

Chapter 6

Additional Topics Required by NEPA

This chapter describes the short-term uses of environmental resources and compares them with the maintenance and enhancement of long-term productivity and any irreversible and irretrievable commitments of resources as a result of the proposed rail line, as required by the National Environmental Policy Act (NEPA), Section 102 (42 United States Code [U.S.C.] § 4332).

6.1 Short-Term Uses of the Environment and Maintenance and Enhancement of Long-Term Productivity

NEPA regulations (40 Code of Federal Regulations [C.F.R.] § 1502.16) recognize that short-term uses and long-term productivity of the environment are linked. Decisions that result in the use of or impacts on environmental resources have corollary opportunity costs because they may affect other potential uses of those resources in the future. This section discusses whether the short-term uses of environmental resources by the proposed rail line would affect the long-term productivity of the environment. Short-term generally refers to construction impacts, and long-term generally refers to operational impacts. Short-term uses of the environment associated with the Action Alternatives are generally the same as the impacts described for each resource in this Draft EIS. OEA considered the effect of these uses on three main types of long-term productivity: land use productivity, water resources productivity, and biological resources productivity. The relationship between short-term uses and long-term productivity would not be appreciably different between the three Action Alternatives.

6.1.1 Land Use Productivity

Construction of the proposed rail line would convert undeveloped land and land used for public recreation, wildlife habitat, agriculture, and grazing to land for rail operations. Temporary productivity losses related to soils would be limited to the temporary footprint¹ where land would be disturbed during construction, including areas for temporary material laydown, staging, and logistics. The Wells Draw Alternative would temporarily disturb the greatest amount of land during construction (5,309 acres), followed by the Whitmore Park Alternative (3,490 acres) and the Indian Canyon Alternative (2,818 acres). Following construction, the temporary footprint would be reclaimed and revegetated and land productivity would be restored. It is unlikely that the proposed

¹ The *rail line footprint* includes the area of the railbed, as well as the full width of the area cleared and cut or filled. The rail line footprint would also include other physical structures installed as part of the proposed rail line, such as fence lines, communications towers, siding tracks, relocated roads, and power distribution lines. The rail line footprint is the area where rail line operations and maintenance would occur. The area would be permanently disturbed. The *temporary footprint* is the area that could be temporarily disturbed during construction, including areas for temporary material laydown, staging, and logistics. Disturbed areas in the temporary footprint would be reclaimed and revegetated following construction. The *project footprint* is the combined area of the rail line footprint and temporary footprint, both of which would be disturbed during construction, comprising where construction and operations of the proposed rail line would occur.

railbed would ever be dismantled; therefore, effects on soils and some land uses would be permanent. These permanent land productivity losses would occur within the rail line footprint, which includes the railbed and the full width of the area cleared and cut or filled.

Depending on the Action Alternative, 1,543 to 2,656 acres of land would be permanently affected. Construction and operation of the proposed rail line would result in unavoidable consequences on land use productivity, including the permanent loss of irrigated cropland and grazing land and the severance of private parcels. The Wells Draw Alternative would affect the most total land, followed by the Whitmore Park Alternative and the Indian Canyon Alternative. The Wells Draw Alternative would also affect the most public land among the Action Alternatives, most of which would be lands administered by the Bureau of Land Management (BLM).

The Whitmore Park Alternative would affect the most private land, followed by the Indian Canyon Alternative and the Wells Draw Alternative. The Wells Draw Alternative would have the largest impact on livestock production because it would cause the loss of the most Animal Unit Months (AUMs) (a measure of grazing forage), followed by the Whitmore Park Alternative and the Indian Canyon Alternative. The Indian Canyon Alternative and the Whitmore Park Alternative would affect the same area of irrigated cropland and prime farmland, while the Wells Draw Alternative would affect a much smaller area of irrigated cropland and prime farmland. While the losses to land use productivity within the proposed rail line would be permanent, the areas adjacent to the rail line would still support a diversity of land uses, including agricultural activity, grazing, and wildlife.

6.1.2 Water Resources Productivity

Water use during construction and operations would result in short-term impacts on groundwater and surface water quantities. Because water sources are anticipated to be from a previous state-approved water rights source, construction of the proposed rail line would not affect the long-term quantity of water resources available for other uses. See Subsection 6.2.1, *Water Resources*, for additional information on water use under the Action Alternatives.

The permanent loss of wetland functions and values through the placement of fill and alterations to wetland vegetation, hydrology, and water quality would affect long-term wetland productivity. Depending on the Action Alternative, the construction of the proposed rail line would permanently affect between 3.6 and 7.0 acres of wetlands. The magnitude of impacts on wetland productivity would depend on both the area of wetlands filled and the quality of the affected wetlands. Wetlands filled during construction would most likely not return to wetlands, and fragmented wetlands could experience permanent changes to their vegetation composition and hydrology. Wetlands that are adjacent to the project footprint would not be filled, cleared, or excavated during rail construction, but could be affected by rail construction and operations in the project footprint.

Construction of the proposed rail line would require 391 to 506 surface water crossing structures (e.g., bridges, culverts), and 17 to 59 stream realignments depending on the Action Alternative. Construction of bridge footers, embankments, culverts, and other features at surface water crossings could alter surface water flows and reduce the ability of floodplains to convey floodwaters. However, the impermeable surface area and the number of structures within the floodplains are considered minimal and, therefore, would not have a substantial effect on the long-term productivity of the floodplain. Additionally, if OEA's recommended mitigation related to maintaining existing surface water flows and the inspection and clearing of debris at water crossings is

implemented, OEA does not expect significant impedance or blockage of flood flows from culvert or bridge obstructions to occur.

6.1.3 Biological Resources Productivity

Construction of the proposed rail line would result in some short- and long-term impacts on vegetation, fish, and wildlife resources. The temporary vegetation loss as a result of construction activities would be short term in some areas and long term in others, depending on the type of vegetative cover. Because of the limited precipitation in the region, reclamation of temporary disturbance areas would result in long-term losses in productivity for certain vegetation communities, such as sagebrush. Although vegetation would return to the temporarily disturbed areas, the clearing of shrub and forest vegetation would alter and likely permanently change the vegetation cover class to nonwoody herbaceous cover classes. Vegetation cleared for the railbed and associated infrastructure would be permanent, resulting in long-term impacts on vegetation resources. The Wells Draw Alternative would permanently remove the greatest area of vegetation/land cover, followed by the Whitmore Park Alternative and Indian Canyon Alternative. Among the different types of land cover in the study area, shrublands (particularly the Colorado Plateau Mixed Low Sagebrush Shrubland vegetation community) and woodlands (particularly the Colorado Plateau Pinyon-Juniper Woodland vegetation community) would be most affected by any of the Action Alternatives.

Short-term construction-related impacts on wildlife would include habitat loss, alteration, and fragmentation; a decrease in breeding success from exposure to construction noise and increased human activity; and direct mortality from construction. Rail operations would also increase mortality from collisions with maintenance vehicles, trains, power lines, and communications towers and would create a barrier to wildlife movement. Construction of the rail line could have localized impacts on fish populations during the construction period.

Due to the number of species—including federal Endangered Species Act (ESA)-listed and other special status species, as well as the largely undisturbed condition of the study area—impacts on biological resources related to habitat disturbance and noise would be significant under any of the Action Alternatives. If implemented, OEA's recommended and the Coalition's voluntary mitigation measures would lessen impacts of construction and operations on animal and plant species, including ESA-listed species (Chapter 4, *Mitigation*). Some significant impacts, however, including the permanent loss of existing habitat in the rail line footprint, would be unavoidable, which could affect long-term productivity of the environment. OEA is conducting ESA Section 7 consultation with the U.S. Fish and Wildlife Service to assess the potential impacts of the proposed rail line on ESA-listed species (Appendix I, *Draft Biological Assessment*). Based on the analysis of the potential impacts of the proposed rail line on federally listed species, OEA determined that the proposed project *May Affect, but is Not Likely to Adversely Affect* Canada lynx and Mexican spotted owl; *May Affect, and is Likely to Adversely Affect* Colorado pikeminnow, humpback chub, bonytail, razorback sucker, Barneby ridge-crest, Pariette cactus, Uinta Basin hookless cactus, and Ute ladies-tresses; and would have *No Effect* on June sucker and Western yellow-billed cuckoo.

6.2 Irreversible or Irretrievable Commitments of Resources

NEPA requires federal agencies to consider irreversible or irretrievable commitments of resources related to their decisions. Irreversible commitments are uses of resources that cannot be reversed because they involve nonrenewable resources (such as fossil fuels or cultural resources) or because they would affect renewable resources (such as soils or water resources) to the point that they might not be able to completely recover. Irretrievable commitments of resources are uses of resources that cannot be retrieved for a period of time, such as the use of construction materials to construct the proposed rail line. The following subsections describe irreversible or irretrievable commitments of resources from implementing the Action Alternatives.

Construction of the proposed rail line would require the irretrievable commitment of materials to build the track structure (e.g., ballast, subballast, rail ties, and steel rail), track sidings, fences, power distribution lines, access roads, grade-separated crossings, rail bridges, culverts, support facilities, and communications towers. Because it would be substantially longer than the other Action Alternatives, the Wells Draw Alternative would require more construction materials to be irretrievably committed relative to the Indian Canyon Alternative and the Whitmore Park Alternative.

6.2.1 Water Resources

The Coalition would obtain water needed for construction activities (i.e., for dust suppression, soil compaction, and concrete work) and operations through existing water rights near the proposed rail line. The Coalition does not intend to pursue new water rights. The Coalition estimates that 1,650 acre-feet of water would be needed to construct the Indian Canyon Alternative, 8,890 acre-feet to construct the Wells Draw Alternative, and 1,750 acre-feet to construct the Whitmore Park Alternative. The use of groundwater and surface water would be an irretrievable commitment of resources during the construction phase. Among the Action Alternatives, the Wells Draw Alternative would require the greatest amount of water. This water would be replenished through the natural water cycle following the rail construction process.

Construction of the proposed rail line and associated facilities would permanently convert between 3.6 acres (Whitmore Park Alternative) and 7.0 acres (Indian Canyon Alternative) of wetlands, which would represent an irreversible commitment of resources because the proposed rail line would be permanent. The majority of wetlands affected by permanent fill actions for the Action Alternatives would be from partial filling; however, several wetlands would be completely filled, including 12 wetlands along the Indian Canyon Alternative, seven wetlands along the Wells Draw Alternative, and four wetlands along the Whitmore Park Alternative. In addition, temporary construction disturbances to wetlands could result in irreversible changes if the wetlands are not restored to full function.

6.2.2 Biological Resources

Construction of the proposed rail line and associated facilities would irreversibly remove and alter vegetation and wildlife habitat. The Wells Draw Alternative would permanently affect the greatest amount of vegetation communities in the rail line footprint (2,560 acres), followed by the Whitmore Park Alternative (1,431 acres), and the Indian Canyon Alternative (1,341 acres). The permanent

conversion of vegetation resources and wildlife habitat along the proposed rail line and at associated facilities would represent an irreversible commitment of biological resources.

6.2.3 Geology and Soils

Construction of the proposed rail line would permanently alter topography. Construction of any of the Action Alternatives would involve extensive grading to create the railbed. The grading would permanently remove bedrock in some locations, which would be an irreversible change to local geology. Construction would also involve placing subballast material obtained from quarries near the rail line into the rail line footprint. Subballast is available at quarries near the proposed rail line.

Construction of the proposed rail line would require moving and stockpiling soil, resulting in mixing soil layers and compaction. These activities could increase susceptibility to wind and water erosion and lead to the irreversible loss of soil productivity under any of the Action Alternatives. The Wells Draw Alternative would result in the greatest area of soil disturbance among the Action Alternatives, followed by the Whitmore Park Alternative and Indian Canyon Alternative. Construction activities would also irreversibly affect soils that are removed or buried under subballast for construction of the railbed. In temporarily disturbed areas, impacts on soils that have been properly stockpiled would be reversible, assuming successful reclamation following construction.

6.2.4 Energy Resources

All construction activities for the proposed rail line would consume fuel, mostly in the form of diesel and gasoline for construction equipment and vehicles. This would be an irreversible use of nonrenewable fossil fuels. Operation of trains on the proposed rail line would also require an irreversible commitment of fuel resources, mostly in the form of diesel for locomotive operation. OEA estimated total fuel usage (diesel and gasoline combined) for construction to be up to 27,803,000 gallons (under the Wells Draw Alternative) and fuel usage for operations to be 15,127,985 gallons per year (under the high rail traffic scenario² for the Wells Draw Alternative).

6.2.5 Cultural Resources

Cultural resources (e.g., archaeological sites, tribal resources, and built resources) are nonrenewable resources, and any loss of such resources would be irreversible. The proposed rail line could affect between 16 known sites (for the Indian Canyon and Whitmore Park Alternatives) and 19 known sites (for the Wells Draw Alternative). Because the area of potential effects (APE) has not been surveyed comprehensively, OEA concludes that additional cultural resources, such as previously unidentified archeological sites, are likely to be present in the APE and could be impacted by construction and operation of the proposed rail line. Construction and operation of any of the Action Alternatives would likely result in impacts on cultural resources that have not yet been identified. To ensure that any adverse effects on cultural resources are appropriately avoided, minimized, or mitigated, the Coalition will comply with the terms of the Programmatic Agreement being developed through Section 106 of the National Historic Preservation Act consultation.

² The Coalition estimates that rail traffic on the proposed rail line could range from as few as 3.68 trains per day, on average (the low rail traffic scenario), to as many as 10.52 trains per day, on average (the high rail traffic scenario), depending on future market conditions, including future demand for crude oil produced in the Basin.

6.2.6 Paleontological Resources

Paleontological resources, like cultural resources, are nonrenewable resources and any loss of scientifically important fossils would be irreversible. Some direct impacts, including damage to fossils, may be unavoidable during construction, depending on the final construction methods used. For example, tunnel construction activities, including mining and blasting, could result in the loss of scientifically important paleontological resources because these activities cannot be safely monitored. Construction of the proposed rail line would involve surface and subsurface activity that could affect between 2,294 acres (Indian Canyon Alternative) and 6,455 acres (Wells Draw Alternative) of paleontologically sensitive geologic units (Potential Fossil Yield Classes [PFYC] 3 through 5). To avoid or minimize impacts on paleontological resources, OEA is recommending that the Board impose a mitigation measure that would require the Coalition to contract with a qualified paleontologist to develop and implement a paleontological resources monitoring and treatment plan to mitigate impacts on paleontological resources on lands classified as PFYC 3 or higher.

6.2.7 Land Use

Construction and operation of the proposed rail line would require a commitment of land for the rail line, access roads, and associated facilities. OEA estimated that the proposed rail line footprint would require a minimum of 1,543 acres (Indian Canyon Alternative) and a maximum of 2,656 acres of land (Wells Draw Alternative). The proposed rail line would be a permanent feature of the landscape. It is not likely that all of the natural landscape would be restored, and most of the changes would remain irreversible.

6.2.8 Visual Resources

The visual impacts of constructing and operating the proposed rail line could permanently affect the visual quality of the surrounding rural landscape by adding industrial infrastructure; clearing vegetation; or creating cuts, fills, and access roads. Where these land commitments are irreversible, the visual impacts would generally remain irreversible.