

4.0 CUMULATIVE EFFECTS

Cumulative effects are defined as “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such actions” (40 CFR Part 1508.7). This section presents a discussion of the potential cumulative effects associated with Gateway West and is presented in the following four parts:

- the basis for the assessment, including the regulatory framework, the list of potentially relevant actions, and the process and criteria used in selecting relevant actions for this evaluation;
- a summary table and brief descriptions of the relevant past, present, and reasonably foreseeable actions that could contribute to a cumulative effect when considered with the effects from Gateway West;
- the potential cumulative effects associated with the Proposed Route or other routes when considered together with the relevant past, present, and reasonably foreseeable actions; and
- the conclusions reached in this evaluation.

Based on the regulatory framework, the assessment area, the issues raised during and after scoping, and the list of projects presented here, a cumulative impact analysis was conducted for each resource analyzed in Chapter 3. The conclusions reached in each of those analysis segments are presented here. This chapter also addresses the cumulative effects of proposed RMP/MFP amendments where the proposed amendment would change land use allocations.

4.1 Basis for Assessment

4.1.1 Regulatory Framework

This evaluation of potential cumulative effects from the Proposed Action is consistent with the following regulations and guidance:

- *CEQ Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act* (40 CFR Part 1500-1508, 1978 as amended) (CEQ 1986);
- *USEPA's Procedures for Implementing the Requirements of the Council on Environmental Quality on the National Environmental Policy Act* (40 CFR Part 6 [2009]);
- *CEQ's Considering Cumulative Effects under the National Environmental Policy Act* (January 1997) (CEQ 1997b);
- *USEPA's Consideration of Cumulative Impacts in EPA Review of NEPA Documents*, EPA 315-R-99-002 (May 1999); and
- *Bureau of Land Management National Environmental Policy Act Handbook*, H-1790-1 (2008c).

The 2013 ROD for the Gateway West Project (BLM 2013b) includes project-wide mitigation for the greater sage-grouse, wetlands, and cultural resources. This SEIS also addresses mitigation for impacts on the SRBOP, and mitigation for those impacts. The requirement for mitigation for impacts to the SRBOP's resources, objects, and values, including compensatory mitigation to ensure enhancement of these resources, would be consistent with the BLM's management responsibilities under FLPMA (P.L. 94-579) and enabling act for the SRBOP. This management approach would also be consistent with the Presidential Memorandum on mitigation, the DOI's manual section on landscape-scale mitigation (DOI 2015), and the BLM's interim mitigation policy (IM 2013-142), which direct the BLM to avoid, minimize, and compensate for impacts. The BLM's policy manual on the management of NCAs (Manual Section 6220) also requires mitigation for impacts from ROWs. Refer to Appendix K for a discussion of mitigation for resources in the SRBOP.

4.1.2 Scope of the Analysis

The BLM has developed seven action alternatives that each consist of a different combination of route options along Segments 8 and 9. This SEIS assesses each individual route option along Segments 8 and 9 independently, as well as when these routes are combined within these seven BLM action alternatives. The SEIS' assessment of individual route options considers these various routes as a separate project segment, and all aspects of the Project that would be connected to that segment are disclosed by route, such as access roads and temporary staging areas.

The seven BLM action alternatives are displayed in Chapter 2, Figures 2.3-4a through 2.3-4g and outlined here:

- Alternative 1 – Proposed Action (the Revised Proposed Routes for Segments 8 and 9)
- Alternative 2 – Revised Proposed 8 and FEIS Proposed 9
- Alternative 3 – Revised Proposed 8 and the 9K Route
- Alternative 4 – The 8G Route and FEIS Proposed 9
- Alternative 5 – The 8G and 9K Routes
 - Two variations were identified for Alternative 5: the Helicopter-Assisted Construction Variation and the WWE Corridor Variation
- Alternative 6 – The 8H Route and FEIS Proposed 9
- Alternative 7 – The 8H and 9K Routes

Full descriptions of the seven action alternatives can be found in Chapter 2, Section 2.3.3.

The BLM has identified Alternative 5, with the inclusion of Toana Road Variation 1, as the Preferred Alternative for Segments 8 and 9.

For the purposes of this analysis, the **temporal extent** of the projects to be considered is the expected physical operational service life of this Project (approximately 50 years), plus the estimated 10 years needed for substantial site rehabilitation after

decommissioning is completed. Past and present events and projects are generally identified and their ongoing impacts discussed. “Reasonably foreseeable actions” are proposed projects or actions that have applied for a permit from local, state, or federal authorities or which are publicly known.

The **spatial extent** of the projects considered in the cumulative effects analysis varies by resource. In several cases, the Cumulative Impact Analysis Area (CIAA) for a resource is substantially larger than the corresponding project-specific Analysis Area.

Table 4.1-1. Cumulative Impact Analysis Area by Resource

Resource	Definition of Cumulative Impact Area	Rationale for Area
National Historic Trails	5 to 15 miles from the Direct Impact Cumulative Impact Analysis Area (CIAA).	Farthest distance within which this Project could be visible, given visual attenuation in this Project area.
Visual	5 to 15 miles from the CIAA.	Farthest distance within which this Project could be visible, given visual attenuation in this Project area.
Cultural	CIAA for cultural resources without Traditional Cultural Property (TCP) or visual components; for resources for which setting is a component of eligibility, including TCPs, up to 5 miles from the CIAA.	Likely area impacted includes the proposed maximum right-of-way (ROW) width (250 feet) and a buffer for direct effects and the area from which this Project could generally be viewed for visual impacts.
Socioeconomics	Counties crossed by Proposed Route and other routes.	Corresponds with the direct and indirect socioeconomic CIAA and includes the constituent municipalities and potentially affected populations.
Environmental Justice	Counties and Census Block Groups crossed by Proposed Route and other routes.	Corresponds with the direct and indirect environmental justice CIAA.
Vegetation	CIAA.	Adequately covers the proposed disturbance footprint.
Special Status Plants	CIAA and any area of known plant population or suitable habitat crossed by the CIAA.	Potential to damage sensitive plant populations or reduction of habitat available for plants
Invasive Plant Species	Counties crossed by the CIAA.	Area in which introduction or spread of invasive plant species from this Project could interact with weeds already present or introduced or spread by other projects; political unit where weed control is required and regulated.
Wetlands and Riparian Areas	CIAA and the extent of each mapped wetland or riparian area crossed by the CIAA.	Dredge or fill in wetlands, impact to riparian areas.
General Wildlife and Fish: Big game wintering habitat	Mapped extent of herd unit areas of crucial wintering crossed by the CIAA.	Area of potential critical stress for ungulate populations.
General Wildlife and Fish: Raptor nests	Raptor nests within 1 mile of the CIAA.	Reasonable distance beyond which construction or operation of this or other projects is unlikely to disturb nesting birds.

Table 4.1-1. Cumulative Effects Analysis Area by Resource (continued)

Resource	Definition of Cumulative Impact Area	Rationale for Area
General Wildlife and Fish: <i>Migratory birds</i>	CIAA plus 0.5-mile buffer	Reasonable distance beyond which construction or operations of this or other projects is unlikely to disturb nesting birds.
Special Status Wildlife and Fish: <i>bald eagle</i>	Known locations of eagle nests and suitable winter roosting habitat within 10 miles of the CIAA.	Potential habitat
Special Status Wildlife and Fish: <i>BLM Special Status Fish Species</i>	Water bodies within or crossed by the CIAA that contain BLM special status fish species.	Potential habitat.
Special Status Wildlife and Fish: <i>burrowing owl</i>	Known extent of breeding populations and identified suitable habitat for the species that are overlapped by the CIAA.	Potential habitat.
Special Status Wildlife and Fish: <i>Columbian sharp-tailed grouse</i>	Distance from leks: 0.25 mile of the CIAA	BLM “no surface occupancy” land use designation, as designated within the various BLM RMPs at the time of initial Project design (2008).
	Distance from leks: 0.6 mile of the CIAA	Based on current “no surface occupancy” requirements.
	Distance from leks: 2 miles of the CIAA	Based on the average distance (or more) that nesting and brood rearing usually occurs in relation to leks (Giesen and Connelly 1993; Meints 1991; UDNR 2010).
Special Status Wildlife and Fish: <i>Columbia spotted frog, northern leopard frog, and Woodhouse toad</i>	Mapped riparian and wetland polygons that are overlapped by the CIAA.	Potential habitat.
Special Status Wildlife and Fish: Federally listed invertebrate species	Designated recovery areas for these species that are overlapped by the CIAA.	Extent of occupied habitat.

Table 4.1-1. Cumulative Effects Analysis Area by Resource (continued)

Resource	Definition of Cumulative Impact Area	Rationale for Area
Special Status Wildlife and Fish: <i>greater sage-grouse</i>	Key and restoration habitat polygons that are crossed by the CIAA (Idaho).	Areas mapped by the Idaho Department of Fish and Game (IDFG) and the BLM as areas of generally intact sagebrush that provide sage-grouse habitat during some portion of the year including winter, spring, summer, late brood-rearing, fall, transition sites from winter to spring, spring to summer, and summer/fall to winter.
	Distance from leks: area within 0.25 mile of known greater sage-grouse lek	The BLM “no surface occupancy” requirements for non-Core Areas as found in the BLM RMPs.
	Distance from leks: area within 0.6 mile of known greater sage-grouse lek	Based on current “no surface occupancy” requirements found in BLM Instruction Memorandum (IM) 2012-019.
	Distance from leks: area within 1 mile of known greater sage-grouse lek	An intermediate distance (between other required distances) assessed due to the uncertainty regarding regulatory requirements for greater sage-grouse lek avoidance.
	Distance from leks: area within 2 miles of known greater sage-grouse lek	Based on the Conservation Plan for the Greater Sage-grouse (Connelly et al. 2000; IDFG 2006).
	Distance from leks: area within 3 miles of known greater sage-grouse lek	An intermediate distance (between other required distances) assessed due to the uncertainty regarding regulatory requirements for greater sage-grouse lek avoidance.
	Distance from leks: area within 4 miles of known greater sage-grouse lek	As required by BLM IM (BLM 2009b).
	11-mile buffer around the Project (22-mile-wide analysis corridor)	Based on the requirements of BLM IM (BLM 2009b), and the Framework for Sage-Grouse Impacts Analysis for Interstate Transmission Lines (BLM 2011b).
Special Status Wildlife and Fish: <i>Designated Critical Habitat for the Jarbidge River bull trout</i>	The extent of the designated critical habitat for the Jarbidge River bull trout that is crossed by the CIAA.	Extent of designated critical habitat.
Special Status Wildlife and Fish: northern goshawk	Known extent of breeding populations as well as identified suitable habitat for the species that are crossed by the CIAA.	Potential habitat.

Table 4.1-1. Cumulative Effects Analysis Area by Resource (continued)

Resource	Definition of Cumulative Impact Area	Rationale for Area
Special Status Wildlife and Fish: pygmy rabbit	Known occurrences and identified suitable habitat for the species crossed by the CIAA.	Areas of known occurrences mapped by the BLM, as well as suitable habitat mapped by Project-specific remote sensing.
Special Status Wildlife and Fish: <i>yellow-billed cuckoo</i>	Extent of suitable habitats, mapped through remote sensing crossed by the CIAA.	Potential habitat.
Other BLM Special Status Species <i>not addressed individually</i>	Known extent of populations as well as identified suitable habitat for these species that are crossed by the CIAA.	Potential habitat.
Geologic hazards	A distance of 100 miles on either side of the transmission line. All other hazards (landslide, subsidence, shallow depth to bedrock), the geologic unit with hazard where that extent is overlapped by the CIAA.	Likely earthquakes in the Project area would not affect transmission lines more than 100 miles from an epicenter. Other hazards are based on the geologic unit in which they occur.
Minerals	Areas of active resource extraction for saleable minerals where that extent is overlapped by the CIAA.	Potential for impact on saleable mineral extraction, and the potential for resource extraction impacts to interact with ground-disturbing effects from this and other projects.
Paleontology	Fossil-bearing formations where the formation is overlapped by the CIAA.	Potential for impact to fossil-bearing formations.
Soils	Sensitive soil areas (highly erodible, highly susceptible to compaction, and other low reclamation soils) that are overlapped by the CIAA.	Impact restricted to immediate Project area.
Water	Watersheds of waterbodies overlapped by the CIAA with impacts in or adjacent to the waterbody.	Impact from Project may affect areas lower in watershed; all projects in watershed need to be considered.
Land Use	BLM: Resource Management Plan Area crossed by CIAA. Private: County and municipality crossed by CIAA.	Level at which land use regulations, plans, or authorizations are in effect.
Agriculture	The counties crossed by Segments 8 and 9.	Areas of contiguous farmland, while not necessarily under one ownership, typically are part of a local community.
Transportation	Airports within 3 miles of transmission line centerline. Length and number of existing roads used for Project. Length and number of existing roads to be reconstructed or new roads to be built for the Project.	Airport distance defined by controlled airspace; roads area varies by type of road.

Table 4.1-1. Cumulative Effects Analysis Area by Resource (continued)

Resource	Definition of Cumulative Impact Area	Rationale for Area
Air Quality	Statewide air quality area.	To provide an understanding of current air quality in Idaho, to identify present projects that contribute to air quality degradation, and to understand how the electric generation carried by the Gateway West and other transmission lines, present and proposed, contribute to air quality issues.
Electrical Environment	ROW width.	Electrical effects, including magnetic field and stray voltage, do not occur outside the ROW (see Section 3.21).
Public Health and Safety	Areas occupied by people where crossed by CIAA.	Construction and operation of the transmission line may affect the health and safety of people.
Noise	Construction: 1,000 feet from construction noise sources; Operation: ROW width.	Areas beyond which no noise from construction or operation of Gateway West would be detectable above USEPA recommended levels (see Section 3.23).
SRBOP	SRBOP	Potential for impact to the SRBOP.

4.1.3 Land Management Plan Amendments

In several cases, the Preferred Alternative (Alternative 5) and other routes would be incompatible with land allocation classifications (frequently but not exclusively VRM classifications) assigned to the federally managed lands they would cross. Chapter 2 summarizes all plan amendments, Appendix F contains details and analysis of each proposed amendment to BLM land management plans, and Appendix G contains maps and visual analysis documentation, including photographs and simulations, in support of the amendments analyses for BLM land management plans.

The purpose of this section is to examine the possible cumulative effects to resources of the various plan amendments that would be necessary to permit the Project. These amendments are connected actions to the Project (“but for” the Project, these amendments would not be considered). The possible cumulative effects of the amendments themselves are addressed here, separately from the Project cumulative effects but considered with them, because the decision whether to approve plan amendments is a separate decision under the law for the BLM.

In some cases, the amendments to the land management plans are designed to allow the Project to be constructed and operated without changing the underlying land allocations. Where that is the case, the cumulative effects of the plan amendment are fully captured in the cumulative effects of the Project itself. The effects of those amendments are considered in detail by resource, below, but not addressed further in this section. For amendments that would change the underlying management of the area, the resultant plan amendment could have cumulative effects beyond the Project cumulative effects. The impact of the underlying land use allocation revision is analyzed in this section across the extent of the polygon proposed for revision. For example, if a polygon mapped as VRM Class II is proposed to be changed to VRM

Class III, the impact of that change is taken into consideration as part of the cumulative effects of the Project.

4.1.3.1 Twin Falls Management Framework Plan

Proposed Amendments for the Preferred Alternative: Actions that occur on lands managed by the Burley Field Office are guided by decisions recorded in the Twin Falls MFP approved in 1982, and in the 1989 Salmon Falls Creek ACEC designation amendment. The MFP does not permit powerlines to the east or west of the two established corridors and designates land that would be crossed by the Gateway West transmission line as VRM Class I and II. The 1989 amendment restricts activities within the designated Salmon Falls Creek ACEC. The ACEC also includes a portion of Salmon Falls Creek that has been determined to be eligible for WSR status.

The routing for the Segment 9 portion of the BLM Preferred Alternative (Alternative 5) through lands managed under the Twin Falls MFP has not changed from the route presented in the FEIS. The Segment 9 portion of the Preferred Alternative would not conform to the Twin Falls MFP and would require a plan amendment to the Twin Falls MFP for granting of a ROW for the Project across lands managed by the Burley Field Office. The Twin Falls MFP allows new utilities to be constructed within and between existing corridors and protects visual resources adjacent to Salmon Falls Creek. These MFP decisions would be revised to allow development of this Project.

Proposed Amendment SEIS-1 (Figure F-2 in Appendix F) for Segment 9 of the Preferred Alternative would rewrite the “Land 4.1” decision to allow the development of this Project (changes in italics):

“Allow future major power transmission lines (line of at least 46-138 kV which originate and terminate outside of the MFP area) to be constructed within the recommended corridors. Also allow construction of transmission lines between the corridors. Do not permit power lines to the west or the east of the two corridors. *Allow a 500-kV transmission line ROW outside existing corridors.* Exempt service lines from restriction.”

This amendment to allow the Project outside of the two existing corridors would be required; however, this amendment would not change the underlying land management. Therefore, the cumulative effects resulting from this amendment would be the same as those described for the Project.

The Twin Falls MFP contains direction for managing visual resources that would restricts powerline construction, including direction to manage the Salmon Falls Canyon as VRM Class I between Salmon Falls Dam and Lilly Grade, and VRM Class II between Lilly Grade and Balanced Rock. The Twin Falls MFP Amendment in 1989 designating the Salmon Falls Creek ACEC prohibits the utilities from crossing of the Salmon Falls Creek ACEC. The 1989 Plan Amendment to the Twin Falls MFP regarding the establishment of the Salmon Falls Creek ACEC states the following:

“2. The ACEC is subject to the following resource management restrictions: (1) exclude livestock grazing, (2) avoid all utility rights-of-way, (3) close to

agricultural entry, (4) close to all motorized vehicle use, and (5) prohibit mechanized fire suppression equipment.”

The 1989 amendment also states that management of the Salmon Falls Creek ACEC in the Twin Falls Resource Area would be the same as for the adjacent portion of the ACEC in the Jarbidge Resource Area. The 2015 Jarbidge RMP established the Roseworth Corridor, which crosses the ACEC, and reclassified the Class I and II areas within the corridor to VRM Class III. Therefore, amendments are proposed to change the adjacent area in the Twin Falls portion of the corridor to VRM Class III to match the VRM class in the Jarbidge RMP and to allow a 500-kV transmission line to cross Salmon Falls Canyon through the ACEC, consistent with the corridor established in the Jarbidge 2015 RMP.

The Segment 9 portion of the Preferred Alternative would require an amendment to the Twin Falls MFP VRM classification and Amendment (1989) regarding the establishment of the Salmon Falls Creek ACEC.

Proposed Amendment SEIS-2 (Figure F-2 in Appendix F) for Segment 9 of the Preferred Alternative would amend the VRM direction:

“The Class I and II areas adjacent to the Roseworth Corridor (established by the 2015 Jarbidge RMP) will be reclassified to match the VRM classes in the Jarbidge RMP.”

Amendment SEIS-2 would also amend the Twin Falls MFP and 1989 Plan Amendment regarding the management of the Salmon Falls Creek ACEC:

“Allow a 500-kV Transmission Line Project to cross Salmon Falls canyon through the ACEC, consistent with the corridor established in the 2015 Jarbidge RMP.”

The creation of the Roseworth Corridor through the Recreation portion of the WSR, with a VRM Class III, could result in additional development in the corridor, including another transmission line, although no foreseeable projects are currently proposed.

Amendments for Other Routes: FEIS Proposed 9 and the Segment 9 Revised Proposed Route would follow the same alignment as the Segment 9 portion of the Preferred Alternative through the Twin Falls MFP planning area; therefore, the amendments and their effects would be the same as described above.

4.1.3.2 Jarbidge Resource Management Plan

Proposed Amendments for the Preferred Alternative: Under the 2015 Jarbidge RMP, no amendments would be needed for the Preferred Alternative (Alternative 5) including Toana Road Variation 1.

Amendments for Other Routes: The Segment 9 Revised Proposed Route is the same as the route proposed in the FEIS for much of its distance through the Jarbidge RMP planning area. The revised route deviates from the FEIS routing in the western edge of the area managed under the 1987 Jarbidge RMP.

The Segment 8 Revised Proposed Route would cross land managed as a utility restricted area. Because a powerline would not conform to this restriction, an amendment (SEIS-3) would be needed for the Lands decision to read (new language in italics):

“MUA-3 Utility avoidance/restricted area – three Paleontological areas (Sugar Bowl, Glens Ferry, & McGinnis Ranch) and Oregon Trail ruts (7,200 acres/22.5 miles) to overhead and surface disturbance and underground utilities. The current Lands decision is amended to reclassify the area identified as restricted in Section 35, T. 04 S., R. 09 E. to allow the overhead lines of a 500-kV powerline right of way, while protecting the Oregon Trail ruts.”

The Segment 8 Revised Proposed Route would cross lands managed to protect NHTs, which would not allow “incompatible uses to occur within a ½ mile corridor through which these routes pass.” Because a powerline would not conform to this restriction, an amendment (SEIS-4) would be needed for the Cultural Resources direction in the 1987 Jarbidge RMP. The amendment would read (revisions in italics):

“The existing ruts of the main route, north and south alternate routes of the Oregon Trail and Kelton Road will be protected by not allowing incompatible uses to occur within ½ mile corridor of ruts except where visual impacts are already compromised. Protect existing trail ruts from surface disturbance.”

The Segment 8 Revised Proposed Route would cross VRM Class I land associated with the Oregon NHT, which is not part of the WWE corridor. As a powerline would not conform to the VRM Class I objectives, a new VRM decision (SEIS-5) would be needed and would read (new language in italics):

“The visual or scenic values of the public lands will be considered whenever any physical actions are proposed on BLM lands. The Degree of alterations to the natural landscape will be guided by the criteria established for the four Visual Resource Management Classes as outlined in BLM 8400. VRM Classes will be managed as shown on Map 9. The VRM decisions and Map 9 are amended to accommodate a major powerline R/W. These VRM boundaries are modified according to the new manual to reclassify the VRM Class I area associated with Oregon Trail and the Proposed 500-kV line as VRM Class IV.”

The Revised Proposed Route in Segment 9 would cross VRM Class II just west of the SRBOP. An amendment (SEIS-14) would be needed to conform to the VRM designations in the 1987 Jarbidge RMP and would read (new language in italics):

“The VRM decision and Map 9 are amended to accommodate a major powerline R/W. The VRM Classification is amended to change the VRM Class to VRM Class III, adjacent to the proposed line, where the towers would be visible and dominate the landscape.”

In areas where the VRM class is changed from Class I or II to Class III or IV, an amendment would result in the area being managed at a lower protection level. Amending the RMP to lower the VRM classification may encourage additional development in these areas.

In the area near the Oregon NHT in the Jarbidge Field Office, ownership is complex, with primarily private lands in the Glenn's Ferry area and along the Snake River and BLM-managed lands predominating in the foothills. Changing the VRM Class I area near Segment 8 to VRM Class IV would be in keeping with guidance from the 2014 BLM Manual 6280. This area has already been visually compromised by the presence of multiple transmission lines running to the north and south of the proposed alignment. In addition, there is a WWE corridor designated directly south of the proposed transmission line alignment. Reclassification of the small parcel of land near the SRBOP is fairly small, and the topography and distance requirements are unlikely to provide added incentives for additional powerlines through this area.

The revision of VRM classes and reclassification of the area from "restricted" to "avoidance" along the Segment 8 Revised Proposed Route would also allow for an additional transmission line immediately parallel to the proposed Project without additional plan amendments. While there are currently no other transmission lines in the eastern VRM reclassification areas, there are existing lines in the northeast portion of the section where the land management objective would be changed from "restricted" to "avoidance." The areas that would be changed are isolated from one another, however, and often adjacent to private land not managed for VRM objectives. While VRM objectives would be relaxed somewhat, it still is an area where utilities are discouraged. Other RMP objectives, including those for preservation of the Oregon Trail and the paleontological areas, would still be in place and any additional disturbance would have to either avoid or mitigate for impacts to the other resources. Therefore, the cumulative effects of the plan amendment would be minimal.

Route 8H would also cross the area managed under the 1987 Jarbidge RMP. The amendment changing the VRM class from VRM II to VRM III near the C.J. Strike SRMA described for Revised Proposed Route in Segment 9 above would also be required for this route.

4.1.3.3 SRBOP Resource Management Plan

Proposed Amendment for the Preferred Alternative: Both segments of the Preferred Alternative (Alternative 5) would require an amendment to allow the Project to occur closer to occupied sensitive plant habitat than what is currently allowed.

Proposed Amendment SEIS-8 (Figure F-3 in Appendix F) would read (new language in italics):

"Sensitive Plant Habitat Include in all BLM authorizations permitting surface disturbing activities (non-grazing), requirements that (1) affected areas be reseeded with a perennial vegetative cover, and (2) surface disturbing activities be located at least 1/2 mile from occupied sensitive plant habitat. Gateway West will be allowed within 0.5 mile of occupied, sensitive plant habitat, with appropriate mitigation to protect sensitive plants, including slickspot peppergrass."

While the amendment would result in changing management objectives for the sensitive plant, it would do so specific to Project action areas; it would then have project-level

cumulative effects and would not result in cumulative effects of management-level change that would apply to areas outside of the Project.

Both segments of the Preferred Alternative are outside of the two utility corridors. **Proposed Amendment SEIS-13** (Figure F-3 in Appendix F) for the Preferred Alternative would amend the Utility and Communications Corridors Management action to allow development of this Project (changes in italics):

“Restrict major utility developments to the two utility corridors identified (Lands Map 3) and allow additional major transmission line ROWs as applicable with laws and values for which the SRBOP NCA was designated. Allow two additional 500 kV transmission line ROWs to leave the WWE corridor and exit the SRBOP NCA due south of Bruneau Dunes State Park.”

An amendment to allow the Project outside of the two existing corridors would be required; however, this amendment would not change the underlying land management. Therefore, the cumulative effects resulting from this amendment would be the same as those described for the Project.

Amendments for the Other Routes: Route 8G, Segment 9 Revised Proposed Route, Segment 9 Revised Proposed Route, and FEIS Proposed 9 would also need an amendment to allow those routes to occur closer to occupied sensitive plant habitat than what is currently allowed. The cumulative effects would be the same as described above.

The Segment 9 Revised Proposed Route, Route 9K, FEIS Proposed 9, Route 8H, Route 8G, and Alternative 5 WWE Corridor Variation would also occur outside of the two utility corridors, so would require a similar amendment described above for the Preferred Alternative; however, amendments (SEIS-7, SEIS-20, SEIS-21, and SEIS-22) would be written to allow one additional ROW. Similarly, the Segment 8 Revised Proposed Route would require a similar amendment described above allowing an additional ROW. The cumulative effects would be the same as described above.

The Segment 9 Revised Proposed Route and Route 8H would pass through the northwestern edge of the Cove non-motorized area, which is closed to motorized vehicle access. An amendment (SEIS-19) would be required allowing authorized use that would impact the underlying land use, which could result in cumulative impacts if authorized uses other than the Project were allowed.

The Segment 9 Revised Proposed Route and Route 8H would cross through two SRMAs. Amendments (SEIS-16 and SEIS-17) would be required, and while an amendment would result in changing management objectives for the SRMAs, it would do so specific to Project action areas; it would then have project-level cumulative effects and would not result in cumulative effects of management-level change that would apply to areas outside of the Project.

The Segment 9 Revised Proposed Route and Route 8H would require amendments (SEIS-15 and SEIS-18) for a VRM areas to be changed to Class III to allow for the Project. If the resultant change to Class III allowed for additional development

cumulative impacts could occur, although no foreseeable projects are currently proposed.

4.1.3.4 Bennett Hills/Timmerman Hills Management Framework Plan

Proposed Amendments for the Preferred Alternative: No amendments would be needed for the Preferred Alternative (Alternative 5).

Amendments for the Other Routes: The Segment 8 Revised Proposed Route through the area managed under the Bennett Hills/Timmerman Hills MFP is the same as was presented in the FEIS. The associated analysis is repeated here. The Segment 9 Revised Proposed Route crossing of the Oregon NHT would impact visual resources and archeological resources; thus, the Project would not be in conformance with the Bennett Hills/Timmerman Hills MFP. One amendment would have an extent larger than the transmission line ROW itself because of reclassification of visual management areas.

The visual resource protection would be rewritten (SEIS-9) to allow development of this Project and would read (changes in italics):

“No management activity should be allowed to cause any evident changes in the form, line color or texture that is characteristic of the landscape within this Class II area. *The VRM Class II area within 3,000 feet to the north of the existing transmission line ROW will be reclassified from VRM II to VRM III (including the existing ROW).*”

The amendment changing the VRM Class II classification to VRM Class III would change the classification of lands within 3,000 feet of an existing transmission line. This may result in up to two additional transmission lines being located along this route, which would result in additional impacts to resources managed under the MFP. The cumulative effect of the plan amendment would not differ substantially from the effect of the Project itself, particularly given that no projects other than possible future transmission lines are proposed for the area.

In addition, to allow the crossing of the Oregon NHT, the amendment (SEIS-10) would read (changes in italics):

“Prohibit all land disturbing developments *and manage all cultural resources with applicable law and policy.*”

Allowing land-disturbing developments up to 330 feet from the Oregon NHT could potentially affect the ability to conform to agency policy of protecting archaeological sites; however, stipulations for managing archeological sites as required by the NHPA should minimize this possibility. Additionally, EPMs (CR-1 through CR-8) would be aimed at reducing these impacts and construction would occur in a manner that would avoid disturbing important historic resources..

4.1.3.5 Kuna Management Framework Plan

Proposed Amendments for the Preferred Alternative: No amendments would be needed for the Preferred Alternative (Alternative 5).

Amendments for Other Routes: The Segment 8 Revised Proposed Route, Segment 9 Revised Proposed Route, and 8H would cross through the Kuna Planning Area. Because the Project does not conform to the current direction provided in the Kuna MFP for cultural resources and following existing corridors, the land use plan would need to be amended (SEIS-11) to permit the Project in this area. The amended decision would read (changes in italics):

“L-4.1– Confine major new utility R/Ws (i.e., 500 KV or larger or 24-inch pipeline) to existing corridors as shown on Overlay L-4. The R/Ws will be subject to reasonable stipulations to protect other resource uses. *Amend Overlay L-4 to add a major transmission line (500-kV) right of way.*”

There is currently a management objective for managing cultural and historic ruins near the area for the Segment 8 Revised Proposed Route. An amendment would be required allowing authorized use that would impact the underlying land use, which could result in cumulative impacts if authorized uses other than the Project were allowed.

4.1.3.6 Bruneau Management Framework Plan

Proposed Amendments for the Preferred Alternative: The Preferred Alternative (Alternative 5) would cross VRM Class II land within the Bruneau MFP Planning Area. An amendment would be needed to change the VRM classification to VRM Class III for the transmission line to conform to the management plan. The amendment would reclassify the entire VRM Class II parcel to VRM Class III. This action would be in agreement with the last Visual Resource Inventory (2012), which identified the area as having qualities consistent with VRM Class III. **Proposed Amendment SEIS-12** (Figure F-4 in Appendix F) would read (changes in italics):

“The area designated as VRM Class II adjacent to Castle Creek will be reclassified to VRM Class III.”

As the amendment would be in agreement with the 2012 Visual Resource Inventory, no cumulative effects are anticipated.

No amendments would be required for the Segment 9 portion of the Preferred Alternative.

Amendments for Other Routes: The FEIS Proposed 9 route would cross VRM Class II land within the Bruneau MFP planning area. The same amendment as described above would be needed to change the VRM classification to VRM Class III for the transmission line to conform to the management plan. Cumulative effects would be the same as described above.

4.2 Projects or Actions with Potential for Cumulative Effects with Gateway West

Projects within the resource CIAAs with potential to add to the direct and indirect effects of Gateway West were considered. Those projects most likely to cause cumulative effects are those that have effects similar to those of Gateway West since they tend to impact all the same resources across multiple jurisdictions in ways similar to those of

Gateway West. Other projects also affect one or more resources and are considered together with the effects from Gateway West. For ease of analysis, projects with the potential for cumulative effects are presented in the following categories:

- Other transmission lines in or near the Project area or serving similar generation or load areas (Figure E.24-1 in Appendix E);
- Other linear projects in or near the Project area, such as roads and pipelines;
- Energy generation projects, including coal, gas, wind, geothermal, and hydroelectric (Figure E.24-2 in Appendix E);
- Mineral extraction (Figure E.24-2 in Appendix E);
- Other development, including subdivision of lands for commercial, industrial, or residential development; and
- Existing and proposed land uses or restrictions on land uses, including vegetation management, hunting, and OHV use.

4.2.1 Past and Present Actions

Past and present actions have contributed to the affected environment or the context of the proposed Project. While the sections describing the affected environment (Chapter 3) take these actions or events into consideration in a general way, the list and description below provide details on the location, scale, and duration of a variety of actions that have effects on some of the same resources that would be affected by the Project.

4.2.1.1 Existing Transmission Lines

High-voltage (typically 115-, 230-, 345-, or 500-kV) transmission lines carry electricity long distances and begin and end in substations that serve either generation or load centers. In some cases, a formal utility corridor has been designated where these transmission lines cross public lands, but in other cases the lines are recognized as utility crossings not in a corridor.

Major transmission lines in the CIAAs for Segment 8 and 9 Revised Proposed Routes, other routes, and Toana Road Variations are found in Table 4.2-1 and are shown in Figure E.24-1 of Appendix E. These transmission lines vary from 115 kV to 500 kV. Others carry hydroelectric energy from the power plants along the Snake River, among others, to interconnection points with the western grid. These transmission lines have been in service for variable amounts of time, but generally between 20 years and 40 years.

Distribution lines (those carrying 32 kV or below) are typically much shorter (40 to 50 feet in height rather than 100 feet or taller) and typically run much shorter distances than high-voltage transmission lines. Distribution lines are associated with residential development, agricultural land uses, and with oil and gas development in many areas.

Idaho Power reports that hundreds of miles of their system currently cross irrigated crop or pasture lands. They report that of the 1,162 miles of existing 230-kV lines in service, 411 miles cross irrigated lands, and of the 576 miles of existing 345-kV lines in service, 102 miles cross irrigated lands. They further report hundreds of miles of lower-voltage transmission and sub-transmission lines across irrigated agriculture (IPC 2010).

Table 4.2-1. Existing Transmission Lines that Parallel or Cross Gateway West

Proponent	Project	Gateway West Segment	Gateway West Proposed Route MPs (parallel)	Gateway West Proposed Route MP (crossed)
Bonneville Power Administration	115-kV Anderson Ranch to Mountain Home	8	68.4-70.6	
Idaho Power	230-kV Boise to Midpoint	8	0-86.2 (3 lines)	0.2, 55.6
Idaho Power	230-kV Bennett Mountain to RTSN	8		68.1
Idaho Power	138-kV Lower Falls to Midpoint	8	0-1.5	
Idaho Power	138-kV Black Mesa to Mountain Home	8	52-68.4	50.1
Idaho Power	138-kV Elmore to Mountain Home	8		68.8
Idaho Power	138-kV Boise to Mountain Home	8	68.4-86.2	
Idaho Power	138-kV Bowmont to Canyon Creek	8		113.5
Idaho Power	138-kV Upper Salmon B to Mountain Home	8		68.2
Idaho Power	138-kV Lower Falls to Toponis	8		19.1
PacifiCorp	500-kV Hemingway to Midpoint (Summer Lake line)	8, 9	0-1.3, 50.1-116.6, 126.4-131.5 (Segment 8)	50.1, 127.6 (Segment 8); 161.9 (Segment 9)
Idaho Power	138-kV Lower Falls to Wells	9		25.9
Idaho Power	138-kV Raft SKSN to Canyon Creek	9		114.5
Idaho Power	138-kV Raft SKSN to CJ Strike	9		114.3
Idaho Power	138-kV Sinker Creek to Tap	9		145.6
Sierra Pacific Power Co.	345-kV Humboldt to Midpoint	9	0-8.0	

MP – milepost

Source: Ventyx 2014

4.2.1.2 Existing Pipelines

Large-diameter pipelines (12 inches or larger for liquids and 24 inches or larger for natural gas) are used to transport liquid petroleum products and natural gas long distances. These networks typically start at an initial injection station where product is injected into the line and end at a final delivery station where the product is distributed. Other major pipeline components include compressor stations for natural gas or pump stations for liquids used to help move the product through the pipe, block valves capable of isolating portions of the pipeline should a leak occur, and other valves and stations used for regulating pressure within the pipeline or allowing the product being transported to be delivered or inspected. Pipelines are typically buried within a designated ROW. The permanent ROW varies in width depending on the easement, the pipeline system, the presence of other nearby utilities, and the land use. These ROWs are kept clear of deep-rooted vegetation to allow the pipeline to be safely operated, aerially surveyed, and properly maintained. For larger diameter pipelines, a system of access roads is required to facilitate maintenance. Table 4.2-2 summarizes existing large diameter pipelines in the CIAA.

Pipeline corridors that parallel Gateway West are most important for cumulative effects because of their contribution to habitat fragmentation and land use limitations. A 24-inch pipeline operated by Williams Northwest Pipeline parallels Gateway West for the

longest distance along the Segment 8 Revised Proposed Route, a distance of approximately 85 miles.

Table 4.2-2. Existing Large Diameter Pipelines within the Vicinity of the Project Area

Operator	Diam. (in)	Product Transported	Parallels Gateway West		Comments
			Segment	Mileposts	
Northwest Pipeline Corp	16-30	Natural Gas	8	94.5 and 100	Crosses Segment 8 and 9 Revised Proposed Routes and other routes

Source: Ventyx 2012; PennWell 2008

Large-diameter pipelines are typically associated with networks of smaller distribution pipelines designed to transport product to consumers, tanks, or storage facilities. These distribution lines are smaller in diameter and do not require the infrastructure (e.g., roads) associated with larger pipelines.

4.2.1.3 Existing Roads

Roads within the Gateway West area include interstate highways, U.S. highways, state highways, county roads, as well as numerous rural roads. The Project area is primarily rural with the greatest densities of roads occurring near cities and towns. Existing road densities range from 1.2 to 2.3 miles per square mile. Major roads that parallel the proposed transmission line are of greatest interest for cumulative effects because of their linear nature and thus contribution to habitat fragmentation and their potential to inhibit movement by wildlife. Table 4.2-3 summarizes locations where existing interstate highways, U.S. highways, and state highways parallel the proposed transmission line ROW.

Table 4.2-3. Locations Where Existing Major Roads (Interstate, U.S., and State Highways) Parallel Segments 8 and 9 Revised Proposed Routes, Other Routes, and Variations

Transmission Line Segment/Variation	Mileposts Paralleled ^{1/}
Segment 8 Revised Proposed Route – Total Length	57.4-58.7, 88.0-91.8
Segment 8 Revised Proposed Route – Existing 500-kV Removal	No Parallel Roads
Route 8G	117-121
Route 8H	No Parallel Roads
Segment 9 Revised Proposed Route – Total Length	No Parallel Roads
Segment 9 Revised Proposed Route – Comparison portion for Toana Road Variations 1/1-A	No Parallel Roads
Toana Road Variation 1	No Parallel Roads
Toana Road Variation 1-A	No Parallel Roads
Segment 9 Revised Proposed Route – Existing 138-kV Removal	110-112
FEIS Proposed 9	103.7 – 117.9, 137.0-152.7
Route 9K	110-112

^{1/}Within 1 mile of route centerline.

There are also numerous county and other rural roads within the Project area. A landscape connectivity analysis was conducted to meaningfully summarize the effects of existing roads on the landscape. Fragment sizes were assessed for habitats extending up to 4 miles from either side of the centerline of each route.

4.2.1.4 Existing Power Generation Facilities

The generation of power is the first process in the delivery of electricity to consumers. Electricity is most often generated at a power station by electromechanical generators, primarily driven by heat engines. The combustion of fossil fuels (coal, natural gas, and petroleum) supplies most of the heat to these engines. Other sources of heat in the Project area include geothermal power. Electricity is also generated by harnessing the energy of flowing water (hydropower) and the wind. The following discussion describes the power generation facilities within the Gateway West area.

Existing Coal-fired Power Plants

Coal-fired power plants generate energy through the combustion of coal, one of the major fossil fuels. These plants are designed on a large scale for continuous operation, and typically have a lifespan of 30 to 50 years. Byproducts of coal-fired power plants include waste heat; flue gas from fossil fuel combustion containing carbon dioxide and water vapor, as well as nitrogen, nitrous oxides, sulfur oxides, fly ash, mercury; and solid waste ash. Greenhouse gas and particulate emissions from coal-fired plants have been identified as major contributors to air pollution and acid rain, and have been linked to both human health issues and climate change.

For the cumulative effects analysis, coal-fired power plants must be considered for their impacts on air quality in the Project area. The CIAA for air quality includes the state of Idaho. There are three operating coal-fired power plants in the CIAA; see Table 4.2-4 and Figure E.24-2 in Appendix E). The Amalgamated Sugar plants are located north of the Segment 8 Revised Proposed Route. These plants have contributed to the existing air quality in the CIAA and will continue to do so as long as they operate.

Table 4.2-4. Existing Coal-Fired Power Plants in Idaho

Project	Proponent	Production Capacity	County Crossed by Gateway West?	General Location
Amalgamated Sugar – Nampa	Amalgamated Sugar Co.	9 MW	Y	Canyon County
Simplot Don Plant	Simplot Leasing Corp.	16 MW	Y	Power County
Amalgamated Sugar – Twin Falls	Amalgamated Sugar Co.	10 MW	Y	Twin Falls County

Source: Ventyx 2010; Platts 2009

Existing Oil-fired and Diesel-fired Power Plants

Power plants that burn oil (petroleum or diesel) to produce electricity are similar in general principle and operation to other fossil-fueled plants including coal-fired and natural gas-fired plants and are a minor component of power production in the CIAA. Oil or diesel is burned to produce steam to power a steam turbine and generator. Byproducts from combustion include carbon dioxide, water vapor, nitrogen, nitrous oxides, and sulfur oxides. There are no existing oil- or diesel-fired power plants in the SEIS CIAA.

Existing Natural Gas-fired Power Plants

Natural gas-fired power plants are an important source of power generation in the Project area involving a process that begins with the extraction of natural gas, continues with its treatment and transport to the power plants, and ends with its combustion in boilers and turbines to generate electricity. By-products of natural gas-fired power plants include ethane, propane, butanes, pentanes and higher molecular weight hydrocarbons, elemental sulfur, and sometimes helium and nitrogen. However, compared to other fossil fuels such as petroleum and coal, natural gas is cleaner burning and produces less carbon dioxide per unit energy released (e.g., approximately 45 percent less carbon dioxide than coal-fired plants and 30 percent less than petroleum-fired plants for an equivalent amount of heat [EIA 1999]). There are five existing natural gas-fired power plants over 20 MW in size in the CIAA that are considered in relation to cumulative effects due to their impacts on existing air quality (see Table 4.2-5 and Figure E.24-2 in Appendix E). Several of these turbines serve dedicated industrial needs and do not supply electricity to the public.

Table 4.2-5. Existing Natural Gas-Fired Power Plants 20 MW or Larger in Idaho

Project	Proponent	Production Capacity	Crossed by Gateway West	Location
Bennett Mountain	Idaho Power	173 MW	Y	Elmore
Mountain Home Generation Station/ Evander Andrews	Idaho Power	270 MW	Y	Elmore
Langley Gulch	Idaho Power	300 MW	N	Payette
Rathdrum	Avista	166 MW	N	Kootenai
Rathdrum Power LLC	Rathdrum Power LLC	299 MW	N	Kootenai

Source: Ventyx 2010; Platts 2009; IPC 2015

Existing Geothermal Facilities

Geothermal energy generation is the process of using the heat of the earth to produce useable energy. The geothermal plants in the Project area generate electricity, which requires water temperatures above 200°F. Wells are drilled into a geothermal reservoir, which brings the geothermal water to the surface, where its heat energy is converted into electricity at a geothermal power plant. Geothermal power production requires the construction of large-scale power plants, which emit nitrous oxide, hydrogen sulfide, sulfur dioxide, particulate matter, and carbon dioxide, although these levels are low relative to fossil fuel emissions (BLM 2008d). The expected lifespan of a geothermal plant is 20 to 30 years.

In January 2008, the first geothermal power plant began commercial operations in Idaho (Idaho Office of Energy Resources 2009). The Raft River Phase I geothermal project, owned and operated by U.S. Geothermal, is located in southern Idaho, approximately 200 miles southeast of Boise. The Raft River facility has a nameplate production capacity of 15.8 MW. Currently, net electrical power output is between 10.5 and 11.5 MW. This project is under a 20-year contract with Idaho Power (DOE 2009).

Existing Wind Energy Facilities

Wind energy facilities consist of a collection of turbines that are used for production of electric power. Turbines have power ratings ranging from 250 watts to 5 MW; however, most turbines in use at utility-scale facilities range from 700 kW to 3 MW. At utility-scale facilities, the turbines are interconnected by a communications network and a medium voltage (34.5-kV) collection system, typically buried underground, which carry power generated by the turbines to a substation. At the substation, this medium-voltage electrical current is increased in voltage with a transformer for connection to the high-voltage transmission system, which feeds into the existing grid. A large wind farm may consist of a few dozen to several hundred individual wind turbines, and cover an extended area of hundreds of square miles. Turbines can be added to an existing facility as electricity demand grows. Other components of wind energy facilities include a permanent system of access roads used for routine maintenance, operations and maintenance facilities, and a transmission line connecting the facility to the grid. Usually the existing land uses on site can be maintained during facility operation. The typical lifespan of a utility-scale wind energy facility is 20 to 30 years.

There are multiple wind energy facilities in Idaho ranging in capacity from 1.3 to 200 MW. Table 4.2-6 lists facilities 10 MW and larger, and Figure E.24-2, Appendix E, illustrates their locations.

Table 4.2-6. Existing Wind Energy Facilities 10 MW and Larger in Idaho

Project	Proponent	Production Capacity (MW)	Location
Idaho			
Bennett Creek Windfarm	Bennett Creek Windfarm LLC	21	Elmore
Burley Butte Wind Park	RP Wind ID LLC	20	Cassia
Camp Reed Wind Farm	RP Wind ID LLC	23	Elmore
Cassia Gulch Wind Park	Cassia Gulch Wind Park LLC	19	Twin Falls
Cassia Wind Farm	John Deere Wind	11	Twin Falls
Cold Springs Wind Farm	Aegis Renewables LLC	22	Twin Falls
Desert Meadow Wind Farm	Aegis Renewables LLC	22	Elmore
Fossil Gulch Wind Park	Exergy Development Group, LLC / United Materials	11	Twin Falls
Golden Valley Wind Park	RP Wind ID LLC	12	Cassia
Goshen II	BP Wind Energy / Ridgeline	125	Bonneville
Hammett Hill Windfarm	Aegis Renewables LLC	22	Elmore
High Mesa Wind Project	High Mesa Energy LLC	40	Gooding
Horse Butte Wind Project	Utah Associated Municipal Power Systems	58	Bonneville
Hot Springs Windfarm	Hot Springs Windfarm LLC	20	Elmore
Mainline Windfarm	Aegis Renewables LLC	22	Elmore
Meadow Creek Wind Project	Ridgeline Energy LLC	120	Bonneville
Milner Dam Wind Farm	RP Wind ID LLC	20	Cassia
Oregon Trail Wind Park	Exergy Development Group, LLC	14	Twin Falls
Paynes Ferry Wind Park	RP Wind ID LLC	21	Gooding
Pilgrim Stage Station Wind Park	RP Wind ID LLC	11	Twin Falls
Power County Wind Park North	Power County Wind Park North LLC	23	Power
Power County Wind Park South	Power County Wind Park South LLC	23	Power
Rockland Wind Project	Ridgeline Power Services LLC	79	Power

Table 4.2-6. Existing Wind Energy Facilities 10 MW and Larger in Idaho (continued)

Project	Proponent	Production Capacity (MW)	Location
Rygrass Windfarm	Aegis Renewables LLC	22	Elmore
Salmon Falls Wind Farm	RP Wind ID LLC	21	Twin Falls
Sawtooth Wind Farm	Powerworks, Inc	22	Elmore
Thousand Springs Wind Park	RP Wind ID LLC	12	Twin Falls
Tuana Gulch Wind Park	RP Wind ID LLC	11	Twin Falls
Tuana Springs	John Deere Wind	17	Twin Falls
Two Ponds Windfarm	Aegis Renewables LLC	22	Elmore
Wolverine Creek Energy	Invenergy	65	Bonneville
Yahoo Creek Wind Park	RP Wind ID LLC	21	Twin Falls

Source: Ventyx 2015

Wind energy projects have virtually no impact on air quality compared to conventional fossil fuel-power plants (natural gas, coal, and petroleum) because they emit no air pollutants or greenhouse gases; however, there are concerns over the noise produced by the rotor blades, visual impacts, and bird and bat mortality associated with collisions with rotors, as well as displacement of wildlife from habitats in the vicinity of the wind facility. Thus, they must be considered in relation to their contribution to cumulative effects to these resources.

Existing Hydroelectric Projects

Hydroelectric power generation is the process of using water’s energy as it flows from higher to lower elevation, rotating hydraulic turbines to create electricity. It is the most widely used form of renewable energy. Some hydroelectric projects are associated with reservoirs and generate energy by opening intake gates and allowing the water to flow through a pipeline that leads to the turbine. Projects that do not use reservoirs are called “run-of-river” projects because they rely on the normal river flow to generate energy. Energy generated at hydroelectric facilities is then transformed to a higher voltage and distributed via powerlines to the grid.

Once a hydroelectric project is constructed, the project produces no direct waste, and has a considerably lower output level of greenhouse gases than fossil fuel-powered energy plants. However, concerns associated with hydroelectric projects include blockage of fish passage, impacts to stream flow due to water diversion which can adversely affect aquatic and riparian habitats, impacts to water quality by lowering the amount of dissolved oxygen in the water, and increased sediment and nitrification in the reservoir behind the dam due to lack of water flow. In Idaho, most existing hydroelectric projects are located along the mainstem of the Snake River and its tributaries (Figure E.24-2, Appendix E; Table 4.2-7).

Table 4.2-7. Existing Hydroelectric Projects 10 MW and Larger in Idaho

Project	Proponent	Production Capacity (MW)	Waterbody
Idaho			
Albeni Falls	USACE Portland District	42	Pend Oreille River
American Falls	Idaho Power	112	Snake River
Anderson Ranch	U.S. Bureau of Reclamation	40	South Fork, Boise River
Arrowrock	Arrowrock Hydroelectric Project	15	Boise River
Bear River Narrows	Twin Lakes Canal Co	11	Bear River
Black Canyon	U.S. Bureau of Reclamation	10	Payette River
Bliss	Idaho Power	81	Snake River
Brownlee	Idaho Power	744	Snake River
C.J. Strike	Idaho Power	94	Snake River
Cabinet Gorge	Avista	255	Clark Fork River
Cascade	Idaho Power	12	Payette River
Dworshak	USACE Northwestern Division	400	North Fork Clearwater River
Gem State	City of Idaho Falls	23	Snake River
Grace	PacifiCorp	33	Bear River
Hells Canyon	Idaho Power	392	Snake River
Lower and Upper Malad	Idaho Power	24	Malad River
Lower Salmon	Idaho Power	72	Snake River
Lucky Peak	Boise-Kuna Irrigation District	83	Boise River
Milner	Idaho Power	61	Snake River
Minidoka	U.S. Bureau of Reclamation	28	Snake River
Oneida	PacifiCorp	28	Bear River
Oxbow Dam	Idaho Power	220	Snake River
Palisades	U.S. Bureau of Reclamation	176	South Fork Snake River
Post Falls	Avista	18	Spokane River
Shoshone Falls	Idaho Power	78	Snake River
Smith Falls Hydroelectric Project	Eugene Water and Electric Board	20	Smith Creek, ID
Soda	PacifiCorp	15	Bear River
Swan Falls	Idaho Power	30	Snake River
Twin Falls	Idaho Power	53	Snake River
Upper Salmon Falls A	Idaho Power	18	Snake River
Upper Salmon Falls B	Idaho Power	17	Snake River

Source: Platts 2009; IPC 2011b; BOR 2011; Ventyx 2012

Existing Biomass and Cogeneration Facilities

Biomass is any organic non-fossil material of biological origin. Biomass can be utilized for the production of bio-fuels and bio-products, as well as the generation of alternative energy at biomass energy facilities. Biomass facilities can generate energy through the combustion of biomass and subsequent heating of boilers. Biomass energy production requires the burning of substances that can emit carbon dioxide and other air pollutants; however, when burned efficiently, biomass can be a cleaner burning fuel than petroleum or coal (WSFD 2007).

In general, biomass energy facilities consist of facilities whose sole purpose is the conversion of biomass to energy; however, some facilities can convert the biomass that is created as a byproduct of their primary function into energy (e.g., lumber mills that burn sawdust/wood-chips in a boiler). These types of facilities are referred to as

cogeneration plants. Privately owned cogeneration plants can generate the electric power necessary to run the facilities' mills and factories, thereby reducing the facilities dependence on public utilities, or in some cases they can provide additional power to the energy grid. Cogeneration facilities would have similar impacts on air quality as biomass facilities, but would have less impact on lands because these facilities are built within the footprint of existing buildings.

There are 22 existing biomass and cogeneration facilities within Idaho, with power generated at these facilities ranging from 0.9 to 113 MW of energy (Brenneman 2014). The largest of these is the Potlatch Corporation facility (located in Lewiston and operated by Avista Corporation), which currently generates 113 MW of energy (see Table 4.2-8).

Table 4.2-8. Existing Biomass and Cogeneration Projects 10 MW and Larger in Idaho

Project	Proponent	Production Capacity (MW)	Location
Don Plant - Phosphate Fertilizer	Idaho Power	16	Pocatello
Magic West - Glens Ferry	Idaho Power	10	Elmore County
Potlatch Corporation	Avista Corporation	113	Lewiston
Renewable Energy of Idaho	Idaho Power	18	Gem County
Rupert Cogen	Idaho Power	10	Minidoka County
Simplot Pocatello	Idaho Power	12	Power

Existing Solar Facilities

There are no existing solar facilities within the vicinity of the Project area.

4.2.1.5 Existing Resource Extraction Activities

Basal bedrock predominates in the Snake River Valley of southern Idaho. The predominant mineral resources here consist of materials such as sand and gravel, clay, road base, fill, or building stones. The basalt does not contain economic quantities of metallic or energy-related mineral deposits.

4.2.1.6 Existing Agricultural Areas, including Livestock Grazing, Cropland, and CAFOS

Please see Section 3.17 – Land Use and Recreation, and Section 3.18 – Agriculture, for details of these activities. Note that grazing on lands managed by the BLM is controlled to maintain or improve existing watershed conditions.

4.2.1.7 Existing Residential, Commercial, and Industrial Developments

Please see Section 3.17 – Land Use and Recreation for details of these activities.

4.2.1.8 Existing BLM Activities

BLM activities in the Project area include:

- Paradigm Project – a system of fuel breaks along I-84 and areas north between Boise and Glens Ferry to help manage wildfire.
- Soda Fire Emergency Stabilization and Rehabilitation Plan – in August 2015, the Soda fire affected rangelands in both Idaho and Oregon, impacting lands managed by the BLM Boise District and Vale District offices and burning a total of 279,144 acres across multiple jurisdictions. Treatments in this plan are

intended to reduce soil erosion, re-establish desired vegetation, and protect cultural resources.

- Multiple livestock grazing permit renewals.
- Travel Management Planning in Owyhee County.
- Dewey-Levie Land Exchange – BLM is proposing to exchange 80 acres of public land in Ada County for 78 acres of private land in Gem County located adjacent to the long-billed curlew ACEC.
- Wildhorse Herd Management Areas – in Owyhee County along the western end of the Project area that would have potential effects to vegetation and habitat similar to other livestock grazing.

4.2.2 Reasonably Foreseeable Actions

This section lists activities that are known to the public through formal announcement and includes projects that have applied for a permit from a federal, state, or local agency. In some cases, those projects are “on hold” and are not being actively pursued because of the economic downturn and financial uncertainty. However, if the project proponent has not withdrawn the application for a permit, those projects are still listed in this section and considered in this analysis.

NEPA requires analysis of “reasonably foreseeable” future actions and does not require speculation about unknown future events. Therefore, this cumulative effects analysis is generally limited to projects with known locations and descriptions, usually those for which a permit application has been filed or other public announcement made with enough detail to allow for comparison provided.

4.2.2.1 Proposed Transmission Lines

The PEIS for the WWE corridors anticipated the proposal and construction, not of individual projects, but of interstate electric transmission lines and natural gas and product pipelines in general (DOE and BLM 2008).

Where linear facilities are proposed that would cross federally managed lands, the environmental analysis for each project would determine areas of incompatibility with underlying land management classifications. If the approval of the Project preceded those other facilities, and that approval included one or more land management plan amendments that changed management classifications, then additional projects could be permitted in that area without their own plan amendments. If approval of this Project were accompanied by a land management plan amendment that only allowed this Project to be constructed and operated but did not change the underlying land allocation, then approval of any additional project proposed for that land classification area would have to be accompanied by a project-specific analysis and land management plan amendment.

This section includes transmission lines that have been proposed but now are on hold awaiting a better economic climate. They are still being taken into account for cumulative effects, but are less certain to move forward than the projects being actively pursued. These “on-hold” projects are indicated by gray shading in Table 4.2-9, which summarizes the known proposed transmission lines. Figure E.24-1 in Appendix E shows where the proposed transmission lines would parallel the proposed Project.

Table 4.2-9. Proposed Transmission Lines in the Vicinity of the Project Area

Name	Proponent	Voltage	Length (miles)	In-Service Date	Start	End	Parallels Gateway West Project		Comment
							Segment	Mileposts	
Boardman to Hemingway	Idaho Power	500 kV AC	298	2020	Boardman Substation, OR	Hemingway Substation, ID	8	0	Arrives from northwest to Hemingway Substation.
							9		
							9	1-10	
Southwest Intertie Project, north portion	Great Basin Transmission (subsidiary of LS Power)	500 kV AC or DC	515	2015	Midpoint Substation, ID	Southern NV	9	all	Major permits have been granted and construction is pending completion of commercial arrangements. Could affect lands along the Segment 9 Revised Proposed Route, FEIS Proposed 9, and 9K.
Hemingway to Captain Jack	PacifiCorp	500 kV AC	320	tentative	Hemingway Substation, ID	Captain Jack Substation, OR	8,9	0	Leaves from Hemingway towards Captain Jack near Malin, OR, on the CA border.

Note: Gray shading indicates project proposed but on hold.

Sources: Information from Web sites for Idaho Power and Great Basin Transmission LLC

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While it is unlikely that there would be sufficient generation or load to justify all the lines proposed, the BLM must treat each complete application for a ROW equally, provided that it is submitted by a responsible, financially capable entity with demonstrated ability to complete the proposed project. Where additionally proposed transmission lines are inconsistent with the underlying land management plans, it is assumed for the purposes of this analysis that one or more plan amendments will be approved that would either allow the additional projects without changing underlying land allocations or would change those allocations in some areas. Therefore, and for the purposes of a cumulative impacts analysis, the agencies are assuming that all lines would be built and that all additional land management plan amendments would be approved to permit their construction and operations.

There are no proposed lines that would parallel Segments 8 and 9 for a substantial distance. Table 4.2-9 shows proposed transmission lines that begin or end at substations used or constructed by Gateway West.

4.2.2.2 Proposed Pipelines

There are no large pipelines proposed in the vicinity of the Project area.

4.2.2.3 Proposed Roads

For the purpose of this analysis, the agencies assume that new roads would most likely be constructed in areas with high population density, or areas with projected increases in population growth. See the summary of residential development for additional discussion. The Idaho Transportation Department lists future projects but none is listed for the CIAA. No additional new roads or major changes to existing roads within the vicinity of the Project area have been proposed.

4.2.2.4 Proposed Energy Generation Facilities

This section includes facilities that have been proposed but now are on hold awaiting a better economic climate. These “on-hold” projects are indicated by gray shading in the tables. They are still being taken into account for cumulative effects, but are less certain to move forward than the projects being actively pursued.

Proposed Natural Gas-fired Power Plants

There is one natural gas-fired power plant proposed within the CIAA in Idaho (Table 4.2-10 and Figure E.24-2, Appendix E). The Gateway plant, proposed by Mountain View Power, Inc., is a 180-MW plant that would be located north of the Segment 8 Revised Proposed Route in Ada County. The installation of new natural gas energy generation facilities may require associated elements such as the construction and drilling of wells, access roads, pipelines, production facilities, and transmission lines to collect the natural gas from its source, transfer it to the production facility, and transmit power to the grid.

Table 4.2-10. Proposed Natural Gas-Fired Power Plants in Idaho

Project	Proponent	Production Capacity	Location
Gateway	Mountain View Power Inc.	180 MW	Ada County

Sources: Information from Web sites for Idaho Energy Ventures

Proposed Geothermal Facilities

According to the Idaho Office of Energy Resources, and referencing the Geothermal Energy Association, an expansion to the existing Raft River plant, as well four other projects around the state, is underway as of 2009 (GEA 2009). Three additional projects were proposed in 2010. These proposed geothermal projects are summarized in Table 4.2-11. In addition to these sites, there are more than 20 additional locations within Idaho are suitable for potential geothermal energy development and are currently undergoing testing (GEA 2009).

The BLM and Forest Service prepared a joint PEIS to analyze the leasing of BLM-managed and NFS lands with moderate to high potential for geothermal resources in 11 western states. The 2008 ROD (1) allocates BLM-managed lands as open to be considered for geothermal leasing or closed for geothermal leasing, and identifies those NFS lands that are legally open or closed to leasing; (2) develops a reasonably foreseeable development scenario that indicates a potential for 12,210 MW of electrical generating capacity from 244 power plants by 2025, plus additional direct uses of geothermal resources; and (3) adopts stipulations, BMPs, and procedures for geothermal leasing and development (BLM 2008d).

Table 4.2-11. Proposed Geothermal Projects in Idaho

Project	Proponent	Production Capacity	Phase of Development^{1/}	Location
China Cap	Idatherm LLC	50 MW	1	Caribou County
Crane Creek	Agua Caliente	175 MW	3	Washington County
Idaho Falls	Idatherm LLC	100 MW	1	Bingham and Bonneville County
Raft River Expansion	U.S. Geothermal	50 MW	3	Southern Cassia County
Willow Springs	Idatherm LLC	100 MW	1	Cassia County

^{1/} Development Phase: 1—Identifying site, secured rights to resource, initial exploration drilling; 2—Exploratory drilling and confirmation being done; Power Purchase Agreement (PPA) not secured; 3—Securing PPA and final permits; 4—Production Drilling Underway/Facility Under Construction.

Proposed Wind Energy Facilities

There are no proposed wind energy facilities within the vicinity of the Project area.

Transmission for Proposed Wind Energy Facilities

There are no proposed transmission lines for wind energy facilities in the vicinity of the Project area.

Proposed Hydroelectric Projects

There are no conventional new hydroelectric or proposed pumped storage hydroelectric projects proposed in the vicinity of the Project area.

Proposed Biomass and Cogeneration Facilities

Biomass feasibility studies are currently being conducted in the western states, and multiple biomass and cogeneration projects are currently being considered. However, at this time, formally proposed projects are limited due to current economic feasibility. Eight projects have been proposed in Idaho, with estimated power production ranging from 1.2 to 13 MW. The Yellowstone Tower Combined Heat and Power Plant that

would generate 10 MW of energy is the only project that is currently proposed in Idaho that would generate at least 10 MW of energy (Brenneman 2014).

Proposed Solar Facilities

Solar power generation is the process of converting solar energy into electricity. Multiple methods are used at existing solar facilities to convert solar energy to electricity, including photovoltaics (using semiconductors that exhibit the photovoltaic effect) and concentrated solar thermal (focusing solar energy to produce steam). Most utility-scale solar facilities in the U.S. are located in the southern portion of the country where solar light is more intense and the light regime is more predictable. Solar facilities have low impacts on air quality compared to conventional fossil fuel-power plants; however, due to the large area of ground disturbance associated with utility-scale solar facilities, they contribute to habitat loss and fragmentation. In addition, there is some concern regarding the impact that these facilities could have on avian species (due to burns or collisions with project mirrors); however, very little post-construction data are available regarding this potential effect.

The proposed Grand View Solar I project had a signed power purchase agreement with Idaho Power in June 2010 and approval by the Elmore County Commission, but has not begun construction. The IPUC approved two solar development contracts in November 2014; one is a 40 MW proposed project southeast of Kuna and one is an 80 MW proposed project near Grandview. Idaho Power has asked the IPUC to consider another 11 proposed solar projects with the potential to produce 281 MW (IPUC 2014). All proposed projects have scheduled online dates for December 2016. Table 4.2-12 lists these projects.

Table 4.2-12. Proposed Solar Energy Facilities in Idaho

Project	Proponent	Production Capacity (MW)	Location
Grand View Solar I	Alternative Power Development	10	Elmore
Grand View Solar II	Robert Paul	80	Elmore
Boise City Solar	Intermountain Energy Partners	40	Ada
Mountain Home Solar	Intermountain Energy Partners	20	Elmore
Pocatello Solar 1	FirstWind/SunEdison	20	Power
Clark Solar 1	Intermountain Energy Partners	71	Elmore
Clark Solar 2	Intermountain Energy Partners	20	Elmore
Clark Solar 3	Intermountain Energy Partners	30	Elmore
Clark Solar 4	Intermountain Energy Partners	20	Elmore
Murphy Flat Power	FirstWind/SunEdison	20	Owyhee
Simco Solar	Intermountain Energy Partners	20	Elmore
American Falls Solar	FirstWind/SunEdison	20	Power
American Falls Solar II	FirstWind/SunEdison	20	Power
Orchard Ranch Solar	FirstWind/SunEdison	20	Ada

Sources: IPUC 2014.

4.2.2.5 Proposed Resource Extraction Activities

Proposed Oil and Gas Extraction

There are many thousands of acres of oil and gas leases that have not yet been developed. There is very little oil and gas exploration, extraction, and development in

Idaho and most activities are small exploratory operations. The intensity of development and the degree to which these resources are exploited are dependent on the international and domestic market for petroleum products as well as any government incentives (e.g., depletion allowance) or disincentives (e.g., carbon tax). Although the leases are in place and development could technically take place at any time, the market drivers to exploit them are unknown now. Therefore, it is not possible to quantify the additional amount of environmental impact due to future oil and gas development. The existence of a robust electric grid will continue to support oil and gas extraction by providing the power for the extraction pumps.

4.2.2.6 Proposed Residential, Commercial, and Industrial Developments

The largest area of potential future development near Gateway West in Idaho is in the area of Ada County south of Boise traversed by the Segment 8 Revised Proposed Route, while a smaller area of subdivision and active development is occurring east of the city of Twin Falls in Idaho.

The potentially affected area south of Boise includes land that has been recently annexed by the city of Kuna to include the proposed Osprey Ridge development; however, the City had not received an application for development as of December 2012. This proposed development is discussed further in Section 3.17 – Land Use and Recreation, and shown in Figure 3.17-8 in the FEIS.

4.2.2.7 Proposed BLM Activities

Proposed BLM activities in the Project area include:

- Bruneau-Owyhee Sage-grouse Project – the BLM Boise District is proposing to treat early stage encroachment of juniper within a 10-kilometer radius of approximately 71 sage-grouse leks in Owyhee County. Broadcast prescribed fire and any treatment in old-growth juniper are not included in this proposal.
- Tri-State Fuel Breaks in Owyhee County – a system of fuel breaks to help manage wildfire.
- Soda Fuel Breaks Project – as identified in the Soda Fire Emergency Stabilization and Rehabilitation Plan (BLM 2015d), a system of fuel breaks is proposed to minimize the threat of wildfire. The BLM is proposing 452.6 miles of fuel breaks (34-foot road maintenance improvement with 100 feet of vegetated fuel break on both sides of roads) along existing roads both inside the Soda Fire burn perimeter and outside the burn perimeter to protect values at risk.

4.3 Activities and Potential Shared Resource Impacts

Table 4.3-1 summarizes the resources with the potential for cumulative impacts from Gateway West when considered together with the listed types of activities. The construction of additional transmission lines, particularly those proposed to follow the same route with an offset from the proposed Project, are likely to have the potential for cumulative impacts for all resources analyzed in this document with the exception of environmental justice.

Table 4.3-1. Types of Activities and Areas of Shared Resource Impacts with Gateway West

Type of Activity	Resources Affected
Construction of other new transmission lines	Cultural, socioeconomic, vegetation, special-status plants and animals, weeds, wetlands, wildlife, minerals, paleontological resources, soils, water, land use, agriculture, transportation, air quality, public safety, noise
Operation of existing and new transmission lines	Visual, vegetation, weeds, wildlife (avian), geologic hazards, soils, water, agriculture, EMF, public safety
Construction of New Pipeline	Visual, cultural, socioeconomic, vegetation, special-status plants and animals, weeds, wetlands, wildlife, minerals, paleontological resources, soils, water, land use, agriculture, transportation, public safety, noise
Operation of existing and new pipelines	Visual, vegetation, weeds, geologic hazards, soils, water, agriculture, public safety
Construction of new roads	Visual, cultural, socioeconomic, vegetation, special-status plants and animals, weeds, wetlands, wildlife, minerals, paleontological resources, geologic hazards, soils, water, land use, agriculture, transportation, air quality, public safety, noise
Maintenance and use of new and existing roads	Visual, weeds, wildlife, geologic hazards, soils (if unsurfaced), water, land use, agriculture, transportation, public safety
Operation of existing fossil fuel power generation facilities	Air quality, water
Operation of existing hydroelectric facilities	Wildlife (aquatic species), water, public safety
Construction of new solar facilities	Visual, cultural, socioeconomic, vegetation, special-status plants and animals, weeds, wetlands, wildlife, paleontological resources, geologic hazards, soils, water, land use, agriculture, transportation, air quality, noise
Operation of existing wind facilities	Visual, wildlife (avian species), land use, agriculture
Expansion of residential development	Visual, cultural, socioeconomic, vegetation, special-status plants and animals, weeds, wetlands, wildlife, minerals, paleontological resources, geologic hazards, soils, water, land use, agriculture, transportation, air quality, public safety, noise

4.4 Cumulative Impact Analysis

4.4.1 Introduction

The 2013 FEIS discloses cumulative effects for the entire Gateway West Project (Segments 1 through 10). This SEIS presents effects specific to the Revised Proposed Routes in Segments 8 and 9; Routes 8G, 8H, FEIS Proposed 9, and 9K; and the Toana Road Variations 1 and 1-A.

Note that each of the following resource areas has been analyzed in its respective section of Chapter 3. This analysis relies on the analysis of direct and indirect impacts from Gateway West, as proposed, and considers them in conjunction with the past, present, and reasonably foreseeable projects (listed in Section 4.3), to determine the cumulative impact of all projects taken together. It follows the same order of resources as found in Chapter 3.

4.4.2 No Action Alternative

Under the No Action Alternative, the BLM would not issue a ROW grant to the Proponents of Gateway West and Segments 8 and 9 of the Project would not be constructed. No land management plans would be amended to allow for the construction of this portion of the Project. All of the activities indicated in Section 4.2.2 would likely continue:

- new energy generation, including but not limited to wind farms, would be constructed;
- other transmission lines would be permitted and built;
- oil and gas extraction would continue and would expand geographically;
- residential, commercial, and industrial development projects in or near the vicinity of the Project area would be implemented; and
- demand for electricity, especially for renewable energy, would continue to grow in the Proponents' service territories.

New generation sources currently in the queue for transmission on Segments 8 and 9 of Gateway West, and those that otherwise would have also requested transmission service in the future, would have to find another means of transmitting their energy to market, but they would likely still be constructed. Other transmission lines currently proposed for construction may be permitted and constructed.

Continued expansion of residential, commercial, and industrial developments is predicted and planned for by various county and city comprehensive plans in the vicinity of the Project area. While the economic recession may have slowed or postponed these developments, there is no evidence or change in local regulation that would indicate that they will not eventually be constructed.

Demand for additional electricity in western cities would likely continue to grow, based on recent trends. The U.S. Energy Information Administration estimates demand for electricity will increase an average of 1.0 percent per year, or 25 percent from 2010 to 2035 (EIA 2010). They further state, "Generation from wind power increases from 1.3 percent of total generation in 2008 to 4.1 percent in 2035" in their base case analysis" (EIA 2010).

If Segments 8 and 9 of Gateway West are not permitted, the demand for transmission services identified by the Proponents would not be met through this Project and the area would have to turn to other proposals to meet the transmission demand. These proposals, especially if responding to interconnection requests from existing facilities and projects under construction, would likely also cross federally managed lands and would be subject to a similar permitting process as for Gateway West. If the same concerns that prohibited the permitting of the Project were to also stop the construction of these other transmission projects, the utilities responsible for meeting their service area demand might need to consider other options, either for permitting or for generation, to meet their consumers' demands. According to McBride et al. (2008), the lack of construction of these transmission lines could result in substantial adverse impacts on the economic growth, including loss of jobs in the Pacific Northwest region,

which includes Idaho as well as Washington, Oregon, Montana, and several Canadian provinces.

4.4.3 National Historic Trails

Segments 8 and 9 of Gateway West and the other current and reasonably foreseeable actions would result in substantial cumulative adverse effects to NHTs. Construction of the Gateway West transmission line and its ancillary facilities could directly impact the existing Oregon NHT, North Alternate Study Trail, and its associated visual contexts, recreational values and settings, and associated cultural resources and landscapes. Construction or other ground-disturbing activities could directly or indirectly impact previously undetected components of the Oregon NHT. Such impacts are likely to be adverse. Identification of new or previously recorded segments and sites associated with the Oregon NHT and North Alternate Study Trail could result in increased use of existing and new access roads and may encourage unauthorized site access, artifact collection, and vandalism. Impacts on the setting and feeling of the Oregon NHT may be introduced through the addition of structural elements to the landscape. Construction of transmission line structures introduces an indirect (visual) impact upon the visual contexts, recreational values, and historic/cultural settings of the Oregon NHT.

Other current and reasonably foreseeable activities with ground-disturbing activities (essentially all those listed in Section 4.2 of the SEIS) have the potential for additional effects on NHTs and associated resources. For example, the Boardman to Hemingway Transmission Line Project Draft EIS (2014) found that the Proposed Action in Segment 6 (Treasure Valley) would have a high potential for impacts to cultural resources due to the presence of three NRHP-listed properties, one of which is the Oregon Trail. The impact threshold for “high” impacts was defined as “severely modified” as taken from BLM Manual 6280 indicating “adverse to the nature and purpose and primary uses” of the Oregon Trail. Visually prominent Gateway West activities associated with the Oregon Trail are included in Appendix J to this FSEIS, which includes maps of each analysis unit (see Section 3.1 of this SEIS) and the locations of existing transmission lines and wind farms. These projects have already affected the visual environments around the Oregon NHT and the North Alternate Study Trail and, in some areas, already degraded the visual, cultural, recreational, and natural resources, qualities, values, and settings related to the trails primary purpose and use. Appendix J also provides an indication of how the Project either falls into the immediate foreground of trail-related settings, thus having a larger impact than the existing projects, or falls into the background, where it would largely be obscured by existing energy infrastructure.

The Proponents of Gateway West have committed to avoiding direct effects to NRHP-eligible features wherever feasible. Avoidance of indirect effects is not likely to be possible. HPTPs would be prepared for areas that may experience direct or indirect effects. Treatment plans would be reviewed and approved by the BLM prior to issuance of a Notice to Proceed for that work element. An indirect effect of Gateway West is that potential for increased access due to new access roads may encourage unauthorized site access, artifact collection, and vandalism as well as visual effects caused by construction of the Project. This is the case with all of the current and reasonably foreseeable projects that have new or improved access roads associated with them.

4.4.4 Visual Resources

The 5- to 15-mile-wide CIAA for visual resources includes a variety of landscapes such as mountainous areas, broad agricultural valleys, expanses of shrub steppe that have been or are still used for livestock grazing, and, for many portions of the Segments 8 and 9 Revised Proposed Routes and other routes, one or more existing transmission lines. Section 3.2 – Visual Resources discusses the direct and indirect effects of the Revised Proposed Routes and other routes and route variations on visual resources. The Revised Proposed Routes were designed to take advantage of existing utility corridors to minimize the introduction of a new transmission facility into a previously undisturbed landscape and reduce the visual impact on the landscape. However, even with careful siting and the implementation of mitigation measures, the Revised Proposed Routes, as is the case with the other routes considered in the SEIS, are expected to have a substantial, unavoidable adverse visual impact on the landscape in certain locations.

The Idaho landscape varies within the CIAA from mountainous terrain with agricultural valleys and scattered rural residences to expanses of sagebrush and grass rangelands south of the Snake River. There is very little oil, gas, or other extractive industry in the Segments 8 and 9 area, and much of the landscape has an agricultural or ranching character. Exceptions are found near urban expansion areas, south of Boise, north and south of Twin Falls, and to a lesser extent on the outskirts of smaller towns, where the landscape is developing suburban characteristics.

From Midpoint to Hemingway (Segment 8), there are numerous existing transmission lines in a broad agricultural setting. For the Revised Proposed Route, 8G, and 8H, the addition of one set of 500-kV structures would not change the character of the area but could have a site-specific visual impact in agricultural or residential areas. There are no known future projects or actions that could add to the impacts of the Project. The cumulative visual impact, when considered together with the likely continued development, especially in the Kuna area, would be substantial. The impacts of the Revised Proposed Route and the other Segment 8 routes, given the present landscape and its activities, are addressed in Section 3.2 – Visual Resources.

From Cedar Hill to Hemingway (Segment 9), the Revised Proposed Route includes both single-circuit and double-circuit sections (as does 8H, which crosses through Segment 9). Most of the route would have new single-circuit 500-kV lines. However, an existing 138-kV line within the SRBOP would be removed and both the Gateway West 500-kV and 138-kV lines would be placed on double-circuit towers. There are two short route variations to the Segment 9 Revised Proposed Route in the Toana Road area. There are no known future projects or actions that could add to the visual impacts of these variations. The impacts of the Revised Proposed Route, the other Segment 9 routes, and the variations, given the present landscape and its activities, are addressed in Section 3.2.

4.4.5 Cultural Resources

In some areas, the construction of Segments 8 and 9 of the Gateway West transmission line could lead to the establishment of a corridor in which other lines may be installed in the future. There is a potential that cumulative impacts to the visual settings for some

cultural resources would occur due to the establishment of the Project's corridor and the subsequent construction of additional transmission lines (see Section 4.2).

Gateway West could result in direct damage to historic properties (i.e., cultural resources that are listed in or eligible for listing in the NRHP), such as prehistoric or historic archaeological sites, districts, buildings, trails, roads, and landscapes due to construction or other ground-disturbing activities. Other current and reasonably foreseeable activities with ground-disturbing activities (essentially all those listed in Section 4.2) have the potential for additional effects on these resources.

The Proponents of Gateway West have committed to avoiding historic properties wherever feasible. The PA (Appendix N of the FEIS) provides for site-specific HPTPs to be reviewed and approved by the BLM prior to issuance of a Notice to Proceed for that work element. Gateway West would introduce "visual, atmospheric or audible elements that diminish the integrity of the property's significant historic features" (36 CFR 800.5(a)(2)(v)) with regard to the setting for historic trails where the Project crosses those trails. This would be considered an adverse effect. The creation of a corridor would introduce additional elements, from other projects, that would further diminish a property's historic setting.

One indirect effect of Gateway West would be the potential for increased access due to new roads that may encourage unauthorized site access, artifact collection, and vandalism. This is the case with all of the current and reasonably foreseeable projects that have new or improved access roads associated with them.

Gateway West and the rest of the current and reasonably foreseeable actions would result in substantial cumulative adverse effects to known historic properties. All projects with a Section 106 nexus would complete surveys and record sites, contributing to the knowledge base in the CIAA. Each project also has the potential for inadvertent damage to previously undetected resources during construction, though all reasonable precautions would be built into each PA or HPTP governing monitoring of and compliance with avoidance, minimization, and reporting requirements.

4.4.6 Socioeconomics

Within the Socioeconomic CIAA, past, present, and reasonably foreseeable activities that could combine with Gateway West and result in cumulative effects to the socioeconomic environment include projects with the potential to affect population, the economy and employment, housing, property values, education, public services, and tax revenues.

The effects from past and present activities are generally accounted for in the baseline socioeconomic environment characterized in Section 3.4.1. These past and present activities generally include construction and operation of existing transmission line and other linear projects, development and operation of energy generation projects, and other residential and commercial development (see Section 4.2.1). Ongoing and reasonably foreseeable projects with the greatest potential to combine with the proposed Project and result in cumulative impacts include 1) current construction projects that would continue through 2015 and beyond, or 2) reasonably foreseeable actions that would be in construction between June 2015 and December 2021, when

the majority of construction activities would occur on Segments 8 and 9. Cumulative effects on socioeconomic resources do not differ substantially by route.

Section 4.2.2 identifies a large number of reasonably foreseeable projects proposed within the Socioeconomic CIAA, including other transmission lines and energy generation facilities. In cases where other construction activities coincide in space and time with Gateway West, there would be an increase in the projected influx of temporary workers and increased demand for temporary housing resources and other goods and services. Peak temporary population increases for Gateway West are expected to range from less than 0.1 percent of the existing (2013) population (Ada County) to 0.7 in Owyhee County. These potential impacts and associated cumulative effects would be short-term and temporary. Operation of all 10 segments of the Project would require an estimated permanent staff of approximately 12 employees, with fewer needed for Segments 8 and 9 only. All permanent staff is expected to be hired locally. As a result, Gateway West is not expected to result in any permanent changes in population and would have no effect on short- or long-term population trends.

Local Project-related expenditures, employment, and construction-related earnings from the Project would have a positive impact on the local economy and employment for the duration of construction. These impacts would be increased if ongoing and other reasonably foreseeable construction activities were to coincide in time with the proposed project. The resulting cumulative effects would be positive and short-term. Long-term economic impacts from the Project would be primarily associated with operation and maintenance-related expenditures on materials and supplies. These impacts would be small, especially when compared to the construction-related impacts, and the incremental addition of these impacts to other ongoing and reasonably foreseeable projects would be relatively minor.

A temporary influx of construction workers associated with other ongoing and reasonably foreseeable construction projects that coincide in time with the Project, could result in shortages in housing for temporary construction workers in some locations depending on actual construction schedules (which would be affected by permitting processes, prevailing economic conditions, and the availability of construction contractors), as well as demand from other sectors of the economy, including the oil and gas and travel and tourism industries. This potential housing shortage could affect not only other project construction workers, but also local residents and visitors vying for the same facilities. Construction-related cumulative impacts on housing would be short-term and temporary. The Project would require an estimated permanent staff of approximately 12 employees, all of whom are expected to be hired locally, and would not add cumulatively to long-term housing demand.

The temporary relocation of construction workers to the socioeconomic CIAA would create increased demand for community services such as education, medical facilities, municipal services, police, and fire. Other ongoing and reasonably foreseeable construction projects that coincide in time with the Project could add cumulatively to this demand. These potential cumulative effects would be short-term and temporary.

Construction of the Project would generate sales and use tax revenues through Project expenditures on construction supplies and equipment. Construction of the other

reasonably foreseeable projects identified in Section 4.2.2 would likely result in similar short-term increases in tax revenues, depending on the size and nature of the project.

Following construction of the Project, projected ad valorem (property) tax revenues in Idaho would range from 0.3 percent (Ada County) to 22.8 percent (Owyhee County) of 2014 property tax revenues (County taxing district only). Operations of Gateway West would also generate sales and use tax revenues from local operation and maintenance expenditures. Other reasonably foreseeable projects, if constructed and not tax-exempt, would also result in increases in ad valorem and property tax revenues in the counties where they are located. Note that the State of Idaho limits the amount by which annual revenues from property tax can increase in each county; with some exceptions this amount is limited to 3 percent based on the highest annual budget from the preceding 3 years (see Section 3.4.2.2).

4.4.7 Environmental Justice

Data compiled by the U.S. Census at the block group level indicate the potential presence of minority and low income communities in the vicinity of the Project area. The Project is not expected to generate high or adverse human health or environmental effects on nearby communities. The Project would, however, have high, long-term visual impacts in some locations where the structures and overhead conductors would be visible from private residences, including parts of the Census Block Groups that have potential minority and low income communities. While these potential impacts exist, overall, the proposed Project does not appear to exhibit systematic bias toward placing the Project in minority or low income communities (see Section 3.5 – Environmental Justice). Cumulative effects on visual resources are discussed above in Section 4.4.4. Local construction expenditures for materials and supplies and spending by workers directly employed by the Project are expected to benefit local economies (see Section 3.4 – Socioeconomics).

4.4.8 Vegetation Communities

The major ecological changes to vegetation that have occurred, and that continue to occur in the CIAA due to past and present actions include changes in vegetation composition and conditions due to fire, grazing, mining, agriculture, infrastructure development, and other forms of development. Of particular concern is the continuing degradation of shrub-steppe habitat, primarily due to increased abundance and dominance of non-native species. Planned activities, including construction of infrastructure and expansion of residential development, would contribute to this overall loss of native vegetation, increase habitat for non-native plants and noxious weeds, and result in the potential loss of rare plant occurrences and habitat (see Sections 3.7 – Special Status Plants and 3.8 – Invasive Plant Species). Grazing, which is prevalent in the Project area, may also affect vegetation by increasing habitat and distribution of noxious weeds and other non-native plants and by causing shifts in native species composition because of differential selection of food plants. These processes will continue into the foreseeable future.

Permanent vegetation removal and disturbance associated with Gateway West transmission line structures, access roads, and associated facilities for all routes would incrementally add to these effects. As noted below, mechanisms for weed distribution

would be minimized by implementing mitigation measures listed in Section 3.6 – Vegetation Communities. However, unauthorized road use could introduce weeds outside the ROW. In addition, by providing increased access, project roads could contribute to the potential for OHV use. Off-road vehicle use could result in further degradation of native vegetation, which would be compounded by the effects of habitat fragmentation (see Section 3.10 – General Wildlife and Fish for a discussion of fragmentation effects).

As documented for sage-grouse and other native habitat-dependent species (e.g., Connelly et al. 2004), there has been a massive reduction in native vegetation in Idaho over the last 200 years. Remnant patches of native vegetation are further threatened by invasive species, grazing pressure, and removal during construction and operation of resource extraction, mining, residential development, and energy infrastructure projects, including transmission lines. The cumulative impact of past and present land uses is considerable. Native vegetation communities through which Gateway West would pass have been reduced to small and often discontinuous patches. While the impact of the Project would be minor compared to the much larger past events, when taken together with various proposed developments as specified in Section 4.2, and when added to the impacts from past and present land use changes, the overall cumulative impact would be substantial.

4.4.9 Special Status Plants

There are six known populations of slickspot peppergrass within 0.5 mile of the Segment 8 Revised Proposed Route. Ground-disturbing activities during construction and operations of the Project have the potential to impact special status plant species either directly or indirectly by disturbing habitat. Projects on federal lands or requiring federal permits would be required to conduct preconstruction surveys to identify and avoid the locations of sensitive plant populations. However, projects not requiring federal permits probably would not conduct surveys and might not avoid habitat or populations entirely. Slickspot peppergrass habitat would be surveyed and avoided to the extent practicable for Gateway West and for other projects with a federal nexus.

Several other special status plant species occur along Segments 8 and 9. The Project has the potential to impact individuals and habitat of these special status plants. Impacts to special status plants, however, do not differ substantially by route. Therefore, cumulative effects of Gateway West would not vary substantially by route. Although, with implementation of survey and avoidance measures, the Project impact to special status plants would be minor, its impacts when added to possibly substantial (but largely unknown) impacts from non-federally licensed activities on remnant habitat for these species, could contribute to a substantial impact.

4.4.10 Invasive Plant Species

Noxious weeds and non-native invasive plant species are locally prevalent across the CIAA, but there are areas that are relatively weed-free or have limited invasive species presence. With implementation of EPMs, the potential spread of existing populations of noxious weeds and invasive plant species would likely be decreased. It is assumed that additional new construction activities would carry similar environmental protection requirements for control of invasive plant species.

Within the CIAA, present activities that could also introduce or spread noxious weeds and invasive plants include the operation, use, and maintenance of existing transmission lines, oil and natural gas pipelines, and roads. Livestock grazing, OHV access to native habitats (whether authorized or not), existing subdivisions and developments that are adjacent to native habitats, as well as the increased potential for wildland fires due to increased human activities can also result in introduction and spread of noxious weeds and invasive plants. Future activities that could add to the introduction or spread of weeds include the construction of new transmission lines, pipelines, energy and mineral extraction facilities, and power plants of all fuel sources; new or relocated grazing; and residential, commercial, and industrial development.

Existing and new operations on public lands would be accompanied by noxious weed prevention and control measures as requirements for use of the public lands. The effectiveness of those measures is greater where the activities are of relatively short duration and are followed by required monitoring and mitigation activities if new noxious weed populations are found. Noxious weed control measures may also be effective for activities that require an operations and maintenance plan and adherence to its terms and conditions such as operations and maintenance of utility ROWs for transmission lines and pipelines and grazing on public lands.

Private landowners vary in the interest and emphasis they put on weed control on their lands and do not necessarily view introduced forage species as weeds. Noxious weeds that are poisonous or reduce the quality of rangeland are more likely to be targeted for control on private lands. Gateway West and other linear projects that cross private lands would be subject to landowner weed control requirements and would be subject to county and state noxious weed control regulations where applicable. Introduction and spread of invasive plants are important regardless of land use, and therefore the impacts of Gateway West on noxious weeds and invasive plants are important regardless of route. Cumulative effects on the introduction and spread of noxious weeds and invasive plants do not differ substantially by route, except by length of the route—longer routes have greater ground disturbance, more access roads, and therefore additional opportunity for introduction or spread of weeds. Given concern for introduction and spread of noxious weeds and invasive plants on both public and private lands, and requirements for the prevention of introduction or spread of noxious weeds imposed on all projects, the cumulative impact of reasonably foreseeable projects, including Gateway West, is not anticipated to be substantial.

4.4.11 Wetlands and Riparian Areas

Section 3.9 – Wetlands and Riparian Areas describes the types of existing wetlands and riparian habitat in the CIAA. Past and planned activities in the CIAA that have likely affected, or have the potential to affect, wetlands and riparian areas include infrastructure development, grazing, and residential development. Any of these types of land development in previously undeveloped areas typically result in an increase in impervious surface area and may lead to increases in erosion and sedimentation, which can have negative effects on wetlands and riparian areas. Alteration of water flow in wetlands, through increases in impervious surfaces or changes to the soils ability to hold water (by compaction), reduces the time that water resides in wetlands or streams in a watershed and can lead to greater flooding or more dry spells in streams. Grazing

may also affect the physical structure of wetlands and riparian habitats in areas where cattle have direct access to streams. There are grazing leases and private land grazing along part of the routes.

Gateway West would result in a minor contribution to the amount of impervious surface in the CIAA as a result of the installation of new structures and the surrounding compacted work area, and the maintenance of permanent access roads. Unpaved roads, when used over the long term, would compact soils and reduce their ability to hold water. In the past, many human activities have affected riparian vegetation and wetland areas. Streams in the CIAA have been affected by diversions of water, dams, dikes, and development, including roads that have altered natural hydrologic functions. Grazing, agriculture, and development, including construction of roads have altered or destroyed wetlands and riparian vegetation. More recent development activities have been more carefully controlled, with limited impacts on wetlands and riparian vegetation due to requirements for compliance with the CWA. Segments 8 and 9 of Gateway West, when taken together with other reasonably foreseeable proposed projects, would, in complying with their federal permits, avoid and minimize impacts to wetlands and riparian areas to the extent feasible and would provide compensatory mitigation where impacts were unavoidable. Cumulative effects for wetland and riparian areas would not vary substantially by route. Therefore, given the minor individual impacts and the requirement for compensatory mitigation, Gateway West, when taken together with other projects that could adversely impact wetlands and riparian areas, would have a minor additional impact on these features.

4.4.12 General Wildlife and Fish

Construction of Segments 8 and 9 of Gateway West would occur in areas that have already been altered by infrastructure development, natural resource extraction activities, and other development, all of which could adversely affect wildlife through direct mortality, disturbance, or habitat removal. Infrastructure development includes both linear (e.g., powerlines, major roads, and oil and gas pipelines) and non-linear (e.g., wind energy facilities, thermal-operated power plants, and geothermal developments) features. Linear features can result in irretrievable losses of habitat; habitat fragmentation and the creation of travel barriers; the spread of invasive species along access roads, ROWs, and disturbed areas; and the facilitation of mammalian predator movement along corridors. Powerline structures also provide perches and nesting substrates for raptors and ravens, potentially facilitating predation for some species (e.g., prairie dogs and grouse). The presence of major roads is associated with the increased risk of mortality from collisions with vehicles, an increased chance of poaching, and the increased risk of human-caused fires, which can lead to the loss of sagebrush habitat and introduction of invasive species, including cheatgrass. Changes in habitat and other environmental variables such as noise resulting from human disturbance and presence may also influence wildlife behavior during key periods such as lekking, breeding and young rearing, and overwintering. Non-linear features can also disrupt wildlife behavior due to associated increases in human activities. Grazing, farming, and other development (e.g., residential, commercial, and industrial), though limited in the Project area, has also caused direct loss of habitat as well as resulted in habitat fragmentation. While Gateway West, as well as other projects requiring federal

permits, would be located to minimize impacts to important habitats and particularly to waterbodies, there would be an unavoidable long-term loss of habitat and fragmentation of habitat caused by these projects. When considered together with the massive habitat alteration already caused by past and present actions, the cumulative impact of Gateway West would be substantial.

4.4.12.1 Habitat

Existing past and present actions have substantially fragmented or occupied habitat, especially native shrub steppe and grasslands. Remnant patches of shrub habitats are very important for the survival of many species of animals, including but not limited to migratory birds, large ungulates, small rodents and lagomorphs, mammalian and avian predators, reptiles, and, for riparian and wetland areas, amphibians and aquatic species including fish. The past and present activities that limit habitat quantity and quality for these species include identified ground-disturbing activities (Table 4.3-1). Reasonably foreseeable activities in addition to Gateway West would also continue to remove habitat and fragment remaining habitat patches with roads and other linear facilities. Because native habitats have been eliminated or reduced in their function through introduction of invasive plant species and changes in fire regime, the additional removal and fragmentation of habitat due to Gateway West, when added to the already considerable impacts of past and present actions, would be substantial. Cumulative effects for habitat would not vary substantially by alternative except to the extent that the longer the alternative in native habitats, the more impact it would have. If a route with larger impacts on habitat were chosen and additional transmission lines were also sited to follow that route, larger cumulative effects on native habitats would be expected.

4.4.12.2 Big Game

The size and extent of big game herd units now present in the CIAA have been influenced by past and present actions. Although big game species are generally mobile and will move away from disturbance, the reduction in habitat availability and the prevalence of disturbances from roads and other developments has limited areas that can support big game, especially during critical times (crucial wintering and parturition). Therefore, disturbances during these times can have large adverse impacts on both individuals and entire herds. The BLM and the state wildlife agencies have developed seasonal restrictions that are applied to all activities on federal and state lands (respectively) and would likely be applicable on private lands for projects subject to the WIA approval process. These seasonal restrictions would reduce the impact from construction noise and visual disruption during critical periods from any development project in the area.

Table 4.4-1 lists the past, present, and reasonably foreseeable actions within big game winter range units that are crossed by Segments 8 and 9 of Gateway West. Effects would be greatest in small, isolated units if development precludes their use by big game. No designated parturition habitat would be crossed by Segments 8 and 9. Most of the designated wintering habitat units crossed by Gateway West are large. Big game would be likely to continue to use these areas since the habitat loss associated with Gateway West and the other past, present, and reasonably foreseeable future actions would be relatively minor compared to the size of the big game habitat area and would be concentrated in areas of prior disturbance.

Table 4.4-1. Existing and Planned Actions within Big Game Wintering Habitat Units Crossed by Segment 8 and 9 Revised Proposed Routes

Species	Gateway West Segment	Approximate Gateway West Mileposts Crossed	Existing Projects within Big Game Habitat	Proposed Projects within Big Game Habitat ^{1/}
Winter Range Units				
Elk	Segment 8 Revised Proposed Route	80-90	transmission lines US 26	transmission line (PC)
Mule Deer	Segment 8 Revised Proposed Route, 8G, 8H	0-1, 4-16, 24-57 (Seg. 8) 0-1, 4-20 (8G, 8H)	US 93, US 20, US 26 transmission lines	transmission lines (PC)
Pronghorn	Segment 8 Revised Proposed Route, 8G, 8H	72-80 (Seg. 8) 18-142 (8G) 126-135 (8H)	US 26 transmission lines	transmission line (PC)
Bighorn Sheep	Route 8H	114-116	transmission lines	None
Bighorn Sheep	Segment 9 Revised Proposed Route	143-144	transmission lines	None
Mule Deer	Segment 9 Revised Proposed Route, 9K	0-10	transmission lines	transmission lines (PC, GBT)
Pronghorn	Segment 9 Revised Proposed Route, FEIS Proposed 9, 9K	154-161 (Seg. 9) 147-171 (9K) 137-160 (FEIS 9)	natural gas pipeline	transmission line (PC)

1/ Transmission lines: PC (PacifiCorp), GBT (Great Basin Transmission)

Because these limitations on activities would be imposed on Gateway West as well as on other transmission lines and pipelines, the additional cumulative impact on big game species from Gateway West activities during sensitive periods would be reduced to a minor level. There would still be the removal and fragmentation of habitat attributable to past, present, and reasonably foreseeable activities, to which even the minor impacts of Gateway West would contribute cumulatively to substantial adverse effects.

4.4.12.3 Migratory Birds and Raptors

Effects of Gateway West on migratory birds would occur primarily during construction. Gateway West and all other projects are subject to the MBTA and would be expected to take appropriate precautions to avoid the take of individual birds or nests during construction. Preconstruction surveys would be required and avoidance of nests and nesting birds, including raptors, would be required during construction, with buffers on nests ranging from 10 meters for shrub-nesting species to miles for sensitive raptor species. Projects with similar permitting structures would be expected to be similarly restricted, including wind energy projects, reducing the impact on nesting birds, including raptors, to a minor level even when taken together. Construction traffic would

be limited to 25 miles per hour on unsurfaced roads for Gateway West and would likely be similarly limited for other projects, reducing the chances for direct mortality due to collisions with equipment and vehicles to a minor level.

The removal and fragmentation of habitat attributable to past, present, and reasonably foreseeable activities, to which even the minor impacts of Gateway West would contribute cumulatively, would result in some adverse cumulative effects to migratory birds and raptors. It is assumed that all new transmission lines, wind farms, and other projects with the potential to incur avian mortality due to collision or electrocution would develop Avian Protection Plans that would include measures to reduce the potential for raptor collisions and electrocutions.

Two hundred thirty (230)-kV and 500-kV transmission lines, such as those proposed by Gateway West and others, offer a negligible electrocution hazard to birds because the conductors are separated by much more than the wingspan of the largest bird. However, they can present a collision hazard for all types of birds. This hazard is relatively low when compared to buildings but higher than for other identified sources of collision (Erickson et al. 2005). Avian mortality was estimated in 1987 to be over 250 birds per mile of transmission line per year in the Netherlands (as quoted in Erickson et al. 2005 and Manville 2005). It is difficult to compare to wind turbine mortality, which has been estimated roughly at one to three birds per MW per year. Though no known monitoring at either wind farms or at transmission line locations is being conducted, it is reasonable to assume that additional transmission lines and additional wind farms will add to bird deaths from collision.

In April 2010, the BLM signed an MOU with the USFWS regarding the management of public lands and the protection of migratory birds (BLM and USFWS 2010). The BLM's obligations at a project level are to determine if the actions proposed in the project would have an adverse effect on migratory bird populations, habitats, ecological conditions, and/or significant bird conservation sites. Gateway West would not have a measurable adverse effect on non-special status migratory bird populations or significant bird conservation sites but would impact individuals and have an adverse effect on migratory bird habitats and ecological conditions through vegetation removal, fragmentation of native habitats, and possible increases in predation pressure due to adding perching substrate for avian predators and adding service roads sometimes used by canid predators. The Proponents have committed to mitigation actions/plans for impacts to migratory birds (as discussed in detail in Section 3.10 – General Wildlife and Fish). This required mitigation includes the Migratory Bird Habitat Mitigation Plan, which addresses mitigation for impacts to woodland habitats (see Tables D.6-2 and D.6-3 for the quantitative impacts that would occur to woodland habitats).

When taken together with the existing substantial habitat loss caused by past and present actions, including clearing for agriculture and development, fragmentation and habitat loss due to grazing, road building, wildfires, and other energy infrastructure projects, as well as the potential future losses due to those same activities, the cumulative impact on migratory bird and raptor habitat and ecological conditions would be substantial.

4.4.12.4 Fish

The largest impact to fisheries from the construction of Gateway West was identified in Section 3.10 – General Wildlife and Fish as road crossings of watercourses—the greater the number of road crossings, the higher the potential for adverse impacts to fish resources. Assuming that parallel transmission lines would have similar access road densities, their potential impacts would add to those of Gateway West wherever they cross the same watercourse. While some access roads could be shared among projects, there would still be a substantial number of access roads, added to existing roads that would cross each waterbody. Gateway West, with established mitigation measures, would have a low risk of introducing or spreading aquatic invasive species (as would other projects held to similar requirements), as a result the Project would have a low contribution to the cumulative effect of the introduction or spread of aquatic invasive species.

Grazing can have negative effects on streambank condition, substrate embeddedness, pool frequency and quality, and riparian reserves due to bank damage caused by cattle, and trampling of riparian vegetation. This would be expected to continue under existing leases. Likewise, ground clearing for proposed projects can be a source of fine sediment and road crossings in general can create fish passage barriers. When features such as road are located near streams this can also reduce large wood debris recruitment and peak flows and drainage networks can be increased with the drainage from road surfaces. Requirements for limiting erosion, sedimentation, and in-water crossing work to non-critical seasons would reduce the impact of each of these projects on fish and other aquatic species. Cumulative impacts to fish would not vary substantially by route. Although Gateway West would implement mitigation measures for minimizing water quality effects and therefore would not contribute substantially to impacts on fish species, when considered together with the existing impacts of other past and present actions, the cumulative impact of Segments 8 and 9 would be substantial.

4.4.13 Special Status Wildlife and Fish Species

The general discussion of conditions and potential impacts found within the General Wildlife and Fish section (Section 4.4.12) would be applicable to special status wildlife and fish species as well. The following discussion focuses on cumulative effects to particular special status wildlife and fish species.

4.4.13.1 Bald Eagle (*BLM Special Status*)

Winter roost habitat for bald eagles is located within Segments 8 and 9, and one nest has been identified along Segments 8 and 9. All projects, including but not limited to other transmission lines, would be sited to avoid nests and would be excluded from construction during nesting season near the nests. Implementation of each proponent's Avian Protection Plan would minimize impacts to the bald eagle, including cumulative impacts, to a minor level.

4.4.13.2 BLM Special Status Fish Species

Streams that support BLM special status fish species could be impacted by the Project. The Project would both span stream habitats with transmission lines and cross these

habitats with access roads. The Agencies have developed mitigation measures that would limit the impact of stream crossings by access roads, limit the risk of introducing aquatic invasive species into aquatic habitats, and establish requirements for water withdrawals in streams that contain sensitive fish to limit the risk of impingement.

Reasonably foreseeable actions that may result in additional impact to aquatic habitats include other linear projects that would span or cross waterbodies, projects that would require water withdrawals, or any project that could result in discharge or sediment loading to waterbodies. As discussed in Section 4.4.12.4 for general fish species, although Gateway West would implement mitigation measures for minimizing water quality effects and therefore would not contribute substantially to impacts on fish species, when considered together with the already considerable impacts of other past and present actions, the cumulative impact of Gateway West would be substantial.

4.4.13.3 Burrowing Owl (*BLM Special Status*)

Habitat for the burrowing owl occurs along the Segment 8 and 9 Revised Proposed Routes. Potential effects of Gateway West on the burrowing owl include direct mortality, disturbance, and loss or modification of habitat. On federally managed lands, preconstruction surveys would be required to avoid burrows. As with Gateway West, other planned transmission lines could provide new perching opportunities for raptors and ravens, thus increasing the potential for predation. This would be most likely to make a difference in predation levels within areas where existing transmission lines have not already provided multiple perching strata. The Agencies have identified mitigation measures aimed at reducing the potential increase in raptor and raven predation on prey species that could result from the Project. The cumulative effect on habitat for burrowing owls from past, present, and reasonably foreseeable future projects, including wind development and other transmission lines, could be substantial on private lands and would be considerable on federal lands even if burrows were not impacted.

4.4.13.4 Columbian Sharp-tailed Grouse (*BLM Special Status*)

Suitable habitat for Columbian sharp-tailed grouse occurs along the Segment 9 Revised Proposed Route. The Project would contribute to the permanent loss of suitable habitat located near leks, and possible disturbances to birds located within these areas. Planned projects along the Segment 9 Revised Proposed Route includes wind energy facilities, ongoing nonrenewable resource extraction, and transmission lines, all of which would, if constructed, permanently remove suitable Columbian sharp-tailed grouse habitat. The construction of additional transmission lines could provide new perching opportunities for raptors and ravens, thus increasing predation rates on the sharp-tailed grouse; however, predation rates would most likely rise more sharply in areas where there are no existing transmission lines. The Agencies have identified mitigation measures aimed at reducing the potential increase in raptor and raven predation on prey species that could result from the Project. Although the Project would be sited and constructed to minimize impact to Columbian sharp-tailed grouse, there would still be long-term loss and fragmentation of habitat associated with the Project. When added to the already considerable loss of habitat due to past and present activities, and the minor but cumulative impacts from

proposed future projects, the cumulative effects on the Columbian sharp-tailed grouse from past, present, and reasonably foreseeable future projects would be substantial.

4.4.13.5 Columbia Spotted Frog / Northern Leopard Frog (*Candidate, BLM Special Status*)

The Columbia spotted frog and northern leopard frog may occur in wetland and riparian habitats found along Gateway West. The transmission line for the Project would span wetlands and riparian habitats (thereby minimizing impacts); however, some loss of or degradation to these habitats could occur due to construction and maintenance of access roads. There are additional transmission line projects that have been proposed for areas adjacent to the Project (see Table 4.2-9) with similar effects. Given that it is standard engineering practice for transmission lines to span riparian and wetland areas, and for such projects to include an SPCC Plan and SWPPP, it is assumed that removal of riparian habitat and sedimentation contributions to wetlands and waterbodies would be minimized by these additional projects as well. However, the cumulative loss or degradation of wetland and riparian habitats could be locally important for Columbia spotted frogs and northern leopard frogs, given the limited availability of these habitats and their sensitivity to impacts.

4.4.13.6 Federally Listed Invertebrate Species (*Threatened and Endangered*)

There are four federally listed aquatic invertebrate species that occur near Segments 8 and 9: the Bliss Rapids snail (Threatened); Banbury Springs limpet (Endangered); Snake River physa snail (Endangered); and Bruneau hot springsnail (Endangered). The designated recovery areas for these species would not be crossed by the Revised Proposed Route for Segments 8 and 9. However, other proposed transmission lines (see Table 4.2-9) may cross through these areas. No other projects are known in the area that could adversely impact the Snake River habitat area. Therefore, no substantial adverse cumulative impacts are expected to federally listed invertebrate species.

4.4.13.7 Greater Sage-Grouse (*Candidate and BLM Special Status*)

General habitat for the greater sage-grouse occurs along all segments of the Project. In addition, agency designated habitats including Idaho-designated Key Habitat, restoration habitats, as well as PGH and PPH, would be crossed by Segments 8 and 9. The Proponents attempted to route the Project to avoid all leks by at least 0.25 mile (in accordance the BLM RMP requirements for “no surface occupancy,” which were in place at the time of initial Project design in 2008). However, the centerline of the Project would come within 0.25 mile of some leks. In addition, leks were avoided to the extent possible by 0.6 mile, based on the assumption made at the time of initial Project design (2008) that the “no surface occupancy” requirement would increase from 0.25 mile to 0.6 mile (as of this date, the BLM “no surface occupancy” restriction has been increased to 0.6 mile; see IM 2012-43 [BLM 2011c]). However, not all leks could be avoided by this distance due to the need to avoid other sensitive resources (e.g., sensitive cultural resources that are protected under the NHPA).

The Project would contribute to the permanent loss of suitable sage-grouse habitat and possible disturbances to birds. The Project design includes minimization measures

such as seasonal restrictions on construction, and mitigation measures such as offsite compensatory mitigation. The Agencies assume that similar measures would be proposed by or imposed upon other projects proposed in the area.

Sage-grouse are dependent on large areas of intact sagebrush habitats. They can utilize a variety of sagebrush types including big sagebrush communities consisting of *Artemisia tridentata* ssp. *wyomingensis* (Wyoming big sagebrush), *A. t.* ssp. *vaseyana* (mountain big sagebrush), or *A. t. tridentata* (basin big sagebrush), as well as low forms of sagebrush such as *A. arbuscula* and *A. nova*. Although sagebrush is one of the most widespread vegetation types in the intermountain lowlands of the western United States, it is also one of the most imperiled ecosystems in North America (USFWS 2010). The decline in sagebrush habitats has resulted from a variety of factors including direct loss of habitat, alterations to regional fire regimes, increased grazing by herbivores, invasion of exotic species, and a lack of successful rehabilitation of impacted area with native shrubland species (Wisdom et al. 2002; Knick et al. 2010). As sage-grouse distribution is strongly correlated with the distribution of sagebrush habitats, a decline in these habitats can have adverse impacts on the distribution of sage-grouse. For example, sage-grouse were once thought to occur in Arizona, California, Colorado, Idaho, Montana, Nebraska, Nevada, North Dakota, Oregon, South Dakota, Utah, Washington, and Wyoming in the United States, as well as Alberta, British Columbia, and Saskatchewan in Canada; however, they no longer occur in Nebraska, Arizona, or British Columbia, and their abundance has been in decline in some of the remaining areas (USFWS 2010).

Estimates regarding the extent of suitable sage-grouse habitats that existed prior to the European colonization of North America are uncertain; however, some studies have placed the estimate at approximately 296,645,809 acres (USFWS 2010). However, recent studies estimated that the current distribution of sage-grouse encompasses only 165,168,202 acres (i.e., a 56 percent reduction since the 18th/19th century; Connelly et al. 2004; USFWS 2010). Much of this habitat loss is directly related to agricultural use, with estimates ranging from approximately 56,834,237 acres to 61,500,000 acres of sagebrush habitats that have been converted to agricultural uses within the sage-grouse conservation area (Connelly et al. 2004; USFWS 2010; Knick et al. 2010). More than 617,763 acres of former sagebrush are now covered by interstate highways and paved roads (Knick et al. 2010). In addition, oil and gas developments influence approximately 8 percent of sagebrush habitats (Knick et al. 2010). Due to differences in the ecology of sagebrush communities within the range of the sage-grouse, seven distinct sage-grouse Management Zones (MZ) have been mapped by WAFWA. Gateway West crosses through two of these MZ: MZ II, which includes the Wyoming Basin floristic region, and MZ IV, which includes the Snake River Plain floristic region. Based on current estimates, there are approximately 26,877,899 acres of sagebrush habitats currently in MZ II and 33,158,329 acres of sagebrush habitats in MZ IV (Knick in press, as cited in USFWS 2010). Estimates of sagebrush levels prior to the 18th/19th century (i.e., before European colonization) within these two MZ are not currently available.

Direct loss of habitat (i.e., conversion of sagebrush habitats to other land-uses) is not the only factor that has contributed to the decline of sagebrush habitats in the western

states. For example, very little of the remaining sage-grouse habitats are currently undisturbed or have been unaltered from sedimentation occurring prior to European colonization. Two of the most substantial factors that have affected the quality and composition of existing sagebrush habitats (beyond direct removal and conversion) are 1) changes that have occurred to the fire regime in the western states, and 2) grazing of sagebrush habitats by domestic herds (discussed in more detail below).

Fire has been identified by many as a prime factor associated with the decline of sage-grouse (USFWS 2010). Sagebrush habitats within the range of the sage-grouse are not fire dependent or adapted to intense/frequent fires (unlike the chaparral-shrub communities on the western coast; Regan et al. 2010), and natural fire return intervals in these areas are thought to have been around 50 to 350 years in length (Backer in press, as cited in USFWS 2010). Recently, however, fire return intervals have become shorter (i.e., fires are more frequent), due in part to the expanding urban-wildland interface, expansion of invasive species, as well as impacts associated with global climate change. For example, wildfires burned a combined total of approximately 21,500,000 acres of sagebrush within the seven MZ mapped by the WAFWA between 1980 and 2007; and there has been an increasing trend in the total area burned since 2007 (Baker et al. in press and Miller et al. in press, as cited in USFWS 2010). Idaho has been particularly hard-hit by recent fire events. Approximately 30 to 40 percent of sagebrush habitats in southern Idaho were burned during 1997 to 2001 (Healy 2001, as cited in USFWS 2010), and an additional 660,000 acres of sagebrush burned between 2003 and 2007 (or approximately 7 percent of the remaining sagebrush habitat in Idaho; USFWS 2010). Due to recent drought conditions, multiple large-scale fires burned through Idaho and Wyoming during the 2012 fire season (the extent of which is still being determined). Table D.6-7 in Appendix D lists the known/recorded wildfires that have occurred within the Project area since 2008, as well as the estimated area that each fire burned. The increased frequency and intensity of fires in recent years has adversely affected sagebrush communities by removing habitat and increasing the rate of invasion by exotic plant species (e.g., *Bromus tectorum* and *Taeniatherum asperum*). Furthermore, as these sagebrush communities are not fire adapted, it can take 20 to 150 years for burnt communities to return to conditions that can support nesting sage-grouse (USFWS 2010).

Although grazing occurred prior to European colonization (i.e., in the form of grazing by native herbivores such as deer, bison, and other ungulates), it is likely that grazing pressures were not as intense historically compared to current conditions/land uses. Native herbivores were likely present in lower numbers compared to current domesticated herds; therefore, historic grazing pressures were likely sporadic and localized (Miller et al. 1994, as cited in USFWS 2010). Limited grazing (such as natural grazing levels resulting from native herbivores) can have beneficial effects to sagebrush communities, such as preventing the encroachment of woodland vegetation into shrublands. However, intense grazing pressures (such as those resulting from domesticated herds) can adversely affect sage-grouse nesting and brood-rearing habitat by decreasing shrub cover (thereby decreasing opportunities for sage-grouse to hide from predators), compacting soils, decreasing herbaceous abundance, increasing erosion, and increasing the rate of invasion by exotic plant species (USFWS 2010).

Although there is little evidence that can be used to directly link modern grazing practices to population level responses by sage-grouse, modern grazing practices have been shown to have detrimental effects to sage-grouse habitats, as described above (Braun 1987 as well as Connelly and Braun 1997, as cited in USFWS 2010). Calculating the direct effects of grazing (i.e., quantitative values) on sage-grouse or their habitats is not possible based on current data (Knick et al. 2010); however, approximately 12,000,000 animal unit months (i.e., the amount of forage necessary to support one livestock unit per month) is permitted for livestock grazing on public lands in the western states (Knick et al. 2010). Table 3.18-3 in Section 3.18 – Agriculture lists the BLM grazing allotments that are located within the Project area.

The historic levels of sagebrush within the Project area are unknown. However, certain assumptions about historic levels can be made by looking at the current land uses in this area. Based on the known distribution of sagebrush habitats in this area (i.e., sagebrush is the most common habitat type crossed by the Project), and the suitability of sagebrush areas for developed into agricultural uses compared to other landscape types present in the Project area (e.g., forested areas), it can be assumed that much of the agricultural and urban development within the Project area likely once contained sagebrush habitats.

Table 4.4-2 lists the existing and proposed activities within designated Key, PPH, and PGH Areas (see Section 3.11 for a definition of these areas). Habitat for sage-grouse would also be impacted by non-linear projects such as ongoing oil and gas extraction, ongoing grazing and OHV use, and wind energy development. Losses of birds would also continue to occur due to hunting, illegal poaching, and the spread of diseases such as West Nile Virus. The cumulative effects of the Project on the greater sage-grouse when taken together with past, present, and reasonably foreseeable future projects would be substantial.

Table 4.4-2. Existing and Proposed Activities within Sage-Grouse Key PPH/PGH Habitat Units

Sage-Grouse Key Units Identified by Gateway West Segments	Approximate Gateway West Mileposts	Existing Projects within Core/Key PPH/PGH Sage-Grouse Habitat ^{1/}	Proposed Projects within Key PPH/PGH Habitat Unit ^{1/}	Relationship to Gateway West
Segment 8 Revised Proposed Route	42–48, 60–68	Two existing transmission lines	Transmission line (PC)	Gateway West would parallel transmission lines along southern edge of habitat polygon.
Segment 9 Revised Proposed Route, FEIS Proposed 9, 9K	1–8	One existing transmission line	Transmission lines (PC, GBT)	Gateway West would parallel transmission lines along northern edge of habitat polygon.
8G/9K	124.5–129.1 (8G) and 153.2–157.9 (9K)	One existing transmission line	Transmission lines (IP)	Gateway West would intersect habitat polygon south of transmission line.

^{1/} Transmission lines: IP (Idaho Power), PC (PacifiCorp), and GBT (Great Basin Transmission)

Because the sage-grouse may avoid areas that contain tall structures, the cumulative effects on this species may differ depending on which route is selected. If an additional proposed transmission line is colocated with Gateway West, the effects of habitat displacement on grouse species by these various lines (resulting from the presence of tall structures) would overlap each other to some degree. However, if each line is located in a separate location within sage-grouse habitat, then each could create a substantial and unique area that sage-grouse would likely avoid.

Table 4.2-9 identifies the B2H project as a reasonably foreseeable future project within the vicinity of the Project area. A portion of Segment 6 of the B2H project is within the CIAA for sage-grouse. According to the 2014 B2H DEIS, the proposed project would cross through and impact sage-grouse habitat (Figure 3-30 of BLM 2014b). The impacts that would occur as a result of the B2H project, when combined with this Project, could have cumulative effects to sage-grouse and their habitats. Note that a final EIS for the B2H project has not yet been prepared, and any impact values reported for that project are uncertain at this time.

BLM IM 2012-044 (i.e., the BLM National Greater Sage-Grouse Land Use Planning Strategy [BLM 2011d]) provides direction to the BLM for considering conservation measures identified in the Sage-Grouse National Technical Team's *A Report on National Greater Sage-Grouse Conservation Measures* during the current greater sage-grouse land use planning process. Multiple BLM RMPs that contain sage-grouse habitat are currently being amended and/or revised; all of the RMPs applicable to this Project would be affected by this IM. These amendments/revisions are not currently completed and a ROD has not been published; therefore, the conservation measures proposed for the revised RMPs have not been finalized or implemented. However, the EIS for these amendments/revisions includes new sage-grouse habitat management area designations (i.e., Priority, Important, and General) with associated conditions. Although the EIS for these RMP amendments/revisions states that the Gateway West Project would be one of several excepted projects that would not need to comply with the conservation measures outlined in the proposed plan, other projects that affect lands under the jurisdiction of these RMPs would not be exempt. As a result, it can be assumed that these amendments/revisions to the RMPs, once finalized and enacted, would provide additional protection for sage-grouse and their habitats on BLM-managed lands.

4.4.13.8 Pygmy Rabbit (*BLM Special Status*)

The pygmy rabbit could occur within sagebrush habitats found along Segments 8 and 9. Gateway West would result in permanent habitat loss, and could result in direct mortality and an increased opportunity for predation by raptors and ravens (as was discussed for other prey species such as the black-footed ferret). The Agencies have identified mitigation measures aimed at reducing the potential increase in raptor and raven predation on prey species that could result from Gateway West (see Section 3.11 – Special Status Wildlife and Fish Species). The cumulative effects of Gateway West on the pygmy rabbit when considered together with the effects of past, present, and reasonably foreseeable future projects would be substantial.

4.4.13.9 Yellow-billed Cuckoo (*Threatened*)

Habitat for the yellow-billed cuckoo would be impacted by Segments 8 and 9. Potential effects of Gateway West include habitat removal, direct mortality due to collisions with construction vehicles, and disturbance during construction. Past actions in the CIAA have removed riparian and wetland habitats and additional losses are possible due to planned transmission lines. However, the cumulative loss of riparian habitat would likely be low under all routes, given that it is standard engineering practice to design transmission lines to span riparian habitats and avoid placing ancillary facilities within them. The existence of multiple transmission lines through riparian habitats would also present increased risk of collisions. However, this risk would remain low given that yellow-billed cuckoos are agile flyers. The cumulative effects from Gateway West on the yellow-billed cuckoo when considered together with the effects of past, present, and reasonably foreseeable future projects would be minor.

4.4.13.10 Northern Goshawk (*BLM Special Status*)

The Project could impact habitats within the range of the northern goshawk; however, no known goshawk nests are located within the analysis area for Segments 8 and 9. Therefore, there would be no project impacts within 1 mile of known goshawk nests and the Project would not contribute to the cumulative effects to habitats within 1 mile of known goshawk nests.

4.4.13.11 Other BLM Special Status Species

With the exception of the species listed above, construction and operations of Gateway West are not expected to substantially add to the cumulative effect of past, present, and reasonably foreseeable future projects on BLM special status species in ways that are different from those listed in Section 4.4.12, where cumulative effects are shown to be considerable for wildlife generally. In general, cumulative effects on sensitive species would not differ substantially by route.

4.4.14 Minerals

The continued extraction of saleable minerals in southern Idaho partially constrains the location of this and other proposed transmission lines, but this effect is minor because the Project can span individual extraction sites. The cumulative impact of Gateway West on saleable mineral extraction when taken together with past, present, and reasonably foreseeable activities would be minor.

4.4.15 Paleontological Resources

There are known fossil-bearing formations close to or at the surface in the CIAA for Gateway West. In the area of high fossil sensitivity, there are no other projects proposed in this area, indicating that, with EPMS to avoid or minimize the extent of impacts that could occur to paleontological resources, the cumulative impact of Gateway West to paleontological resources would be negligible.

4.4.16 Geologic Hazards

The Segment 8 and 9 Revised Proposed Routes, route variations, and other routes would cross areas of high earthquake risk (see Section 3.14 – Geologic Hazards, for details). Project structures could be damaged or collapse in the event of fault rupture

beneath or adjacent to a tower due to inaccurate fault location during project design. Collapse of Project structures would potentially result in power outages, damage to nearby roads or structures, and injury or death to people.

The BLM would require proponents of all new transmission lines to conduct geotechnical exploration and avoid locating any project facilities on known earthquake traces or in areas of active land movement. Prudent engineering design and compliance with national building standards would reduce the risk for each of the transmission lines to a minor level. Given the physical length of the Project, the time interval of operation, and the geologic hazards that may be encountered, it is possible that a small-scale, local failure could occur during the life of the project. However, the cumulative risk would still be low provided that standard engineering practices for design and construction, and the proposed operations and maintenance activities for Gateway West were also practiced by other proponents.

4.4.17 Soils

Effects on soils from Gateway West that would contribute cumulative effects include unavoidable soil loss due to wind and water erosion, soil mixing, soil compaction, and soil contamination. Soils in the CIAA have been affected by past activities such as pipelines, transmission lines, roads, OHV use, farming, and grazing. During construction of any of the current or reasonably foreseeable projects, vegetation would be removed exposing the soil to erosional forces, soil compaction could occur from vehicle traffic, and soil excavation would cause soil mixing, although BMPs (minimizing bare soil exposed to wind, water, and steep slopes, and stockpiling topsoil for use during reclamation) are or would be used to minimize the extent of effects. Soil contamination could occur from chemical or petroleum spills, although the risk is not great. Some soil disturbance related to ongoing use of roads will remain during the life of the projects.

Loss of production due to sites occupied by facilities (transmission line structures energy generation facilities, commercial development, and the access roads to all of these) would remain during the life of the projects. Effects on soils could occur from unauthorized off-road vehicle use from construction on projects with inadequate access control.

Decommissioning and reclamation can recover some of the soil productivity, but is not 100 percent effective. Large construction projects, roads, and pipelines are the types of projects that have high effects on soils. The implementation of BMPs and reclamation on all projects would minimize soil impacts.

The cumulative impact to soils from Gateway West, when taken together with the already substantial impact of past and present activities and proposed future action on some sensitive soils, could be substantial even with expected erosion control measures fully effective.

4.4.18 Water Resources

The impacts to surface waters from Gateway West include potential for sedimentation and temperature increases due to road crossing construction and ROW clearing. These impacts would be minimized but not entirely eliminated by the conditions of the SWPPP

and additional mitigation measures. It is reasonable to assume that other construction projects would also minimize but not eliminate their impact. However, when taken together with the substantial degradation to surface water resources from grazing, fires, and invasive species, the additional minor impacts of Gateway West and other proposed projects would contribute to a substantial cumulative impact.

Water usage would occur for most facility construction projects in the CIAA, mostly for dust control and mixing concrete for other transmission line facilities, energy generation facilities, commercial developments, and roads. This water usage is important because of federally listed threatened and endangered plants and fish in these watersheds; the cumulative effects are discussed in Sections 4.4.9 and 4.4.13, respectively. Because Gateway West would not require any water rights, there would be no cumulative effects on water rights.

4.4.19 Land Use

The WWE Corridor PEIS (DOE and BLM 2008) designates corridors on federal lands within 11 western states (Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming) for oil, gas, and hydrogen pipelines, as well as electricity transmission and distribution facilities. However, it does not take into account the current federal land use plans (such as the BLM RMPs) that still exclude those uses along many parts of the corridor. As a result, the siting of these types of facilities within the WWE corridor would still require amendments to existing federal land management plans (RMPs and MFPs) that could change existing land use allocations for the affected lands. In addition, Gateway West is only partially located within this designated corridor. Gateway West would cumulatively add to the changes made to these federal land use plans by the past, present, and reasonably foreseeable future projects. The routes that cross more public lands or would impact more sensitive resources on federal lands would have a greater contribution to this cumulative effect on public land use plans than those that cross less public lands.

Long linear projects such as Gateway West, as well as many of the other reasonably foreseeable projects within the CIAA (see Table 4.2-9), typically cross multiple land management types such as federal, state, and privately held lands. There are currently conflicting sentiments regarding the placement of these types of projects. Many feel that projects designed for the greater good of the public should be placed on public lands to the greatest extent practical, because they feel that this is consistent with the original purpose of these lands. However, others feel that public lands were designated to protect sensitive resources and should be excluded from developments whenever practical (indicating that these projects should be placed on private lands to the extent practical). Although public lands were established for a variety of reasons, and the various federal and state land management agencies manage their respective lands for different goals, this conflicting sentiment regarding the proper placement of projects meant for the public good will likely continue. The Project has cumulatively added to this debate, which has resulted from past, present, and reasonably foreseeable future projects.

The differential cumulative effects of Gateway West when taken together with other reasonably foreseeable future actions as well as past and present actions and management is would be substantial, regardless of land ownership.

Section 4.1.3, above, details the federal land management plan amendments that would be needed to change land classification or VRM class if a particular route were selected. In all cases of public land reclassification, more activities in addition to the construction and operations of Gateway West would be permissible without additional land management plan amendments for the same restrictions the proposed amendments address. In several cases, where the parcel being reallocated is small, there is no additional infrastructure that could reasonably fit within the parcel in addition to Gateway West and therefore the cumulative impact of the RMP amendment would be negligible.

Projects are sited to avoid impacting sensitive resources to the greatest extent practical. As more projects are constructed through areas located adjacent to sensitive resources, the possible paths that can be taken to avoid these resources become limited.

Because rangelands are the most common land use within the CIAA, the past, present, and reasonably foreseeable projects have and will continue to affect it to a considerable degree. The other land use types found within the CIAA have experienced fewer impacts than rangeland, due either to their rarity in the CIAA or because developers avoid them. While wetlands and riparian areas are both rare in the CIAA, developers typically avoid these areas due to the added restrictions and regulations applicable to developments within them.

OHV use is increasing on public lands. OHV riders may have more opportunities available as a result of the Project. New access roads used for construction and maintenance provide additional avenues for riders to gain access to locations that were previously off limits or unavailable. Both increasing authorized and unauthorized OHV use is likely to result in increasing complaints from landowners and the public. As reasonably foreseeable projects increase road density at the same time OHV use increases, there will be a need for additional enforcement and physical barriers to protect some areas.

Gateway West would contribute to cumulative effects along with reasonably foreseeable projects through energy development and use of designated utility corridors as specific areas are avoided and more development occurs but would not reduce the capacity of public or private lands to support existing land uses.

4.4.20 Agriculture

Past, present, and reasonably foreseeable activities that could combine with Gateway West and result in cumulative effects to agriculture include projects with the potential to affect prime farmland, livestock grazing, crop production, CRP lands, and dairy farms. The effects from past and present activities that have shaped current patterns of agricultural use are generally accounted for in the existing conditions overview presented in Section 3.18.1. The analysis area used for CIAA on agriculture is the counties crossed by Segments 8 and 9 of the Project.

The Segments 8 and 9 Revised Proposed Routes and other routes would have temporary and permanent effects on agricultural land, which includes cropland and pasture, as would other projects developed within the CIAA. Potential impacts from the Project would be reduced with implementation of the proposed reclamation methods identified in Appendix B of the 2013 ROD (BLM 2013b). As displayed in Table 4.4-3, the amount of agricultural land affected by either construction or operation of the Revised Proposed Routes would be less than 0.01 percent in any of the counties crossed by Segments 8 and 9. The same would be true for the other routes considered in this SEIS.

Table 4.4-3. Agricultural Lands Impacted by the Revised Proposed Routes in Segments 8 and 9 during Construction and Operations (acres)

County	Total Agricultural Land	Agricultural Land Impacted		Percent Agricultural Land Impacted ^{2/}	
		Construction ^{1/}	Operations	Construction	Operations
Ada	144,049	744	50	<0.01	<0.01
Canyon	303,836	58	3	<0.01	<0.01
Cassia	611,055	41	2	<0.01	<0.01
Elmore	344,820	1,528	161	<0.01	<0.01
Gooding	239,640	467	39	<0.01	<0.01
Jerome	188,075	97	16	<0.01	<0.01
Lincoln	129,724	34	6	<0.01	<0.01
Owyhee	748,771	1,443	154	<0.01	<0.01
Twin Falls	484,004	817	86	<0.01	<0.01

1/ Includes line removal actions.

2/ Percent of total area is the land in farms divided by the total respective county or state land area.

Source: USDA 2012

Potential effects to cropland could include damage to or loss of crops, decreases in crop yield, restrictions to farm vehicle access or aerial spraying operations, and disruption of drainage and irrigation systems. As discussed in Section 3.18 – Agriculture, these types of potential effects are difficult to quantify and would likely be determined through negotiation with landowners.

Other foreseeable projects that would contribute to cumulative effects on agricultural lands in the Analysis Area include Segments 5, 6, 7, and 10 of the Gateway West Project (Twin Falls, Cassia, and Lincoln Counties). Reasonably foreseeable actions, e.g., conversion of agricultural land for residential, industrial, and commercial uses, or through the construction of transmission line facilities and access roads of other projects, would continue to affect farmland by removing acres from production.

When taken together with the ongoing loss of agricultural land to residential, commercial, and industrial development, the small additional area affected by Segments 8 and 9 could be important to individual farmers but it would have little effect on overall crop production and livestock production in the any of the counties crossed by the Project.

4.4.21 Transportation

Linear facilities invariably need to cross other linear features such as highways and railroads. These crossings can interfere with use of the roads and railroads during

project construction, including the need to reroute or delay traffic. However, these impacts would be temporary and only last as long as construction activities occur within the area. If other reasonably foreseeable projects are constructed at the same time and in similar location as the Revised Proposed Routes, variations, or other routes, or immediately before or after this project, then there could be a minor temporary cumulative effect on traffic volumes on local roads, which would be mitigated by traffic controls required by both county and federal regulations.

4.4.22 Air Quality

As stated in Section 3.20 – Air Quality, existing air quality in Idaho is generally good to excellent. Current air emissions due to present activities, including power plant operation, residential use of wood for heating, use of gasoline- and diesel-powered cars and trucks for most transportation of people and cargo, and occasional wildfires, do not have a substantial cumulative adverse effect on air quality as demonstrated by the USEPA classification of “attainment” for most of Idaho. Proposed projects in the CIAA that could contribute to deterioration in air quality include the proposed natural gas power plant in Idaho, which would contribute to reductions in air quality in southwestern Idaho, where there is one area of non-attainment for PM₁₀ that overlaps the proposed Gateway West Project.

Because Gateway West would have no measurable impact on air quality within the CIAA, it would not contribute to the cumulative impact of other projects on air quality in the CIAA. This is the case across the Segments 8 and 9 Revised Proposed Routes, route variations, and other routes.

Predicted CO_{2e} emissions (total emissions of all greenhouse gases converted to equivalent of CO₂) for 2020 are 46,958,462 tons for Idaho (CCS 2010). Estimated total CO₂ emissions from construction of Segments 8 and 9 are approximately 75,500 tons, and GHG emissions from operations activities would be less than 3 tons CO_{2e} per year. Therefore, construction and operations of Gateway West would not add substantially to the cumulative effects of past, present, and reasonably foreseeable future projects in terms of GHG emissions.

4.4.23 Electrical Environment

The analysis of electrical effects determined that Gateway West would have no effects on health or safety; therefore, there would be no cumulative effects to other past, present, or reasonably foreseeable future projects. This is the case across all routes. Cumulative effects of noise due to corona effects are treated in Section 4.4.25.

4.4.24 Public Safety

Like Gateway West, nearly all current and reasonably foreseeable construction and long-term operations projects have requirements to monitor and treat noxious weeds, which includes the use of herbicides in many cases. Use of herbicides does not pose a risk to public health and safety when label instructions are followed, as is required. Construction of any project also has the risk of uncovering previously unknown environmental contamination. Remediation methods would be applied to control and reduce risk from past environmental contamination if any is found that would spread or affect public health.

Electrical projects (transmission and distribution lines, substations, etc.) pose a risk of electrocution; however, requirements for fencing and posting these sites where people might come into contact with them effectively minimize the risk.

In the past, transmission and distribution lines have caused wildland fires. New construction techniques and equipment as well as ongoing maintenance standards result in newer lines posing much less of a risk than older and smaller electrical lines. Employment of current safety standards to the construction and operations of Gateway West would reduce the risk to public health and safety to minor. Cumulative effects on public safety do not differ substantially by route because the measures in place to protect the public during both construction and operations would apply both for Gateway West and other projects. Assuming other present and future projects would also be required to adhere to current safety standards, the cumulative effects of these projects would be minimal.

4.4.25 Noise

Cumulative impacts due to construction noise could occur within 1,000 feet of the Project area or ancillary facilities as other projects or activities add to the noise from the time of Gateway West construction. In some cases, other construction projects could be using the same roads as Gateway West and additional construction-related traffic noise could occur, though it is very unlikely that these projects would be constructed concurrently. No substantial long-term changes in the volume of traffic and resulting potential transportation noise impacts are expected. Therefore, Gateway West would not contribute substantially to adverse cumulative noise impacts during construction.

Operations noise from Gateway West is limited to corona noise. Corona noise, depending on background sound levels, is masked by other sound sources within short distances from the ROW. Cumulative impacts on noise do not differ substantially by route because the measures in place to reduce noise of both construction and operations would apply both for Gateway West and other projects. Cumulative operational noise impacts are possible where Gateway West crosses, or is in close proximity to, other high voltage transmission lines (e.g., 230-kV and above) such as areas where Segment 8 would parallel the existing 500-kV line within 250 feet. However, there would be no cumulative effect when taken together with other transmission lines because of the separation distances and lack of sensitive receptors. Section 3.23 provides a discussion of operational sound levels where Segment 8 is in close proximity to the existing 500-kV line and Routes 8G and 9K are also 250 feet apart under one action alternative. Impacts of the cumulative audible corona noise from these lines are addressed in the direct impacts analysis.

4.4.26 Morley Nelson Snake River Birds of Prey National Conservation Area

Section 3.24 – Morley Nelson Snake River Birds of Prey National Conservation Area describes the resources and values associated with the SRBOP and discusses the impacts that may result from implementing Gateway West. Past, present, and reasonably foreseeable activities that could combine with Gateway West and result in

cumulative effects to the SRBOP would include projects with the potential to affect the resources and values for which the SRBOP was established:

- upland habitat/vegetation,
- raptors/upland wildlife,
- cultural resources/NHTs,
- NHTs, and
- recreation and visitor services.

As discussed in Section 3.24, the SRBOP is managed under the concept of dominant use. Public activities and uses that existed when the legislation was enacted are allowed to continue to the extent that they are compatible with the purposes for which the SRBOP was established – i.e., to provide for the conservation, protection, and enhancement of raptor (birds of prey) populations and habitats and environmental resources and values associated therewith, and of the scientific, cultural, and educational resources and values of the public lands in the conservation area. The 2008 SRBOP RMP divided the SRBOP into three management areas that reflect differences in soils, precipitation, fire history, seeding history, current vegetation, and site potential. Additional areas have burned since the 2008 RMP.

Under the Preferred Alternative, two additional 500-kV transmission line ROWs would be allowed outside designated corridors for approximately 2.2 miles; however, no new utility corridor would be designated. Therefore, the cumulative effects resulting from this amendment would be the same as those described for the Project.

As with Gateway West, projects with the potential to affect the resources and values of the SRBOP would require compensatory mitigation to ensure the resources and values of the SRBOP are mitigated and enhanced (see the Compensatory Mitigation Framework in Appendix K). Any subsequent NEPA analysis (including cumulative impacts) required for the Gateway West Compensatory Mitigation Plan would be done on a case-by-case basis. Therefore, it is not possible to determine the cumulative impacts of mitigation and enhancement from the Gateway West Project in consideration with mitigation and enhancement from other future foreseeable project at this time. However, provided that mitigation and enhancement are required to offset reasonably foreseeable remaining residual effects from any project considered within the SRBOP, net benefits would be achieved.