2011). Since publication of the BLM FEIS, Hein et al. (2013) completed a meta-analysis of 15 wind facilities located throughout the Great Plains and found an average of 3.07 bat fatalities per MW of wind energy per year based on the exposure of bats to wind turbine rotor-swept zones. Based on these published estimates of mean bat fatalities, we estimate that operation of the CCSM Phase I Project could result in a range of between 3,150 and 4,605 bat fatalities per year (2.1 and 3.07 bat fatalities per MW multiplied by 1,500 MW). However, this represents a very rough estimate of fatalities and is not based on use of a bat fatality prediction model. Also, we cannot provide any confidence interval around these estimates. There are several limitations with the Johnson and Stephens (2011) and Hein et al. (2013) results, including (1) a limited number of existing wind energy facilities with publically available bat mortality data (most United States wind energy facilities do not monitor and report bat mortalities post-construction); (2) inconsistency in monitoring survey protocols used for wind facilities that do report bat mortality data and make it available; (3) probable lack of statistical rigor in the design of such studies or the failure to incorporate appropriate bias trials to adjust the fatality estimates; and (4) inappropriate comparisons made across different wind facilities with different habitat types and environmental conditions. Also both Johnson and Stephens (2011) and Hein et al (2013) include in their estimates results from bat fatality studies conducted at wind energy facilities located across a broad area of both the western and midwestern United States encompassing a wide variety of habitat types, elevation gradients, and precipitation regimes, that in many cases are not representative of conditions at the CCSM Phase I Project. In the case of the Johnson and Stephens (2011) analysis, only one of the fatality studies was conducted at a wind energy facility located in Wyoming. Still, when considered together, the results of these studies represent our best available estimates of bat mortality associated with North American wind energy facilities at this time from a geographic area that overlaps with the CCSM Project area. Therefore, lacking a peer-reviewed scientific model to predict general bat mortalities for wind energy facilities or any other suitable, peer-reviewed scientific literature, we choose to use those estimates in this EIS to derive rough estimates of bat mortality for the CCSM Phase I Project, and we acknowledge the multiple deficiencies associated with those estimates. The CCSM Phase I BBCS developed by PCW adopts the larger estimate of 4,605 bat fatalities per year based on Hein et al. (2013) data.



During surveys of the Phase I development and infrastructure areas, a total of 3,340 bat passes were recorded over 3 acoustic survey years (826 total detector nights), with a mean of 4.04 bat passes per detector night for the entire survey period. Bat activity within the Phase I development and infrastructure areas was comparable to levels reported from other studies in the region. Bat activity estimates from 24 sites located throughout the Great Plains averaged 4.19 bat passes per detector night (Hein et al. 2013). The Great Plains appears to have relatively low and consistent activity, and fatalities, across projects (Hein et al. 2013). However, pre-construction bat surveys are poor predictors of actual bat fatalities once a wind energy facility is in operation (Hein et al. 2013).

It has been speculated that windy conditions on site would deter bat activity, and fatalities would be minimal. However, this is typically not the case, and bat fatalities have been recorded at wind facilities worldwide (Kunz et al. 2007; Kuvlesky et al. 2007; Arnett et al. 2008; Hein and Schirmacher 2016). Most bat fatalities occur during low wind conditions (Arnett and Baerwald 2013). Winds typically die down at night, and bats become more active. In addition, migrating bats would pass through the area of the CCSM Phase I Project during spring and fall, and are especially susceptible to fatality during this period.

Based on observed bat fatalities from other studies at wind energy facilities, we would expect that bat fatalities at the CCSM Phase I Project would likely be spread among two species (hoary and silver-haired bats) and would likely be concentrated during the fall migration period (late summer and early fall). Hoary bats were identified during each acoustic survey conducted at Phase I development and infrastructure areas, and represented 7 percent of detections recorded in 2008 (Solick et al. 2008). At the Foote Creek Rim wind project in southern Wyoming, hoary bats represented 8 percent of acoustic recordings but comprised almost 80 percent of fatalities at turbines (Young et al. 2003)."

#### *Summary of CCSM Phase I Impacts to Bats*

The primary risk to bats identified in the CCSM Project FEIS (BLM 2012b) is from collision with wind turbine generators. In accordance with the Tiering Procedures (Appendix A), because the EA for Infrastructure Components did not include wind turbine generators and no new information was available regarding bat use of the CCSM Project Area at the time of publication, impacts to bats were not analyzed in the EA for Infrastructure Components (BLM 2014a). The impact analysis for bats presented above in this EA includes updated information about bat activity in the CCSM Project Area. It also considers the Phase I BBCS (PCW 2016a), which includes measures to avoid and minimize impacts to bats. Therefore, the impacts to bats from Phase I of the CCSM Project are expected to be as disclosed above and would be less than those impacts identified in the CCSM Project FEIS (BLM 2012b). No new significant impacts are anticipated.

#### *Mitigation Measures*

Impacts on bats would be reduced through Applicant Committed Measures A-1-02 and A-1-11 and Mitigation Measure WFM-3, as provided in Appendix D of the CCSM Project ROD (BLM 2012a). The Phase I BBCS (PCW 2016a) also includes measures to further avoid, minimize, and otherwise mitigate impacts to bats as well as an adaptive management process to review these measures and address bat mortality in cooperation with USFWS, BLM, and WGFD.

#### ***Migratory Birds***

Impacts on migratory birds, as described in the CCSM Project FEIS (BLM 2012b), include fatalities (primarily due to collisions with wind turbine generators), habitat loss, and indirect effects due to area avoidance and habitat fragmentation. Additional indirect impacts include displacement and behavioral changes resulting in avoidance of suitable habitat, increased predator populations, and introduction of invasive plants which degrade suitable habitat (PCW 2016a). Habitat loss would result in a decrease in

the number of bird species within the Phase I Wind Turbine Development Site and displacement of birds to adjacent habitats which could result in overcrowding, increased competition for resources, increased predation, and lower reproduction rates (USFWS 2016). The sagebrush steppe ecosystem is declining in the western United States. The majority of habitat loss is proposed within shrub communities; which would contribute to impacts to sagebrush obligate species (USFWS 2016).

The magnitude of these impacts depends upon the number of wind turbine generators constructed and the amount of habitat affected. The environmental consequences section for wildlife and fisheries resources, as presented in the CCSM Project FEIS (BLM 2012b), was reviewed in accordance with the Tiering Procedures (Appendix A). The following section provides additional specificity regarding impacts to migratory birds resulting from the Proposed Action, using information from the Phase I Wind Turbine Development SPOD (PCW 2015a), as well as additional survey information published subsequent to the CCSM Project FEIS (BLM 2012b).

### *Phase I Wind Turbine Development*

The CCSM Project FEIS estimated 5,400 migratory bird fatalities per year with a range of 300 to 13,200 birds per year with construction of up to 3,000 MW of wind energy generation; this loss was considered significant (BLM 2012b). The impacts to migratory birds from the Phase I Wind Turbine Development are within the impacts disclosed in the CCSM Project FEIS. The BLM CCSM Project FEIS discloses the reasonably foreseeable mortality associated with operation of the entire CCSM project in terms of a range, the high end of which, when applied to Phase I of the Project, suggests that up to 6,600 migratory birds could be taken per year, based on the upper estimated mortality rate of 4.4 mortalities per megawatt per year.

The USFWS FEIS indicated that between 3,150 and 5,400 bird fatalities for all species per year could occur as a result of the CCSM Phase I Project. However, these estimates are very rough and are not based on modeled predictions (USFWS 2016). In addition, based on confidential reports from post-construction mortality monitoring, these estimates are likely to be high. The USFWS FEIS also acknowledges that the numerous avoidance and minimization measures that would be implemented by PCW would help reduce mortalities for other bird species, and raptors in particular.

The USFWS FEIS (USFWS 2016) states: “In its 2012 FEIS, the BLM projected avian fatality from operation of the CCSM Project to be 1.8 birds per MW per year based on a meta-analysis of post-construction mortality studies at 21 wind facilities throughout the western United States and Canada, as compiled by Johnson and Stephens (2011). Since publication of the BLM FEIS, Loss et al. (2013) published a meta-analysis of avian fatalities at 53 wind facilities across the contiguous United States, and used model selection to develop estimates for facilities in the east, Great Plains, west, and California. Loss et al. (2013) estimated an annual fatality rate of about 2.8 birds per MW (with a 95 percent confidence that the actual number of fatalities would fall in the range between 2.1 and 3.6 birds per MW), based on 17 facilities in the intermountain west avifaunal biome (Rich et al. 2004), which coincides extensively with the Southern Rockies/Colorado Plateau and Northern Rockies BCRs (see Figure 2-2). There are several limitations with the Loss et al. (2013) results, including (1) their work was based on a limited number of existing wind energy facilities with publically available bird mortality data (most United States wind energy facilities do not monitor and report bird mortalities post-construction); (2) inconsistency in monitoring survey protocols used for wind facilities that do report bird mortality data and make it available; (3) failure to distinguish mortalities that were incidental observations versus those found during systematic searches; (4) mortality monitoring studies are not always completed using statistically robust study designs; (5) some studies corrected for incomplete searches of plots while others failed to do this; and (6) use of different statistical estimators to generate mortality estimates for the studies. Further, the main purpose of the Loss et al. (2013) paper was to derive the best available and most up-to-date estimates of bird mortality at United States wind energy facilities at large geographic scales despite the many limitations of the data used to derive these estimates. Also, while Loss et al.

(2013) used robust scientific methods to reach their reported values, they did not develop a model for use in predicting bird fatalities at the scale of individual wind energy projects.”

The USFWS FEIS (USFWS 2016) concludes: “Therefore, based on the above 95 percent confidence interval fatality rate estimate of 2.1 to 3.6 birds per MW from Loss et al. (2013), and the 1,500 MW of wind generation that would be installed by the CCSM Phase I Project, we roughly estimate that operation of the CCSM Phase I Project could result in a range of 3,150 to 5,400 bird fatalities (for all species) per year. However, this represents a very rough estimate of fatalities, and is not based on modeled projections. Further, this estimate is made with all of the caveats and limitations acknowledged above. We suspect that this estimate of bird fatalities for the CCSM Phase I Project is high, based on preliminary and confidential results from post-construction mortality monitoring recently begun at some other existing wind energy facilities in Wyoming using statistically valid and robust sampling methods with all appropriate bias trials to collect these data. The birds at risk of colliding with turbines would be both resident birds foraging and flying within the WDAs and migrant birds traveling through the WDAs seasonally. In addition, depending on the species, artificial light sources may attract nocturnal birds and lead to collision, or deter birds and lead to displacement (Jones et al. 2015). Given the numerous avoidance and minimization measures for eagles that would be implemented by PCW in the design of the CCSM Phase I Project, we would expect that this would help reduce mortalities for other bird species, especially for raptors. Additionally, PCW will be implementing the Phase I BBCS as a condition of the right-of-way permit issued by BLM. Through the adaptive management program and proactive to avoidance and minimization measures, as described in the Phase I BBCS (see Attachment B), the actual number of fatalities could be reduced.”

Based on this very rough estimate of fatalities, the caveats and limitations acknowledged above and estimate of bird fatalities for the CCSM Phase I Project is high (up to 5,400) this is still within the scope of the BLM CCSM Project FEIS. As discussed above, the BLM’s CCSM Project FEIS (BLM 2012b) discloses the reasonably foreseeable mortality associated with operation of the entire CCSM Project in terms of a range, the high end of which, when applied to Phase I of the Project, suggests that up to 6,600 migratory birds could be taken per year, based on the upper estimated mortality rate of 4.4 mortalities per megawatt per year (2012 BLM Project FEIS, Section 4.14.2.4, page 14.4-18). The USFWS’s FEIS (USFWS 2016) provides a rough estimate of up to 5,400 migratory bird mortalities per year for Phase I of the Project, before the implementation of design features and other mitigation.

The BLM and USFWS have based their take estimates, in part, on data from smaller wind farms in other geographic areas, some of which have a higher density of migratory birds. Relying on data from these other wind projects to extrapolate the reasonably foreseeable impacts of the larger CCSM Project may tend to overstate migratory bird mortality. Finally, even to the extent that BLM’s and USFWS’s methodologies for estimating migratory bird mortality produce different ranges, the differences in the mortality estimates are negligible. In addition, the estimated cumulative impact of collisions with wind turbines is several orders of magnitude lower than the estimated impacts from the leading anthropogenic causes of songbird mortality including vehicles, buildings and windows, power transmission lines, communication towers, toxic chemicals including pesticides, and feral and domestic cats.

The CCSM Project FEIS also anticipated 7,314 acres of initial and long-term impacts to sagebrush or other shrub-steppe communities (BLM 2012b). In addition to collisions, migratory birds may also be electrocuted by transmission lines and collection lines (power lines). While electrocution risk is greater for large birds such as raptors, small birds can also be electrocuted on power lines (Loss et al. 2014a). Transformers and substations also pose a risk of electrocution (Harness and Wilson 2001; Erickson et al. 2005).

PCW conducted migratory bird surveys from April 2011 through March 2012, which resulted in similar migratory bird species abundance and distribution as that presented in the CCSM Project FEIS (BLM 2012b). PCW also collected avian radar data to analyze broad-front migratory bird movements across the

CCSM Project Site. Avian radar surveys found that during migration events, migratory bird species generally pass over the CCSM Project Site well above the height of the wind turbine generator rotors indicating that these birds are not at risk of collision and that the area is not used as a stopover location. The migratory bird survey and avian radar survey data were used to develop a BBCS for Phase I of the CCSM Project that includes measures to avoid and minimize impacts to migratory birds. As contemplated in the CCSM Project FEIS, the avoidance, minimization, and conservation measures in the Phase I BBCS will reduce risks to migratory birds from Phase I of the CCSM Project.

Given that Phase I Wind Turbine Development consists of half the wind turbine generators and a subset of the total disturbance (i.e., vegetation removal) for the CCSM Project and that PCW has developed a BBCS to further avoid and minimize impacts to migratory birds, the impacts to migratory birds from the Phase I Wind Turbine Development are expected to be substantially less than those described in the CCSM Project FEIS (BLM 2012b). Impacts would be seasonal during spring, summer, and fall months when migratory birds regularly use habitats within the Phase I Wind Turbine Development Site. Bird radar surveys included in the CCSM Project FEIS showed that the highest number of observations of migratory birds occurred at night during the spring, summer, and fall months. Nocturnal migrants comprise a large portion of migratory bird fatalities at wind turbines. A review of 31 fatality studies found that 78 percent of carcasses were migratory songbirds, and half of those fatalities were nocturnal migrants (Erickson et al. 2001; Kunz et al. 2007). As a result, impacts could be greater during the night than morning hours. Due to species abundance in the CCSM Project Area, horned lark is expected to be most impacted by the Proposed Action; however, the avoidance, minimization, and conservation measures in the Phase I BBCS would avoid and minimize these risks to the extent practicable.

### *Summary of CCSM Phase I Impacts to Migratory Birds*

The primary risk to migratory birds identified in the CCSM Project FEIS (BLM 2012b) is from collision with wind turbine generators. In accordance with the Tiering Procedures (Appendix A), as the EA for Infrastructure Components did not include wind turbine generators and no new information was available regarding migratory bird use of the CCSM Project Area at the time of publication, impacts to migratory birds were not analyzed in the EA for Infrastructure Components (BLM 2014a). The impact analysis for migratory birds presented above in this EA includes updated information from additional surveys completed after publication of the CCSM Project FEIS (BLM 2012b). It also references the Phase I BBCS, which includes measures to further avoid and minimize impacts to migratory birds. The Phase I BBCS (PCW 2016a), as amended on July 6, 2016, indicates the impacts from the construction and operation of the Phase I Wind Turbine Development would be unlikely to result in population level declines for sagebrush obligate species. Therefore, the impacts to migratory birds from Phase I of the CCSM Project are as disclosed above and would be less than those impacts identified in the CCSM Project FEIS (BLM 2012b).

### *Mitigation Measures*

Impacts on migratory birds would be reduced through Applicant Committed Measures A-1-02 and A-1-11, as provided in Appendix D of the CCSM Project ROD (BLM 2012a). In addition, PCW developed a Phase I BBCS that includes measures to avoid, minimize, and otherwise mitigate impacts to migratory birds, including additional avoidance and minimization measures and BMPs to address risks to migratory birds from the Phase I overhead electrical system (PCW 2016a, page 5-23). PCW has committed to surveying for nesting migratory birds within seven days prior to the planned vegetation disturbance or conducting vegetation disturbance outside the active migratory bird breeding season (PCW 2016a). The Phase I BBCS also includes an adaptive management process to review the avoidance, minimization, and compensation measures to address migratory bird mortality in cooperation with USFWS, BLM, and WGFD.

## 4.2.9 Special Status Species

The CCSM Project FEIS (BLM 2012b) analyzes direct and indirect impacts, including short- and long-term impacts, on BLM sensitive species and species that are listed as threatened or endangered under the ESA (BLM 2012b, pp. 4.15-5 through 4.15-19). Specific types of impacts disclosed in the CCSM Project FEIS (BLM 2012b) are summarized below for individual species or species groups.

As discussed in more detail below, the analysis and conclusions in the CCSM Project FEIS (BLM 2012b) are consistent with the impacts anticipated for the Proposed Action of this EA. As described in Chapter 1 (*Introduction and Need for Proposed Action*), additional site-specific information on pygmy rabbit, white-tailed prairie dog, Wyoming pocket gopher, burrowing owl, Greater Sage-Grouse, mountain plover, and raptor species, including golden and bald eagle, is available from surveys conducted from 2012 through 2014. This section updates the analysis of potential impacts on special-status species based on that information. No analysis of federally listed species is included in this Chapter as these species were identified as Not Impacted (NI) in the ID Team Checklist (see Appendix B of this EA).

### 4.2.9.1 BLM Sensitive Mammals

The CCSM Project FEIS (BLM 2012b) evaluates impacts on BLM sensitive mammal species, including pygmy rabbit (page 4.15-8), white-tailed prairie dog (page 4.15-9), and Wyoming pocket gopher (page 4.15-9). Impacts anticipated to result from the CCSM Project included direct and indirect loss of habitat, such as displacement due to increased traffic on roads and human activity, and inadvertent mortalities due to increased traffic on roads and human activity. The impact analysis presented in the CCSM Project FEIS (BLM 2012b) for these species is consistent with the types and nature of impacts anticipated from the Proposed Action. As described in Chapter 3 (*Affected Environment*) of this EA, additional surveys for three BLM sensitive mammals have occurred since publication of the CCSM Project FEIS (BLM 2012b). Additional specificity regarding the extent and/or location of those potential impacts is presented below.

#### *Pygmy Rabbit*

The types of direct and indirect impacts on pygmy rabbit, as disclosed in the CCSM Project FEIS (BLM 2012b) are described above under BLM sensitive mammals. No significant impacts on pygmy rabbit are identified in the CCSM Project FEIS (BLM 2012b) as a result of the CCSM Project. Direct impacts on pygmy rabbits from increased collisions with vehicles are assessed in the CCSM Project FEIS (BLM 2012b), and total road mileage (438 miles) is used for that analysis. The Proposed Action is not anticipated to result in more than 438 miles of roads. Therefore, the direct impacts resulting from inadvertent mortalities on roads are not expected to exceed those disclosed in the CCSM Project FEIS (BLM 2012a).

#### *Phase I Wind Turbine Development*

##### *Pygmy Rabbit Occurrence Data Impacts*

As described in Chapter 3, 35 occurrences (21 active and 14 inactive) of pygmy rabbit were documented within 0.25 mile of the Phase I Wind Turbine Development Site. Of those, four occurrences (2 active and 2 inactive) would occur within the Phase I Wind Turbine Development Site, specifically within the initial disturbance areas. One active site would occur within the activity areas, and the remaining (30 occurrences) are outside of, but within 0.25-mile of the Phase I Wind Turbine Development Site. Direct adverse impacts would occur to the four occurrences within the initial surface disturbance areas as a result of clearing and grading of sagebrush habitat. Consistent with the conclusions in the CCSM Project FEIS (BLM 2012b), adverse impacts within the initial surface disturbance areas would be considered long-term in nature considering the length of time required to fully restore tall, dense stands of sagebrush habitat

preferred by pygmy rabbit. In addition, direct adverse impacts would occur to the one pygmy rabbit site within the activity area because vegetation trimming may occur to sagebrush habitat in that location, reducing thermal and protective cover for this species, which prefers dense sagebrush habitat. These impacts within the initial surface disturbance areas and activity areas do not constitute significant impacts. PCW redesigned portions of the Phase I Wind Turbine Development to avoid or minimize direct and indirect impacts on pygmy rabbit to the extent possible considering engineering and other resource constraints.

Additional direct and indirect impacts on the 30 occurrences of pygmy rabbits documented adjacent to the Phase I Wind Turbine Development Site vary depending on the proximity of the occurrence to the proposed disturbance area. Indirect impacts would include the potential for increased predation due to power lines providing additional perch locations for raptors and corvids; however, these indirect impacts would not meet the significance criteria of decreased viability or increased mortality of these species. Additional indirect impacts on these individuals could occur, consistent with those disclosed in the CCSM Project FEIS (BLM 2012b), with impacts decreasing with greater distance from the disturbance area.

### Summary of CCSM Phase I Impacts to Pygmy Rabbit

The pygmy rabbit analysis for the Infrastructure Component Site (BLM 2014a) is incorporated here by reference. The impacts from the Phase I Wind Turbine Development, even when considered in conjunction with the impacts to pygmy rabbit disclosed in the EA for Infrastructure Components (i.e., one occurrence directly impacted within the initial disturbance area and four occurrences documented from 200 to 1,000 feet away from the initial disturbance area) (BLM 2014a) would not constitute a significant impact using the significance criteria established on page 4.15-4 of the CCSM Project FEIS (BLM 2012b). The impacts from the Phase I Wind Turbine Development would not:

- Result in a substantial loss of habitat function or disruption of life history requirements that would make it eligible for listing under the ESA or preclude improvement of their status. Long-term direct impacts to five occurrences within the Phase I portion of the CCSM Project Area would not be considered severe enough to make the species eligible for listing under the ESA or preclude improvement of their status.
- Result in substantial disruption or irreplaceable loss of vital and high value habitats. Removal of sagebrush would result in long-term disturbances to pygmy rabbit, as disclosed in the CCSM Project FEIS (BLM 2012b); however, due to these disturbances only directly impacting five occurrences, they would not be considered a substantial disruption or irreplaceable loss, as the disturbances would be reclaimed.
- Preclude attainment of conservation goals in conservation plans and strategies. There are no legally binding conservation or management plans in place for the pygmy rabbit in Wyoming. The Recovery Plan for the Columbia Basin Distinct Population Segment of the Pygmy Rabbit (*Brachylagus idahoensis*) (USFWS 2012b) is only for that distinct population segment which occurs in the northwestern U.S. and is not connected to populations in Wyoming.

### Mitigation Measures

The following ACMs, Applicant Committed BMPs, and mitigation measures, summarized in Appendix D of the CCSM Project ROD (BLM 2012a), have been implemented (such as A-1-08) or would continue to be implemented to reduce impacts on pygmy rabbits from the Proposed Action:

- Applicant Committed Measures A-1-01, A-1-08 through A-1-10, A-1-12, and A-1-26
- Applicant Committed BMPs A-3-94 through A-3-97
- Mitigation Measures WFM-1, WFM-2, and SSS-1

In addition, PCW would comply with the stipulations pertaining to pygmy rabbit in the Wildlife Monitoring and Protection Plan (BLM 2012a, Appendix G). As identified above, PCW has avoided pygmy rabbit occurrences to the extent practical during planning and design of the Phase I Wind Turbine Development, while still meeting CCSM Project needs.

### ***White-tailed Prairie Dog***

The types of direct and indirect impacts on white-tailed prairie dog, as disclosed in the CCSM Project FEIS (BLM 2012b) are described above under BLM sensitive mammals. The CCSM Project FEIS (BLM 2012b) identifies the potential for initial and long-term impacts on white-tailed prairie dog habitat at approximately 92 acres and 22 acres, respectively (BLM 2012b). No significant impacts on white-tailed prairie dog are identified in the CCSM Project FEIS (BLM 2012b) as a result of the CCSM Project.

### ***Phase I Wind Turbine Development***

A total of 62 white-tailed prairie dog colonies (44 of which were active) were documented within the Phase I Wind Turbine Development Site. A total of 105 acres of active white-tailed prairie dog colonies are within the initial disturbance limits, and 24 acres are within the long-term disturbance limits of the Proposed Action, as detailed below and shown in Table 4-13. Initial and long-term impacts from the Proposed Action would exceed the total anticipated impacts to white-tailed prairie dog disclosed in the CCSM Project FEIS (BLM 2012b) primarily because site-specific field surveys for this species resulted in additional mapped colonies.

In addition to the white-tailed prairie dog colonies located within initial and long-term surface disturbance areas, approximately 15 acres of white-tailed prairie dog colonies are located within the Phase I Wind Turbine Development activity areas. Because prairie dogs prefer open habitats, trimming or mowing vegetation within activity areas would not result in long-term adverse impacts to white-tailed prairie dog habitat. However, vehicle traffic within these areas may result in fatalities of white-tailed prairie dog individuals and human presence may induce temporary indirect effects such as increased stress levels that further reduce overall fitness of the animals, and avoidance of activity areas resulting in the effect of restricting their habitat areas. Other indirect impacts would include the potential for increased predation due to power lines providing additional perch locations for raptors and corvids; however, these indirect impacts would meet the significance criteria of decreased viability or increased mortality of these species. These types of impacts are consistent with impacts to white-tailed prairie dog disclosed in the CCSM Project FEIS (BLM 2012b) and would not result in additional significant impacts to white-tailed prairie dog using the significance criteria established on page 4.15-4 of the CCSM Project FEIS (BLM 2012b).

**Table 4-13. Impacts on Active White-Tailed Prairie Dog Colonies**

Project Component	Acres of Active White-Tailed Prairie Dog Colonies		Percent of Active White-Tailed Prairie Dog Colonies Mapped in Phase I of the CCSM Project		Percent of Total White-Tailed Prairie Dog Colonies Mapped in Phase I of the CCSM Project	
	Initial Disturbance Area	Long-Term Disturbance Area	Initial Disturbance Area	Long-Term Disturbance Area	Initial Disturbance Area	Long-Term Disturbance Area
Phase I Wind Turbine Development	105	24	4	<1	3	<1
Infrastructure Components	62	15	2	<1	2	<1
<b>Total</b>	<b>167</b>	<b>39</b>	<b>6</b>	<b>1</b>	<b>5</b>	<b>1</b>

Sources: PCW 2014a, 2014b, 2014c, 2015.

CCSM Chokecherry and Sierra Madre

Summary of CCSM Phase I Impacts to White-tailed Prairie Dog

The white-tailed prairie dog analysis for the Infrastructure Component Site (BLM 2014a) is incorporated here by reference. The impacts from the Phase I Wind Turbine Development, even when considered in conjunction with the impacts to white-tailed prairie dog disclosed in the EA for Infrastructure Components (i.e., 62 acres of impacts within initial disturbance areas, and 15 acres of impacts within long-term disturbance areas) (BLM 2014a) would not constitute a significant impact using the significance criteria established on page 4.15-4 of the CCSM Project FEIS (BLM 2012b).

As identified in Chapter 3 of this EA, white-tailed prairie dogs disperse readily to other areas. PCW mapped a total of 3,483 acres (of which 2,882 acres were active) of white-tailed prairie dog colonies during 2013 surveys within the Phase I portions of the CCSM Project (see Map 3-10 of this EA), which includes the Phase I Wind Turbine Development Site. Initial disturbance to white-tailed prairie dog colonies as a result of the Proposed Action (105 acres) and the Infrastructure Components (62 acres) results in a total of 167 acres of initial impacts, which reflects approximately 5 percent of the total area (6 percent of all active colonies) mapped as white-tailed prairie dog colonies within the Phase I portion of the CCSM Project. This level of disturbance would not:

- Result in a substantial loss of habitat function or disruption of life history requirements that would make it eligible for listing under the ESA or preclude improvement of their status. Long-term disturbance to one percent of the white-tailed prairie dog colonies within the Phase I portion of the CCSM Project Area would not be considered severe enough to make the species eligible for listing under the ESA or preclude improvement of their status.
- Result in substantial disruption or irreplaceable loss of vital and high value habitats. Although white-tailed prairie dog colonies are vital and high value habitats for this species, only one percent of the colonies present within the Phase I portion of the CCSM Project Area would experience a long-term impact, and these impacts would not constitute a substantial disruption.
- Preclude attainment of conservation goals, as stated in the conservation plans and strategies for this species. There are no legally binding conservation or management plans in place for the white-tailed prairie dog in any portion of its range (Keinath 2004). Keinath (2004) identifies four conservation elements for white-tailed prairie dog in Wyoming, including (1) habitat conservation, (2) disease control, (3) shooting and extermination control, and (4) monitoring



populations. The CCSM Project would not preclude the BLM from implementing these conservation elements, and would provide additional data regarding white-tailed prairie dog abundance and distribution throughout the area through implementation of the monitoring procedures in Appendix D of the CCSM Project ROD (BLM 2012a).

### Mitigation Measures

No mitigation measures specific to white-tailed prairie dog are recommended in the CCSM Project ROD (BLM 2012a) because impacts on the species are not anticipated to be significant. The following ACMs, Applicant Committed BMPs, and mitigation measures applicable to general wildlife species, as summarized in Appendix D of the CCSM Project ROD (BLM 2012a), have been implemented (such as A-1-08) or would be implemented to reduce impacts on white-tailed prairie dogs from the Proposed Action:

- Applicant Committed Measures A-1-01, A-1-08 through A-1-10, A-1-12, and A-1-26
- Applicant Committed BMPs A-3-94 through A-3-97
- Mitigation Measures WFM-1 and WFM-2

### **Wyoming Pocket Gopher**

The types of direct and indirect impacts on Wyoming pocket gopher are consistent with those disclosed in the CCSM Project FEIS (BLM 2012b) and are described above under BLM sensitive mammals. No significant impacts on Wyoming pocket gopher are identified in the CCSM Project FEIS (BLM 2012b) as a result of the CCSM Project. The Proposed Action would result in direct and indirect impacts on Wyoming pocket gopher consistent with the general types and nature of impacts disclosed in the CCSM Project FEIS (BLM 2012a).

Per Mitigation Measure SSS-2, and as documented in Chapter 3 (*Affected Environment*) of this EA, PCW conducted surveys for Wyoming pocket gopher mounds/mound complexes within the Phase I Wind Turbine Development Site in 2012 and 2013. Using the Griscom and Keinath (2010) diagnostic tool, PCW predicted which mound/mound complexes would be Wyoming pocket gopher as opposed to northern pocket gopher.

### Phase I Wind Turbine Development

The 102 occurrences of predicted Wyoming pocket gopher or unknown species documented within 75 meters of the Phase I Wind Turbine Development Site are distributed throughout both the Chokecherry WDA, Sierra Madre WDA, and in the area between the two WDAs (see Map 3-11). Of the 24 mound/mound complexes predicted to be Wyoming pocket gopher, four are located within the initial disturbance area, two are located within the activity areas, and the remaining occurrences are located outside of the proposed surface disturbance or activity areas, but are within 75 meters of these areas. Of the 78 unknown pocket gopher occurrences, 15 are located within the initial disturbance area, 2 are located within the activity areas, and the remaining occurrences (61) are located outside of the proposed surface disturbance or activity areas, but are within 75 meters of these areas. Indirect impacts would include the potential for increased predation due to power lines providing additional perch locations for raptors and corvids; however, these indirect impacts would not meet the significance criteria of decreased viability or increased mortality of these species.

### Summary of CCSM Phase I Impacts to Wyoming Pocket Gopher

The Wyoming pocket gopher analysis for the Infrastructure Component Site (BLM 2014a) is incorporated here by reference. The impacts from the Phase I Wind Turbine Development, even when considered in conjunction with the impacts to pocket gopher disclosed in the EA for Infrastructure Components (i.e., 8

Wyoming pocket gopher and 1 unknown pocket gopher mounds or mound complexes within the initial disturbance area and 17 predicted Wyoming pocket gopher and 19 unknown pocket gopher mounds or mound complexes located outside of the Infrastructure Component Site but within 75 meters) (BLM 2014a) would not constitute a significant impact using the significance criteria established on page 4.15-4 of the CCSM Project FEIS (BLM 2012b).

As identified in Chapter 3 of this EA, the WYNDD predicts that Wyoming pocket gopher is present within approximately 3,475 acres of the Phase I Wind Turbine Development Site, which accounts for three percent of the total area that WYNDD predicts Wyoming pocket gopher to be present within the CCSM Project Area (103,898 acres). In the EA for Infrastructure Components (BLM 2014a), the WYNDD predicts that Wyoming pocket gopher is present within approximately 849 acres of the Infrastructure Component Site; therefore, for Phase I of the CCSM Project Area, Wyoming pocket gopher is predicted present within approximately 4,324 acres, or four percent of the total area within the CCSM Project Area that WYNDD predicts Wyoming pocket gopher to be present. This level of disturbance would not:

- Result in a substantial loss of habitat function or disruption of life history requirements that would make it eligible for listing under the ESA or preclude improvement of their status. Long-term disturbance to four percent of the Wyoming pocket gophers within the Phase I portion of the CCSM Project Area would not be considered severe enough to make the species eligible for listing under the ESA or preclude improvement of their status.
- Result in substantial disruption or irreplaceable loss of vital and high value habitats. Only four percent of the complexes present within the Phase I portion of the CCSM Project Area would experience a long-term impact, and these impacts would not constitute a substantial disruption.
- Preclude attainment of conservation goals, as stated in the conservation plans and strategies for this species. There are no legally binding conservation or management plans in place for the Wyoming pocket gopher in any portion of its range (Keinath and Beauvais 2006). Keinath and Beauvais (2006) identify four conservation elements for Wyoming pocket gopher in Wyoming, including (1) range-wide inventory, (2) determination of habitat requirements, (3) habitat preservation, and (4) population monitoring. The CCSM Project would not preclude the BLM from implementing these conservation elements, and would provide additional data regarding Wyoming pocket gopher abundance and distribution throughout the area through implementation of the monitoring procedures in Appendix D of the CCSM Project ROD (BLM 2012a).

### Mitigation Measures

The following ACMs, Applicant Committed BMPs, and mitigation measures, summarized in Appendix D of the CCSM Project ROD (BLM 2012a), have been implemented (such as A-1-08) or would be implemented to reduce impacts on Wyoming pocket gophers from the Proposed Action:

- Applicant Committed Measures A-1-01, A-1-08 through A-1-10, A-1-12, and A-1-26
- Applicant Committed BMPs A-3-94 through A-3-97
- Mitigation Measures WFM-1, WFM-2, and SSS-2

In addition, PCW will comply with the stipulations pertaining to Wyoming pocket gopher in the Wildlife Monitoring and Protection Plan (BLM 2012a, Appendix G). PCW has avoided pocket gopher mounds or mound complexes to the extent practical during planning and design of the Proposed Action, while still meeting CCSM Project needs.

Further, PCW developed the Wyoming Pocket Gopher Conservation and Mitigation Plan (PCW 2015d) to mitigate for impacts to the predicted Wyoming and unknown pocket gopher mounds/mound complexes. In the Wyoming Pocket Gopher Conservation and Mitigation Plan (PCW 2015d), PCW identified measures that are designed to provide conservation uplift to Wyoming pocket gopher over the

life of the CCSM Project as well as to provide specific information regarding the species' response to ground-disturbing activities after construction. As described more fully in the Wyoming Pocket Gopher Conservation and Mitigation Plan (PCW 2015d), PCW commits to the following measures:

1. Within 90 days following commencement of construction, PCW and The Overland Trail Cattle Company will execute an agreement to establish a Wyoming pocket gopher conservation area for the life of the CCSM Project on 1,280 acres of private lands (T19N R87W S19 and T19N R88W S25).
2. PCW will monitor the conservation area along with an additional 1,280 acres of adjacent public lands that are known to support Wyoming pocket gopher (T19N R87W S30 and T19N R88W S24) prior to construction and for three years post-construction.
3. PCW will complete or fund the completion of three years of post-construction monitoring of Wyoming pocket gophers in areas disturbed by the CCSM Project. The purpose of the monitoring is to collect data that could be used to evaluate survival and reestablishment rates of Wyoming pocket gophers in disturbed areas.

#### **4.2.9.2 BLM Sensitive Birds**

As described in Chapter 3 (*Affected Environment*) of this EA, additional surveys for BLM sensitive birds, including burrowing owl, Greater Sage-Grouse, and mountain plover, and BLM sensitive raptors have occurred since publication of the CCSM Project FEIS (BLM 2012b). The impact analyses presented in the CCSM Project FEIS (BLM 2012b) for these species are summarized for each avian species below and are generally consistent with impacts anticipated from the Proposed Action. Additional specificity regarding the extent and/or location of those potential impacts is presented below.

PCW prepared an ECP for Phase I of the CCSM Project, which is designed to avoid and minimize impacts on golden and bald eagles. The measures in the Phase I ECP also have the benefit of reducing impacts on other raptors species present in the CCSM Project Area. PCW also applied to the USFWS for ETPs for Phase I Wind Turbine Development, which the USFWS approved on January 12, 2017 (USFWS 2017a). In addition, PCW prepared an APP/BBCS for Phase I of the CCSM Project in accordance with USFWS guidance. Additional measures to reduce impacts on BLM sensitive birds are described below for individual species or species groups. The USFWS issued a letter of concurrence on the ECP and the APP/BBCS on January 13, 2017 (USFWS 2017b).

#### ***Burrowing Owl***

##### ***Phase I Wind Turbine Development***

Consistent with the CCSM Project FEIS (BLM 2012b), potential impacts on burrowing owl include: (1) direct loss of habitat, (2) indirect loss of habitat through avoidance of or displacement from construction areas or areas with high levels of human activity, and (3) direct mortality of burrowing owl individuals as a result of increased vehicle presence on the road network associated with the Proposed Action. Although no burrowing owl breeding activity has been observed within the CCSM Project Area, inclusive of the Phase I Wind Turbine Development Site, there is some potential for burrowing owl to breed within the Phase I Wind Turbine Development Site due to the presence of white-tailed prairie dog colonies.

##### ***Summary of CCSM Phase I Impacts to Burrowing Owl***

The burrowing owl analysis for the Infrastructure Component Site (BLM 2014a) is incorporated here by reference. The impact analysis for burrowing owl presented above in this EA is the same as that

presented in the EA for Infrastructure Components (BLM 2014a). Therefore, the impacts to burrowing owl from Phase I of the CCSM Project are as disclosed above. These impacts are consistent with those impacts disclosed in the CCSM Project FEIS (BLM 2012b) and no significant impacts are anticipated.

### *Mitigation Measures*

Preconstruction nest surveys for burrowing owl will be conducted in accordance with the Wildlife Monitoring and Protection Plan (BLM 2012a, Appendix G). If nests are found, the BLM Environmental Constraint for burrowing owls (BLM 2012b, p. D-1) would apply. In addition, the following ACMs, Applicant Committed BMPs, and mitigation measure, summarized in Appendix D of the CCSM Project ROD (BLM 2012a) and applicable to general wildlife species, would be implemented to reduce impacts on burrowing owls from the Proposed Action:

- Applicant Committed Measures A-1-01, A-1-02, A-1-08 through A-1-12, A-1-25, and A-1-26
- Applicant Committed BMPs A-3-94 through A-3-97
- Mitigation Measure WFM-1

### *Greater Sage-Grouse*

The CCSM Project FEIS (BLM 2012b, p. 4.15-10) includes discussion of impacts on Greater Sage-Grouse, which include: (1) mortality due to collision with turbines, power lines, or meteorological towers or their supporting infrastructure; (2) vehicle collisions; (3) increased levels of poaching; (4) indirect habitat loss due to increased human activity and tall structures; (5) habitat fragmentation; (6) increased predation due to power lines providing additional perch locations for raptors and corvids; (7) ground disturbance and other construction activities potentially leading to the establishment of noxious weeds or enhanced rates of predation; and (8) increased chance for fires due to increased human use and disturbance in areas previously inaccessible by vehicles.

The Greater Sage-Grouse impact analysis in the CCSM Project FEIS (BLM 2012b) uses Greater Sage-Grouse core area habitat designations to evaluate impacts (Executive Order [EO] 2011-5, Attachment A, Sage-Grouse Core Breeding Areas Version 3) and relies on an extensive literature review to help determine appropriate buffer distances at which varying levels of impacts may occur to this species. The CCSM Project FEIS (BLM 2012b, p. 4.15-14) concludes that the long-term loss of sagebrush habitat in non-core areas, combined with expansive areas of potential indirect impacts on both core and non-core habitat during construction and operation could result in habitat loss and disturbance levels exceeding all five significance criteria.

As discussed in Section 3.9.2.2, since the publication of the CCSM Project ROD (BLM 2012a), the State of Wyoming, the USFWS, and the BLM have all developed consistent and complementary strategies to conserve Greater Sage-Grouse populations in Wyoming. The CCSM Project is not located in any key geographic area identified as a priority area for Greater Sage-Grouse conservation, i.e., USFWS Priority Areas of Conservation, State of Wyoming core areas, or BLM PHMAs. These key areas also coincide with the core areas used in the CCSM Project FEIS analysis; therefore, these strategies and their requirements do not affect the analysis presented in the CCSM Project FEIS. In addition, the site-specific survey data related to Greater Sage-Grouse lek attendance, habitat quality, and habitat use collected by PCW (SWCA 2015) confirms that core areas surrounding the CCSM Project Site contain the highest-quality Greater Sage-Grouse habitat. By locating the CCSM Project outside of these areas, PCW is complying with the state and federal goals to avoid development in important Greater Sage-Grouse habitats and preserving the effectiveness of the regulatory mechanisms relied upon by the USFWS in its decision that listing of the Greater Sage-Grouse under the ESA is not warranted. As stated in the Wyoming ARMPA (BLM 2015a, Attachment 4), “The State of Wyoming’s Core Area Strategy is designed to protect birds and habitat within core areas using a suite of tools and mechanisms that work in

concert to conserve sage-grouse by reducing habitat loss and fragmentation through lek buffers, disturbance limits, excluded activities, and a sophisticated mapping utility to monitor the amount and density of disturbance. The USFWS has informed the BLM that the combined effect of these overlapping and reinforcing mechanisms give USFWS confidence that the lek buffer distances in the Core Area Strategy will be protective of breeding sage-grouse.”

The Wyoming ARMPA also states “Reasonably foreseeable future projects within MZ II/VII include renewable energy developments, such as the Chokeycherry/Sierra Madre Wind Farm in southern Wyoming. Projects that require state agency review or approval would be subject to the Wyoming executive order permitting process for development in Core Population Areas, which would encourage ROW/SUA development outside of Core Population Areas and restrict surface occupancy within 0.6 miles of occupied leks.

Impacts would be minimized on BLM-administered and National Forest System land across all alternatives and the Proposed LUP Amendments by adhering to the wildlife protection provisions of the Wind Energy Development Programmatic EIS (BLM 2005). Implementation of wind energy ROW avoidance in PHMA for all BLM/Forest Service Proposed LUPs, in combination with the disturbance caps under the state plans, exclusion zones in other BLM and Forest Service planning areas, and other past, present, and reasonably foreseeable future actions, would result in a net conservation gain to Greater Sage-Grouse in MZ II/VII.”

Based on this analysis in the ARMPA FEIS, the avoidance of PHMA, and the other measures that are part of the CCSM Project design there would be adequate protection for Greater Sage-Grouse.

#### *Phase I Wind Turbine Development*

The qualitative and quantitative description of direct and indirect impacts in the CCSM Project FEIS (BLM 2012b, pp. 4.15-10 through 4.15-16) is consistent with the direct and indirect impacts anticipated as a result of the Proposed Action. Direct adverse impacts could occur to Greater Sage-Grouse habitat within the activity areas because vegetation trimming may occur to sagebrush habitat, and as a result, activity areas are included within the impact analysis when discussing the Proposed Action’s proximity to core areas, non-core habitat areas, and leks. Current best available information indicates a potential for disruption at lek sites and a reduction in male lek attendance. Impacts within activity areas do not constitute additional significant impacts beyond those already disclosed in the CCSM Project FEIS (BLM 2012b) and would be short-term in nature because the roots and portions of the above-ground vegetative structures of the sagebrush plants would remain intact after vegetation trimming.

Quantitative impacts on Greater Sage-Grouse core areas/PHMAs, non-core habitat/GHMAs, and leks were reviewed using updated disturbance footprint data (including activity areas) and updated Greater Sage-Grouse occurrence data. Consistent with the evaluation conducted for the CCSM Project FEIS (BLM 2012b), this analysis assumes indirect impacts on Greater Sage-Grouse are highest within one mile of the Proposed Action, and generally do not extend beyond four miles from the Proposed Action (see Table 4-14).

**Core Areas/PHMAs.** No Greater Sage-Grouse core areas/PHMAs would be directly impacted by the Proposed Action. With respect to indirect impacts, there are 10,034 acres of Greater Sage-Grouse core areas/PHMAs within one mile of the Proposed Action and 73,616 acres of Greater Sage-Grouse core/PHMAs within four miles of the Proposed Action (Table 4-14). Consistent with the CCSM Project FEIS analysis cited above, the majority of any indirect impacts would occur on the 10,034 acres within one-mile of the Proposed Action. Table 4-15 identifies acres of Greater Sage-Grouse core areas/PHMAs within four miles of the wind turbine generator locations and transmission lines and compares that with similar data identified in the CCSM Project FEIS (BLM 2012b). While the CCSM Project FEIS outlines the types of indirect impacts that can occur, the BLM does not anticipate habitat loss or degradation in these PHMAs (BLM 2012b, pp. 4.15-10 through 4.15-12). Notwithstanding, PCW has committed to

provide voluntary mitigation measures to further offset impacts to Greater Sage-Grouse. See the *Mitigation Measures* section below.

**Table 4-14. Acres of Greater Sage-Grouse Core Areas/PHMAs within Varying Distances (miles) of the Proposed Action**

Core Area/PHMAs within Specified Distance of Proposed Action (acres)					Total (0-4 miles)
0-0.5 mile	0.5-1 mile	1-2 miles	2-3 miles	3-4 miles	
3,791	6,243	15,968	21,290	26,324	73,616

Source: Sage-grouse Core Areas (Version 3) (WGFD 2010).

PHMAs Priority Habitat Management Areas

**Table 4-15. Acres of Greater Sage-Grouse Core Areas/PHMAs within Varying Distances (miles) of Wind Turbine Generators and Transmission Lines**

Cores Areas/PHMAs within Specified Distance of Wind Turbine Generators (acres)					Total (0-4 miles)	Total in CCSM FEIS <sup>1</sup> (0-4 miles)
0-0.5 mile	0.5-1 mile	1-2 miles	2-3 miles	3-4 miles		
3,461	6,122	15,845	20,059	25,682	71,169	127,465
Core Areas/PHMAs within Specified Distance of Transmission Lines (exclusive of wind turbine generator buffers) (acres)						
0	0	0	0	12	12	0

Source: BLM 2015c.

<sup>1</sup>Source: BLM 2012b.

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**Non-Core Habitat Areas/GHMAs.** Non-core habitat/GHMAs is defined as sagebrush-dominated vegetation communities outside of the core areas/PHMAs described above. Using updated vegetation community mapping, it is estimated that the Proposed Action would result in the loss of 1,862 acres of non-core/GHMAs sagebrush-dominated habitat for Greater Sage-Grouse through initial disturbance activities, of which 307 acres of non-core habitat/GHMAs would be lost in the long term. In the activity areas, 240 acres of non-core/GHMAs habitat would be impacted. These losses combined result in a total of 2,102 acres. Consistent with the analysis in the CCSM Project FEIS (BLM 2012b), initial disturbance activities would constitute a long-term impact on Greater Sage-Grouse due to the long time frame associated with establishing sagebrush to pre-disturbance levels. Impacts to non-core/GHMAs habitat from activity areas would not be considered a long-term impact because the roots and portions of the above-ground vegetative structures of the sagebrush plants would remain intact, facilitating recovery. There are 207,474 acres of Greater Sage-Grouse GHMAs within four miles of the Phase I Wind Turbine Development Site (Table 4-16) that could experience indirect impacts, which is within the impacts identified in the CCSM Project FEIS (BLM 2012b). Indirect impacts on these GHMAs would be consistent with the types of impacts disclosed on pages 4.15-10 through 4.15-12 of the CCSM Project FEIS (BLM 2012b). Table 4-17 identifies acres of Greater Sage-Grouse non-core habitat areas/GHMAs within four miles of the wind turbine generator locations and transmission lines and compares that with

similar data identified in the CCSM Project FEIS (BLM 2012b). Note that a direct comparison of these acreages is not possible as the CCSM Project FEIS conducted the analysis using BLM modeled nesting/brooding habitat outside the core area populations and this data is different than the current GHMA data.

**Table 4-16. Acres of Greater Sage-Grouse Non-Core Habitat Areas/GHMA within Varying Distances (miles) of the Proposed Action**

GHMAs within Specified Distance of Proposed Action (acres)					Total (0-4 miles)	Total acres in CCSM FEIS <sup>1</sup> (0-4 miles)
0-0.5 mile	0.5-1 mile	1-2 miles	2-3 miles	3-4 miles		
66,110	26,958	45,322	37,244	31,840	207,474	253,015

Source: BLM 2015c.

<sup>1</sup>Source: BLM 2012b.

GHMAs General Habitat Management Areas

**Table 4-17. Acres of Greater Sage-Grouse Non-Cores Habitat Areas/GHMA within Varying Distances (miles) of Wind Turbine Generators and Transmission Lines**

GHMAs within Specified Distance of Wind Turbine Generators (acres)					Total (0-4 miles)	Total in CCSM FEIS <sup>1</sup> (0-4 miles)
0-0.5 mile	0.5-1 mile	1-2 miles	2-3 miles	3-4 miles		
45,813	16,340	27,779	30,356	30,770	151,057	253,015
GHMAs within Specified Distance of Transmission Lines (exclusive of wind turbine generator buffers) (acres)						
3,067	3,042	5,791	10,951	16,142	38,993	1,565

Source: BLM 2015c.

<sup>1</sup>Source: BLM 2012b. As identified in the CCSM Project FEIS, these acreages are based on modeled Greater Sage-Grouse nesting/brooding habitat outside the core population area and, therefore, are not directly comparable to the acreages calculated for the Phase I Wind Turbine Development because the Phase I Wind Turbine Development acreages were calculated using GHMAs.

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 GHMAs General Habitat Management Areas

**Leks.** Using updated lek data from the 2012 and 2013 surveys, it is estimated that there are 29 leks (17 active/occupied and 12 inactive) within four miles and 10 leks (9 active/occupied and 1 inactive) within one mile of the Phase I Wind Turbine Development Site, including the activity areas (Table 4-18). In compliance with the Wyoming ARMPA (BLM 2015a, Attachment 4 p. 36), the Proposed Action would not result in surface occupancy or surface-disturbing activities within a 0.25-mile radius of the perimeter of an occupied Greater Sage-Grouse lek outside PHMAs with one exception on private land. For the Deadman Creek South lek, located on private land, the turbine road between LMH-D-11 and LMH-D-12, also on private land, is located 0.23 mile away from the lek. This road uses an existing road as a turbine class road to access LMH-D-20 and it would not see significant use or traffic following construction of the turbines. PCW closely examined relocation of the road in coordination with the WGFD, but was unable to do so due to topography and other resource constraints. Disruption and

displacement of Greater Sage-Grouse during construction could occur; however, these impacts would be temporary and are considered with the impacts identified in the CCSM Project FEIS (BLM 2012b). As detailed in the Phase I Wind Turbine Development SPOD (PCW 2015a), PCW has proposed additional site-specific restrictions to further avoid and minimize impacts to the Deadman Creek South lek including avoidance of non-critical construction, operations, and maintenance activities within 0.25 mile of the lek between March 1 and May 20, and no significant impacts are anticipated. With the implementation of these additional site specific measures, use of the existing road located 0.23 mile away from the Deadman Creek South lek is not anticipated to impair the function or utility of the site for the current or subsequent seasonal habitat, life-history, or behavioral needs of Greater Sage-Grouse.

**Table 4-18. Number of Greater Sage-Grouse Leks within Varying Distances (miles) of the Proposed Action, Wind Turbine Generators, and Transmission Lines**

Number of Leks within Specified Distances of the Proposed Action					Total (0-4 miles)	Total in CCSM FEIS <sup>1</sup> (0-4 miles)
0-0.5 mile	0.5-1 mile	1-2 miles	2-3 miles	3-4 miles		
6	4	8	5	6	29	NA
Number of Leks within Specified Distances of Wind Turbine Generators						
5	4	5	6	5	25	37
Number of Leks within Specified Distances of Transmission Lines (exclusive of wind turbine generator buffers)						
0	0	1	0	1	2	0

Source: BLM 2015c.

<sup>1</sup>Source: BLM 2012b.

*Summary of CCSM Phase I Impacts to Greater Sage-Grouse*

The Greater Sage-Grouse analysis for the Infrastructure Component Site (BLM 2014a) is incorporated herein by reference. The impacts from the Phase I Wind Turbine Development would be in addition to the impacts to Greater Sage-Grouse disclosed in the EA for Infrastructure Components (BLM 2014a). The CCSM Project FEIS (BLM 2012b) estimates that there would be indirect impacts on 127,465 acres of Greater Sage-Grouse core areas/PHMAs within four miles of proposed infrastructure associated with the CCSM Project. Indirect impacts on 73,616 acres of Greater Sage-Grouse core areas/PHMAs within four miles of the Proposed Action in this EA would not exceed this amount. The EA for Infrastructure Components (BLM 2014a) identifies indirect impacts to 41,808 acres of core area/PHMAs from the proposed action in that document. Portions of the 41,808 acres of indirect impacts to core area identified in the EA for Infrastructure Components (BLM 2014a) overlap the 73,616 acres described above. When this overlap is removed, a total of 80,809 acres of indirect impacts to core areas/PHMAs would result from both the infrastructure components and the Phase I Wind Turbine Development.

Total impacts on non-core/GHMAs Greater Sage-Grouse habitat resulting from the CCSM Project were estimated at 8,431 acres in the CCSM Project FEIS (BLM 2012b). Total losses of non-core/GHMAs habitat for Greater Sage-Grouse resulting from the Proposed Action (2,102 acres), plus the total losses of non-core/GHMAs habitat from the Infrastructure Components (694 acres) would not exceed the 8,431 acres disclosed in the CCSM Project FEIS (BLM 2012b, p. 4.15-12).

Considering indirect impacts on Greater Sage-Grouse core areas/PHMAs, non-core/GHMAs habitat, and leks, Phase I of the CCSM Project would not result in significant impacts on Greater Sage-Grouse beyond those already disclosed in the CCSM Project FEIS (BLM 2012b) on page 4.15-14.



Mitigation Measures

The CCSM Project ROD (BLM 2012a) prohibits development inside Greater Sage-Grouse Core Areas. As discussed above, the CCSM Project is not located in any area identified as a priority area for Greater Sage-Grouse conservation, i.e., USFWS Priority Areas of Conservation, State of Wyoming Core Areas, or BLM PHMAs. To further minimize impacts on Greater Sage-Grouse, PCW will comply with the stipulations pertaining to Greater Sage-Grouse in the Wildlife Monitoring and Protection Plan included in the CCSM Project ROD (BLM 2012a, Appendix G) and the Sage-grouse Conservation Plan included in the CCSM Project ROD (BLM 2012a, Appendix B). The Sage-Grouse Conservation Plan includes Applicant committed conservation measures to mitigate impacts to Greater Sage-Grouse, such as monitoring of Greater Sage-Grouse through lek counts and telemetry data collection and analysis, habitat evaluation, and responsible land management practices. Further, as part of its wind energy development proposal, PCW has committed to provide voluntary mitigation measures to further offset impacts to Greater Sage-Grouse. These measures are described in the Sage-Grouse Conservation Plan and include fence marking and removal, habitat improvements, and a conservation easement on private lands (BLM 2012a, Appendix B).

While the conservation easement would be placed on private lands owned by TOTCO on which PCW has wind energy development rights, the easement will also effectively conserve the interspersed sections of federal land due to the checkerboard land ownership pattern. The following environmental constraints, ACMs, Applicant Committed BMPs, and mitigation measures, summarized in Appendix D of the CCSM Project ROD (BLM 2012a), would be implemented to reduce impacts on Greater Sage-Grouse from the Proposed Action:

- BLM Environmental Constraints for Greater Sage-Grouse (CCSM Project ROD [BLM 2012a, p. D-1])
- Applicant Committed Measures A-1-01, A-1-08 through A-1-12, and A-1-22 through A-1-33
- Applicant Committed BMPs A-2-11 and A-3-94 through A-3-97
- Mitigation Measure WFM-1

As detailed in the Phase I Wind Turbine Development SPOD (PCW 2015a), PCW would implement the following additional measures to further minimize potential impacts to the Deadman Creek South lek:

- PCW will conduct all non-critical operation and maintenance activities within 0.25 mile of the Deadman Creek South lek before March 1 or after May 20. Critical operation and maintenance activities may include but are not limited to road, culvert, and erosion control repair; disabled vehicle repair or removal; and application of dust suppression.
- PCW will conduct all non-critical construction, operation, and maintenance activities that require use of the road located within 0.25 mile of the Deadman Creek South lek before March 1 or after May 20. Critical construction, operation, and maintenance activities may include but are not limited to unscheduled maintenance of wind turbines and electrical components; road, culvert, and erosion control repair; disabled vehicle repair or removal; and application of dust suppression.
- During the period from March 1 to May 20, PCW will conduct all critical, non-emergency, construction, operation and maintenance activities located within 0.25 mile of the Deadman Creek South lek or that require use of the road located within 0.25 mile of the Deadman Creek South lek between the hours of 9:00 a.m. and 6:00 p.m. Critical construction, operation and maintenance activities may include but are not limited to unscheduled maintenance of wind turbines and electrical components; road, culvert, and erosion control repair; disabled vehicle repair or removal; and application of dust suppression.

The Rawlins RMP (BLM 2008a) as amended by the Wyoming ARMPA for Greater Sage-Grouse (BLM 2015a), indicates that if a project results in habitat loss and degradation in Greater Sage-Grouse PHMAs, the BLM would require and ensure mitigation that results in a net conservation gain to the species. As identified, the Phase I Wind Turbine Development and infrastructure areas are located within GHMAs and immediately adjacent to PHMA. The BLM anticipates indirect impacts to PHMA and therefore, the BLM would develop a mitigation strategy for Greater Sage-Grouse to address the indirect impacts to habitat in PHMA within four miles of the project development and infrastructure areas. The mitigation strategy for these impacts to PHMA would be developed before an NTP is issued for the portions of the Phase I Wind Turbine Development that result in these impacts. The BLM may issue a separate NTP for the Phase I wind turbine generators, roads, and other facilities that are outside the four-mile lek buffer that do not result in impacts to PHMA. Any mitigation that includes a BLM action would be required to be analyzed in future NEPA documents.

The CCSM Project FEIS (BLM 2012b) considered a full range of mitigation options for Greater Sage-Grouse. The measures identified in this section would avoid, minimize, and compensate for the disclosed impacts to Greater Sage-Grouse habitat by maintaining, restoring, or enhancing Greater Sage-Grouse habitat to prevent listing of the Greater Sage-Grouse under the Endangered Species Act. By implementing the required mitigation identified in the Wyoming ARMPA, the impacts to Greater Sage-Grouse would be further minimized.

### ***Mountain Plover***

The CCSM Project FEIS (BLM 2012b, p. 4.15-16) discusses the impacts on mountain plover resulting from the CCSM Project. Potential impacts include disturbance during breeding periods, loss of nesting and brood-rearing habitat, and mortality from turbines and vehicle collisions. The CCSM Project FEIS (BLM 2012b) concludes that direct habitat loss, habitat alteration, and inadvertent mortalities from vehicle collisions are anticipated as a result of the CCSM Project (BLM 2012b, p. 4.15-17). The qualitative description of direct and indirect impacts on mountain plover, as described in the CCSM Project FEIS (BLM 2012b, pp. 4.15-16 and 4.15-17) are consistent with the direct and indirect impacts anticipated as a result of the Proposed Action of this EA.

Quantified impacts to mountain plover suitable habitat in the CCSM Project FEIS were based on a suitable habitat model developed in 2008 that relied on the vegetation mapping included in the CCSM Project FEIS (BLM 2012b). As described in Chapter 3 of this EA, PCW has since updated the suitable habitat map for mountain plover within the Phase I Wind Turbine Development Site. This model utilizes updated vegetation mapping from 2013, and also takes into account vegetative structure and height, important considerations based on the known preference of this species of open habitats with high total cover of bare ground. The resulting suitable habitat layer shows less suitable habitat for mountain plover than the suitable habitat layer used in the CCSM Project FEIS (BLM 2012b).

### ***Phase I Wind Turbine Development***

Using updated mapping for suitable habitat for mountain plover (see Section 3.9.2.2), the Proposed Action would result in approximately 172 acres of initial surface disturbance within suitable mountain plover habitat, 19 acres of which are proposed for long-term surface disturbance. The CCSM Project FEIS (BLM 2012b) discloses impacts to 1,386 acres of initial surface disturbance and 281 acres of long-term surface disturbance within suitable habitat for mountain plover using the original (more extensive) suitable habitat layer for the entire CCSM Project Area.

### ***Summary of CCSM Phase I Impacts to Mountain Plover***

The mountain plover analysis for the Infrastructure Component Site (BLM 2014a) is incorporated here by reference. Table 4-19 summarizes surface disturbance impacts on suitable mountain plover habitat within

the Phase I Wind Turbine Development Site, as well as the Infrastructure Component Site, and compares those impacts to the corresponding impacts disclosed for the CCSM Project (BLM 2012b). The impacts from the Phase I Wind Turbine Development are less than those identified in the CCSM Project FEIS and no significant impacts are anticipated.

**Table 4-19. Surface Disturbance Proposed within Potentially Suitable Mountain Plover Habitat**

Project Component	Refined Suitable Habitat Layer		CCSM Project FEIS Suitable Habitat Layer	
	Initial Disturbance (acres)	Long-Term Disturbance (acres)	Initial Disturbance (acres)	Long-Term Disturbance (acres)
Phase I Wind Turbine Development	172	19	1,386	281
Infrastructure Components	261	59		
<b>Total</b>	<b>433</b>	<b>78</b>		

Source: BLM 2012b.

CCSM Chokecherry and Sierra Madre

Mitigation Measures

The following environmental constraints, ACMs, Applicant Committed BMPs, and mitigation measures, described in Appendix D of the CCSM Project ROD (BLM 2012a), would be implemented to reduce impacts on mountain plovers from the Proposed Action:

- BLM Environmental Constraint for mountain plovers (CCSM Project ROD [BLM 2012a, p. D-1])
- Applicant Committed Measures A-1-01, A-1-02, A-1-08 through A-1-12, A-1-25, and A-1-26
- Applicant Committed BMPs A-3-94 through A-3-97
- Mitigation Measures WFM-1 and SSS-3

In addition, PCW will comply with the stipulations pertaining to mountain plover in the Wildlife Monitoring and Protection Plan (BLM 2012a, Appendix G).

**Raptors**

Potential impacts on raptors, as disclosed in the CCSM Project FEIS (BLM 2012b, pp. 4.14-18 through 4.14-26) include direct impacts such as fatalities, as well as indirect impacts associated with habitat loss and modification and displacement. The raptor mortality analysis as presented in the CCSM Project FEIS (BLM 2012b) is based largely on assumed collisions with turbines and guy wires, but the CCSM Project FEIS also discloses indirect impacts resulting from loss of habitat and displacement from/avoidance of construction and operations areas (BLM 2012b; pages 4.14-25 and 4.12-26). The raptor impact analysis contained in the CCSM Project FEIS is hereby incorporated by reference. Based on raptor nest surveys in 2011, 2012, 2013, and 2014 additional specificity regarding the extent and/or location of those potential impacts is presented here.

Impacts to raptor nests would be consistent with the findings presented in the CCSM Project FEIS (BLM 2012b). During construction, displacement of some raptor nesting activities would be possible with the potential for impacts decreasing with increased distance from construction activities. During operations it

is possible that impacts might be lessened and that raptor nesting activity could return to pre-construction levels.

As identified in Chapter 2, for four active raptor nests, PCW is requesting a waiver of the 2008 Rawlins RMP and ROD (BLM 2008a) restriction that does not allow well locations, roads, ancillary facilities or other surface structures requiring a repeated human presence within 825 feet of active raptor nests (1,200 feet of a ferruginous hawk nest). The impacts from this waiver on these species are considered in the analysis below.

### *Phase I Wind Turbine Development*

The CCSM Project FEIS (BLM 2012b) analysis of raptor use and potential impacts is based on data collected in 2008 for a CCSM Project alternative referred to as the Proponent Original Project Concept with Constraints, as described in Section 2.3.2 of the FEIS. Raptor use for this alternative, as presented in the CCSM Project FEIS, was 0.46 raptor observed/survey plot/20 minute survey period. Golden eagle use was presented as 0.11 golden eagle/survey plot/20 minute survey period. As these data were collected for the Proponent Original Project Concept with Constraints, much of which does not overlap with the Phase I Wind Turbine Development Site, this EA analyzes site-specific use within the Phase I Wind Turbine Development Site to enable a comparison to the impacts disclosed in the CCSM Project FEIS (BLM 2012b).

Site-specific raptor use within the Phase I Wind Turbine Development Site is calculated from the August 2012 to August 2013 800-meter raptor point count data. The April 2011 through July 2012 long-watch raptor survey data described in Chapter 3 were not used to characterize raptor use for purposes of direct comparison to the CCSM Project FEIS (BLM 2012b) because these surveys were designed for different purposes and used substantially different methods than the 2008 surveys used in the CCSM Project FEIS (BLM 2012b) analysis. Further, as described in Chapter 3, the April 2011 through July 2012 long-watch raptor data cover significant areas outside of the Phase I Wind Turbine Development Site.

As described in Chapter 3 of this EA, based on the August 2012 to August 2013 800-meter raptor point count data, use in the Phase I Wind Turbine Development Site was 0.047 raptors observed/survey plot/20 minutes of survey, 0.013 golden eagles observed/survey plot/20 minutes of survey, and 0.001 bald eagles observed/survey plot/20 minutes of survey. These values are approximately 10 times lower than the values presented in the CCSM Project FEIS (BLM 2012b) and indicate that impacts to raptors and eagles in the Phase I Wind Turbine Development Site would result in some direct injury or fatality of eagles but would not result in population-level effects. These impacts would be within those impacts disclosed in the CCSM Project FEIS and will likely be substantially lower.

In addition, as recommended by BLM in the CCSM Project FEIS and ROD, PCW has developed an ECP for Phase I of the CCSM Project (PCW 2015c). The Phase I ECP includes extensive avoidance, minimization, and conservation measures to avoid and minimize risks to eagles to the extent practicable, such that the remaining take is unavoidable. The Phase I ECP also details the compensatory mitigation measures developed by PCW to offset anticipated eagle fatalities, as required by the CCSM Project ROD (BLM 2012a) and as required by USFWS for an ETP. The CCSM Project ROD (BLM 2012a) indicated that the project had "the potential to kill a range of 46 to 64 eagles per year" (Page 3-1). However, the Phase I ECP includes updated eagle fatality modeling conducted by USFWS based on the avoidance and minimization measures developed by PCW in cooperation with the BLM and USFWS. At the 80 percent upper credible interval, the USFWS model predicts 10 or 14 golden eagle fatalities and 1.4-2 bald eagle fatalities annually for Phase I of the CCSM Project (PCW 2015c), which is substantially less than the potential impacts disclosed in the CCSM Project FEIS (BLM 2012b). The USFWS approved the issuance of ETPs relating to Phase I Wind Turbine Development on January 12, 2017 (USFWS 2017a).

Summary of CCSM Phase I Impacts to Raptors

The raptors analysis for the Infrastructure Component Site (BLM 2014a) is incorporated here by reference. The impacts from the Phase I Wind Turbine Development would be in addition to the impacts to raptors disclosed in the EA for Infrastructure Components (BLM 2014a). The raptor mortality analysis as presented above and in the CCSM Project FEIS (BLM 2012b) is based largely on assumed collisions with turbines and guy wires, while the impacts associated with the EA for Infrastructure Components (BLM 2014a) would be largely indirect, resulting from loss of habitat and displacement from/avoidance of construction and operations areas; therefore, a summation of impacts is not possible. However, based on the mortality analysis above and the potential for indirect impacts to raptors from the Infrastructure Component Site, the anticipated impacts to raptors from Phase I of the CCSM Project, including those impacts associated with granting the waiver of the no surface occupancy within 825 feet of active raptor nests (1,200 feet of a ferruginous hawk nest), would be less than those identified in the CCSM Project FEIS (BLM 2012b). Granting the waiver of the no surface occupancy with buffers for active raptor nests and ferruginous hawk nests would not constitute a significant impact using the significance criteria established on page 4.14-6 of the CCSM Project FEIS (BLM 2012b) and the impacts would be within those described in the CCSM Project FEIS.

Mitigation Measures

In addition to the compensatory mitigation measures included in the ECP, the following environmental constraints, ACMs, Applicant Committed BMPs, and mitigation measure, summarized in Appendix D of the CCSM Project ROD (BLM 2012a), would be implemented to reduce impacts on raptors from the Proposed Action:

- BLM Environmental Constraint for raptors (CCSM Project ROD [BLM 2012a, p. D-1])
- Applicant Committed Measures A-1-01, A-1-02, A-1-08 through A-1-12, and A-1-25 through A-1-31
- Applicant Committed BMPs A-3-94 through A-3-97
- Mitigation Measure WFM-1
- PCW has and will continue to conduct annual preconstruction surveys for raptors in accordance with the Wildlife Monitoring and Protection Plan included as Appendix G of the CCSM Project ROD (BLM 2012a).

The BBCS (PCW 2016a, amended July 2016) describes that information regarding active nest monitoring and nest status following the completion of construction, operations, and maintenance activities identified will be used as appropriate to inform adaptive management and is further intended to proactively adjust post-construction monitoring protocols, conservation measures, and BMPs when warranted. The adaptive management for Phase I will: (1) quantify thresholds that initiate adaptive management; (2) provide an opportunity for PCW to review the Phase I post-construction monitoring results and the observed take in context with the predicted take and to consult and coordinate as necessary with USFWS or WGFD; and (3) consider potential adaptive management actions in the event that adaptive management thresholds are exceeded (PCW 2016a).

Exception Process

Where appropriate, PCW intends to request an exception to the timing stipulations for raptor nests within the applicable buffer distances (0.75-mile for most raptor species/1 mile for golden eagle and ferruginous hawk) for construction of the CCSM Project. The BLM will consider an exception of this timing stipulation based on field surveys of the proposed exception at the time the request is made just prior to the start of construction. If necessary, the BLM will apply other mitigation on a site-specific basis. For

more information on the exception process, refer to Appendix 9 in the 2008 Rawlins RMP and ROD (BLM 2008a).

## **CHAPTER 5 – CUMULATIVE IMPACTS**

This EA is tiered to the analysis in the CCSM Project FEIS including the analysis of cumulative impacts for the entire CCSM Project (BLM 2012b; pages 5-1 to 5-60). Section 5.0.4 in the CCSM Project FEIS (BLM 2012b) identifies the past, present, and reasonably foreseeable actions considered in the cumulative impacts analysis for the CCSM Project; this analysis covers the actions that would contribute to the cumulative impacts of the Proposed Action analyzed in this EA. The BLM has reviewed the list of current and planned projects disclosed in Table 5.0-1 of the CCSM Project FEIS (BLM 2012b; pages 5-2 through 5-5), to determine if any new projects, not included in this Table, are applicable to this EA. No new reasonably foreseeable actions were identified. As a result, the reasonably foreseeable actions disclosed in the CCSM Project FEIS (BLM 2012b) are applicable to the Proposed Action of this EA. Therefore, the cumulative impacts anticipated from the Proposed Action are within the scope of the cumulative impact analysis disclosed in the CCSM Project FEIS (BLM 2012b). No additional cumulative impacts analysis is warranted for this EA.

Section 6.4.3 of the Final Programmatic EIS on Wind Energy Development on BLM-Administered Lands in the Western United States (BLM 2005) (Wind Energy PEIS) indicates that planning for new transmission would require interagency coordination and cooperation between federal agencies and the Western Governors' Association. The Wind Energy PEIS identifies issues the BLM should consider to mitigate potential cumulative impacts of building new transmission lines and feeder lines to connect wind power facilities to the grid. As identified in the CCSM Project FEIS (BLM 2012b), the BLM would incorporate information from the Wind Energy PEIS, such as Section 6.4.3, regarding related transmission line construction, into the project-specific NEPA analyses.

Table 5.0-1 in the CCSM Project FEIS (BLM 2012b) identifies all the projects considered in the FEIS cumulative impacts analysis, including four transmission line projects: Gateway South, Gateway West, TransWest Express, and Zephyr. The impacts identified in the Gateway South Draft EIS, Gateway West FEIS and ROD, and TransWest Express Draft EIS were considered in the CCSM Project FEIS cumulative impacts analysis and are within the range of impacts analyzed in Chapter 5 of the CCSM Project FEIS (BLM 2012b). For the Zephyr transmission project, the potential impacts for that project were also considered and within the impacts identified in the CCSM Project FEIS cumulative impacts analysis. No other transmission line projects, not already analyzed in the CCSM Project FEIS, are planned within or adjacent to the CCSM Project Area.

Table 5-1 summarizes the status of the current and future projects identified in the CCSM Project FEIS (BLM 2012b).

**Table 5-1. Status of Current and Planned Projects Identified in the CCSM Project FEIS**

Project	Owner/Proponent	Location	County	Timing in Relation to CCSM Construction (Existing, Concurrent, After)	Current Status
<i>Mining</i>					
Jonathon Project Limestone Quarry	Pete Lien	North of Laramie	Albany	Existing and Concurrent	No change
Lost Creek in situ Uranium Project	UR Energy	North of Rawlins/ Wamsutter	Sweetwater	Concurrent	No change
Medicine Bow Fuel & Power Coal-to-Liquids Project	Medicine Bow Fuel & Power	South of Medicine Bow	Carbon	After	Delayed, final completion in 2018
Other mine projects	Various	Various	Sweetwater, Carbon, Albany	After	No change
<i>Oil and Gas</i>					
Atlantic Rim Natural Gas Field Development Project	Anadarko E&P Company, and other operators	Atlantic Rim Project Area (ARPA)	Carbon	Existing and Concurrent	No change, ROD issued in 2007
Continental Divide-Creston Natural Gas Development Project Area	British Petroleum America Production company and other operators	N and S of I-80 near Wamsutter	Carbon, Sweetwater	Concurrent	No change, DEIS issued 12/2012; FEIS issued 4/18/2016
Desolation Flats Natural Gas Field Development Project	Marathon Oil Company and other operators	South Central Wyoming	Carbon, Sweetwater	Existing and Concurrent	No change, Decision Record issued 11/2013
Echo Springs TXP4 Gas Treatment Plant Expansion	Williams, Inc. dba Wamsutter LLC	Near Wamsutter	Carbon	Existing	No change
South Baggs Area Natural Gas Development Project	Merit Energy Company	South-central Carbon County, near the Wyoming/Colorado border	Carbon	After	No change, ROD issued in 2000
Other oil and gas projects	Various	Various	Sweetwater, Carbon, Albany	Existing and Concurrent	



Table 5-1. Status of Current and Planned Projects Identified in the CCSM Project FEIS

Project	Owner/Proponent	Location	County	Timing in Relation to CCSM Construction (Existing, Concurrent, After)	Current Status
<b>Road</b>					
Highway 71 Improvement Project	Department of Transportation	Rawlins south 53 miles to intersection with WSH 70	Carbon	Concurrent	No change
Other roads	Various	Various	Carbon	Existing and After	
<b>Transmission Line</b>					
Gateway South Transmission Project ( <a href="http://www.blm.gov/wy/st/en/info/NEPA/documents/hdd/gateway_south.html">http://www.blm.gov/wy/st/en/info/NEPA/documents/hdd/gateway_south.html</a> )	PacifiCorp Energy	Wyoming to central Utah	Carbon, Sweetwater	Concurrent	DEIS issued 2/2014; FEIS issued 05/12/16
Gateway West Transmission Project ( <a href="http://www.wy.blm.gov/nepa/cfodocs/gateway_west/">http://www.wy.blm.gov/nepa/cfodocs/gateway_west/</a> )	PacifiCorp Energy and Idaho Power	Windstar Substation at Glenrock, Wyoming, to the 20 miles southwest of Boise, Idaho	Converse, Natrona, Albany, Carbon, Sweetwater, Lincoln, and west into Idaho	Concurrent	ROD released 11/14/2013
TransWest Express Transmission Project ( <a href="http://www.blm.gov/pgdata/content/wy/en/info/NEPA/documents/hdd/transwest.html">http://www.blm.gov/pgdata/content/wy/en/info/NEPA/documents/hdd/transwest.html</a> )	TransWest Express LLC and Western Area Power Administration	South of Rawlins to Northwest Colorado, through Utah and terminating in Las Vegas, Nevada	Carbon, Sweetwater	Concurrent	Final EIS released 4/30/2015
Zephyr Transmission Project ( <a href="http://wyia.org/projects/transmission-projects/zephyr-project-ztp/">http://wyia.org/projects/transmission-projects/zephyr-project-ztp/</a> )	Duke American Transmission	Southern Wyoming and Idaho south to Las Vegas, NC	Carbon, Sweetwater	After	Preliminary ROW application filed with the BLM, delayed
Other transmission line projects	Various	Various	Carbon	Existing	

**Table 5-1. Status of Current and Planned Projects Identified in the CCSM Project FEIS**

Project	Owner/Proponent	Location	County	Timing in Relation to CCSM Construction (Existing, Concurrent, After)	Current Status
<i>Wind</i>					
Dry Creek Wind Power Project	Eurus Dry Creek LLC	North of Medicine Bow	Carbon	After	Withdrawn, within Greater Sage-Grouse core area; retesting area
Dunlap Wind Energy Project	PacifiCorp Energy	North of Medicine Bow	Carbon	Existing	No change
Foot Creek Wind Energy Project Phase I	SeaWest, PacifiCorp Energy, Eugene Water and Electric Board (EWEB), and Bonneville Power Administration (BPA)	Near Arlington	Carbon	Existing	No change
Foot Creek Wind Energy Project, Phases II, III, and IV	SeaWest, PacifiCorp Energy, EWEB, and BPA	Near Arlington	Carbon	Existing	No change
High Plains and McFadden Ridge Wind Energy Projects	PacifiCorp Energy	Near McFadden	Albany, Carbon	Existing	No change
Middlewood Wind Power Project	Eurus Middlewood Wind LLC	South-central Carbon County	Carbon	After	Withdrawn, within Greater Sage-Grouse core area; retesting area
Sand Hills Ranch Wind Farm	Shell Wind Energy LLC	Near Rock River	Albany	Concurrent	EA released to public 5/2011; Proponent working with USFWS to prepare an APP and ETP

**Table 5-1. Status of Current and Planned Projects Identified in the CCSM Project FEIS**

Project	Owner/Proponent	Location	County	Timing in Relation to CCSM Construction (Existing, Concurrent, After)	Current Status
Seven-Mile Hill Wind Energy Project	PacifiCorp Energy	West of Medicine Bow	Carbon	Existing	No Change
White Mountain Wind Energy Project	Teton Wind, LLC (subsidiary of Tasco Engineering)	Top of White Mountain, west, north-west of Rock Springs	Sweetwater	Concurrent	Cancelled
Other wind projects	Various	Various	Carbon	Existing	

APP Avian and Bat Protection Plan  
 ETP eagle take permit  
 USFWS U.S. Fish and Wildlife Service

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## CHAPTER 6 – CONSULTATION AND COORDINATION

### 6.1 Agency and Tribal Consultation

**U.S. Fish and Wildlife Service:** The BLM conducted programmatic consultation with the USFWS under Section 7 of the ESA as part of the CCSM Project EIS process. The BLM initiated formal consultation by submitting the Biological Assessment to the USFWS. The USFWS concluded consultation by signing a Biological Opinion on September 5, 2012. The Proposed Action falls within the scope of the programmatic consultation; therefore, consultation is considered complete. For documentation of this process and additional information, refer to the Final Biological Opinion (Appendix F of the CCSM Project ROD (BLM 2012a).

In addition, the BLM is a cooperating agency with USFWS in preparation of the EIS on the Phase I ETP application. As a result, the two processes, although distinct, are coordinated in that they are analyzing the same Phase I Wind Turbine Development for different purposes (issuance of a ROW grant by the BLM and issuance of an ETP by the USFWS). The USFWS is also a cooperating agency in this EA.

**Wyoming State Historic Preservation Office:** The BLM conducted consultation with the Wyoming SHPO under Section 106 of the NHPA as part of the CCSM Project EIS process. Class III surveys have been completed for Phase I of the CCSM Project and the results of the surveys were sent to the Wyoming SHPO. Consultation on the findings from the Class III cultural resource inventories is ongoing with the SHPO, as required in the *Programmatic Agreement Among the BLM, Wyoming State Historic Preservation Office, the Advisory Council on Historic Preservation, and Power Company of Wyoming, LLC Regarding Adverse Effects to Historic Properties Resulting from the Chokecherry and Sierra Madre Wind Energy Project in Carbon County, Wyoming*. The BLM notified the SHPO regarding the availability of this EA and the opportunity to review and comment during the public review period.

**Tribal Consultation:** The BLM initiated Government-to-Government consultation with four potentially affected and interested Native American Tribes as part of the CCSM Project EIS process on July 25, 2008. As a result of the consultation request, tribal meetings were held in the summer of 2009, and included the addition of one more tribe. These Native American Tribes included the Northern Cheyenne, Eastern Shoshone, Northern Arapaho, Fort Peck Assiniboine and Sioux, and Northern Ute tribes. The BLM conducted a Class II sample survey of areas with the potential for archaeological sites of traditional, cultural, and/or religious importance. The BLM requested the tribes become consulting parties to the Programmatic Agreement and transmitted the final Programmatic Agreement to the Tribes for signature on August 16, 2012. For documentation of this process and additional information refer to Section 4 of the CCSM Project ROD (BLM 2012a). On April 26, 2013, the BLM sent letters to the Tribes updating them on the SPODs, inviting them to continue consultation on the CCSM Project as well as inviting the Tribes to participate in the Class III cultural resource inventories. In addition to the letters identified above, the BLM has continued consultation through letters and numerous phone conversations and emails with the five tribes throughout the CCSM Project. On October 16, 2015, the BLM hosted and participated in a tribal consultation meeting with the USFWS in the BLM Rawlins Field Office. As result of the meeting, the BLM provided an additional review period to the tribes for comment and coordination on the PA.

### 6.2 Summary of Public Participation

On March 9, 2016, the BLM posted notification of this EA on the BLM RFO website and its availability for a 30-day public review period, which was extended until May 6, 2016. The BLM issued a news release and sent notifications regarding the availability of this EA and its review period to local governments, individuals, non-governmental organizations, allotment holders, and other stakeholders on

the project mailing list. Two public meetings were held on March 28 and 29, 2016 in Saratoga and Rawlins, Wyoming, respectively. The BLM received a total of 40 comment letters, which contained a total of 201 substantive individual comments. The BLM entered the comments into a spreadsheet, categorized them by the topic or resource area they addressed, and prepared a response to each comment. The BLM revised the EA as needed based on the comments.

The BLM held two scoping meetings in conjunction with the USFWS on December 16 and 17, 2013 in Rawlins and Saratoga, Wyoming, respectively. The meetings provided an opportunity for the public and interested parties to ask questions one-on-one with the BLM and USFWS specialists, view maps and posters detailing the site-specific phases of the CCSM Project, and provide written comments. Refer to Chapter 1 (*Introduction and Need for Proposed Action*) of this EA for information on the scoping process used to identify potential significant issues in preparation for the impact analysis in this EA.

### **6.3 List of Preparers**

In coordination with the BLM, PCW prepared this EA with the assistance of its consultant ICF International. PCW, ICF, and the BLM coordinated throughout the preparation process. The BLM reviewed the EA and PCW and ICF revised the document as needed prior to public distribution in response to the BLM’s comments. The BLM has made its own evaluation of the environmental issues pertaining to the Proposed Action and takes responsibility for the scope and content of this EA. Table 6-1 identifies the preparers of this EA.

**Table 6-1. List of Preparers**

<b>Name</b>	<b>Discipline</b>	<b>Organization</b>
Heather Schultz	Project Manager	BLM Rawlins Field Office
Dennis Carpenter	Field Office Manager	BLM Rawlins Field Office
Nancy Baker	Assistant Field Manager, Mineral and Lands	BLM Rawlins Field Office
Bonni Bruce	Archaeology	BLM Rawlins Field Office
Heath Cline	Wildlife and Special Status Species	BLM Rawlins Field Office
Susan Foley	Soils/Weeds/NEPA	BLM Rawlins Field Office
Maureen Hartshorn	Reclamation	BLM Rawlins Field Office
David Hullum	Recreation and Scenic Trails; Visual Resources	BLM Rawlins Field Office
Lynn McCarthy	GIS	BLM Rawlins Field Office
Cheryl Newberry	Range/Vegetation	BLM Rawlins Field Office
Michael Oberndorf	Cultural Resources	BLM Rawlins Field Office
Raymond Ogle	Reclamation	BLM Rawlins Field Office
Kelly Owens	Hydrologist	BLM Rawlins Field Office
Thomas Powell	GIS	BLM Rawlins Field Office
Brandon Snyder	Realty	BLM Rawlins Field Office
Garry Miller	Vice President – Land and Environmental	Power Company of Wyoming
Kelly Cummins	Environmental Engineer	Power Company of Wyoming
Roxane Perruso	Vice President and General Counsel	Power Company of Wyoming

**Table 6-1. List of Preparers**

<b>Name</b>	<b>Discipline</b>	<b>Organization</b>
Kara Choquette	Public Relations and Communications	Power Company of Wyoming
Ryan Jacobson	Director – Engineering and Construction	Power Company of Wyoming
Mike Johnsen	GIS Manager	Power Company of Wyoming
Mark Degner	Project Director	ICF
Madeline Terry	Project Manager	ICF
Lucas Bare	Deputy Project Manager	ICF
Karen Crawford	Cultural Resources	ICF
Lissa Johnson	GIS	ICF
Jenna Wheaton	Cultural Resources	ICF
Kristin Salamack	Biological Resources	ICF
Jeremy Call	National Historic and Scenic Trails	Logan Simpson Design
Jon Kehmeier	Biology/Ecology	SWCA
Nate Wojcik	Ecology/Soils and Reclamation	SWCA
Norma Crumbley	Cultural Resources	SWCA

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