No. 23-975

In the

Supreme Court of the United States

SEVEN COUNTY INFRASTRUCTURE COALITION and UINTA BASIN RAILWAY, LLC,

Petitioners,

v.

EAGLE COUNTY, COLORADO et al.,

Respondents.

On Writ of Certiorari to the United States Court of Appeals for the District of Columbia Circuit

CORRECTED JOINT APPENDIX
Volume I of II

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The following opinions, decisions, judgments, and orders have been omitted in printing this joint appendix because they appear on the following page in the appendix to the Petition for Certiorari:

Excerpts from Seven County Infrastructure Coalition's Response to OEA Request for Information (Apr. 19, 2019)

Craig Route
MP 0.0 to South Myton Bench and Leland Bench—Up to 200 feet each side of centerline with potential variance to 500 feet each side of centerline

OEA Information Request: *Provide any currently available information regarding the terminus points of the proposed rail line at Myton and Leland Bench in the Uinta Basin, including available information related to the types of facilities that could be constructed at those points and information regarding any existing proposals for new facilities at those locations.*

Coalition Response: Each of the three alternative routes proposed (Indian Canyon, Wells Draw, and Craig) would have one or two terminus points within the Uinta Basin. All three routes would have one terminus point located at Leland Bench, approximately 9.5 miles south of Fort Duchesne, Utah. Wells Draw and Craig would have a second terminus point located at South Myton Bench, approximately 3.5 miles southwest of Myton, Utah. These terminus points are in essence "ends of track" in areas that the Coalition believes will provide access to an area of freight shipper and/or receiver interest. The Coalition anticipates that a transload facility would be constructed in the vicinity of one or both of these ends of track.

At this time, the Coalition is not proposing to construct any transload facilities. Unless those plans change (at which time, the Coalition would notify the

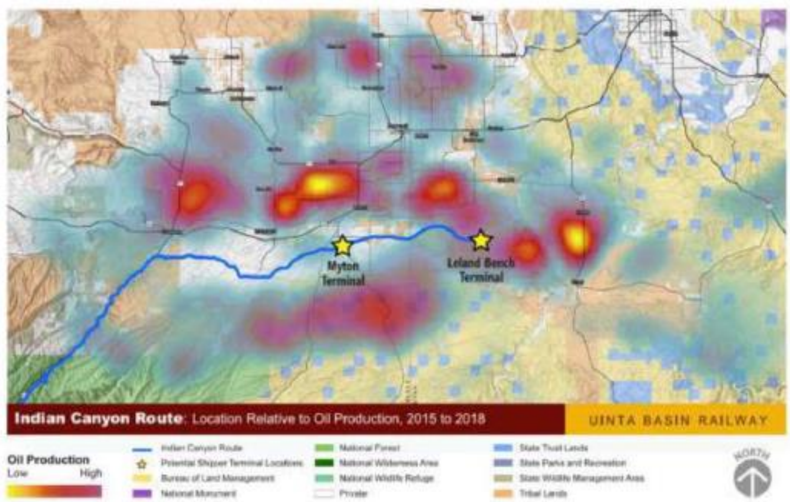
STB), the Coalition anticipates that any transload facilities will be constructed by shippers, receivers, or third-party freight consolidators or distributors. However, there are currently no existing proposals for new transload facilities at these locations. While the Coalition anticipates discussing potential transload facilities with third-parties (e.g., the Ute Indian Tribe, private developers, operators, freight consolidators, shippers, or receivers), the Coalition has not entered into any formal negotiations with such parties at this time. The Coalition notes that it has signed a Memorandum of Understanding (MOU) with Uintah Advantage, the developer of a proposed crude oil upgrader facility near the Leland Bench end-of-track. This MOU contemplates that Uintah Advantage would potentially require railway freight services and that it may provide to the Coalition certain land it currently controls at this location, to enable construction of a transload facility by the Coalition or others.

Shippers and receivers may in fact determine that other locations for transload facilities are more suitable for their needs, and may choose to construct facilities at any location alongside the proposed routes, or at a separate location connected to the proposed routes by a private industrial spur track. However, to facilitate access to the rail line, the Coalition selected the proposed terminus points based on:

1. Proximity to Primary Traffic Source: The railway's anticipated primary traffic source is the crude oil production industry, which produces crude oil and consumes fracturing sand and

tubular product (*e.g.*, steel pipe and drill stem). As shown in Figure 1 below, the two selected terminus points are in close proximity to the principal production areas of the major crude oil production field in the Uinta Basin. The proposed Terminus points would also provide convenient access for other Uinta Basin commodities (*e.g.*, agricultural products).

Figure 1: Uinta Basin Oil Production Heat Map, 2015-2018



2. <u>Topography and Location:</u> Economical development of railway transload facilities requires topography that is conducive to railway terminal construction. Economical sites must be mostly flat, not cut by watercourses or wetlands, and not occupied by uses that would require expensive relocations. This typically precludes sites that have been already developed for industrial use, residential use, or are occupied by major pipeline or electrical transmission

> infrastructure. Sites for transload facilities must also be appropriately zoned or readily able to be rezoned.
>
> 3. Surrounding Land Uses: The terminus points were chosen based on the potential for transload facility developers to assemble real estate in sufficient size to construct a facility capable of handling complete unit trains. Generally, a terminal or transload capable of accepting unit trains must be at least 200 acres in size.

Because the Uinta Basin Railway would be a common-carrier rail line, it would be open to all shippers and receivers of goods and commodities at any location along its route where shippers and receivers propose to deliver or receive rail cars or trains from the railway. Shippers and receivers may choose to construct their own individual transloads, work cooperatively to construct joint transloads, or contract with developers and operators of transloads. Developers and operators would contract with shippers and receivers to transload, store, or distribute their goods and commodities, and contract with the Uinta Basin Railway for transportation services.

The number and size of potential transload facilities is unknown at this time. However, generally, a transload facility would:

- Transfer goods and commodities from railway cars to trucks for immediate furtherance to another location, or to storage facilities for future furtherance to another location, or to manufacturing plants;

- Transfer goods and commodities to railway cars from trucks and pipelines, from storage facilities, or from manufacturing plants;
- Reload goods and commodities delivered by railway cars, truck or pipeline, onto other railway cars, trucks or pipelines;
- Accept intact inbound trains from the railway for unloading or loading, and stage outbound trains for operation by the railway after loading or unloading; and
- Store, distribute, consolidate, sort, process, or manufacture goods and commodities.

It is possible that one or more transloaders of small volumes of inbound or outbound commodities (*e.g.*, lumber and other building materials or agricultural products), or manufacturing plants or processing plants generating less-than-trainload volumes, would be constructed on the railway. In such a case, the typical practice would be to handle these small volumes as added "head end" cars to unit trains of other commodities. An inbound unit train would stop momentarily to drop off inbound miscellaneous head end cars to the small transload facility or manufacturing or processing plant before proceeding to its own destination, and outbound unit trains would stop momentarily to pick-up outbound miscellaneous cars.

Locomotives inbound on unit trains are anticipated to either layover at unit-train capable transload facilities until an outbound train is ready, or may be aggregated by the railway and operated to another transload facility or back to the railway's connection with the national railway network. Minor servicing and refueling of locomotives at unit-train capable transload facilities is a typical industry practice.

The proposed Uinta Basin Railway may construct a small terminal at an additional location for servicing or storage of locomotives, track maintenance machinery and rail cars used in track maintenance, material storage, small quantities of rail cars carrying miscellaneous inbound or outbound freight, or empty cars awaiting loads of miscellaneous outbound freight. This small terminal may be co-located with a large unit train transload terminal, or at a different location. The need for a small terminal is indeterminate at this time, as is the location(s).

OEA Information Request: Confirm that the proposed rail line would be constructed as a *single track*.

Coalition Response: The proposed rail line would be constructed as a single main track, with sidings to enable trains to meet and/or pass at locations to be determined (a siding is a track of sufficient length to contain a complete train, parallel to the main track and connected at both ends to the main track).

J. Putnam Letter to J. Wayland, Colorado Department of Public Health and Environment Preliminary Comments

May 9, 2019

Re: Colorado Department of Public Health and Environment's Preliminary Comments on the Proposed Uinta Rail Line

Dear Mr. Wayland:

The Colorado Department of Public Health and Environment (CDPHE) appreciates the opportunity to provide preliminary scoping comments on the Seven County Infrastructure Coalition Uinta Basin Railway proposal. We are encouraged to see that the Surface Transportation Board's Office of Environmental Analysis is preparing an Environmental Impact Statement (EIS) that will analyze the potential environmental impacts for the proposed rail line. CDPHE conducts National Environmental Policy Act (NEPA) reviews and provides comments as a cooperative agency to ensure compliance with applicable Federal and State requirements intended to avoid or minimize impacts to public health and the environment. We respectfully submit the following preliminary comments.

CDPHE believes it is essential to expand the study area contemplated for the EIS in order to capture potential effects from enabling more trains every day, some portion of which will be carrying crude oil, Gilsonite and other substances in environmentally sensitive and populated areas in Colorado. Regardless of the alternative chosen, your letter indicates that the proposed project will induce additional rail activity—as many as six trains per day.

This activity would likely travel through Colorado, both on the Union Pacific line east of Axial or on the main east-west Union Pacific line from the Utah border to the the Denver area and then south and east to the Colorado border.

The EIS needs to thoroughly analyze and discuss the safety risks associated with routing additional hazardous rail cargo along the environmentally sensitive corridors to which the new project would connect. Any rail traffic induced by the proposed project and using the Union Pacific system would transit through metropolitan Denver, and depending on the route, through populated areas like Pueblo, Colorado Springs, Glenwood Springs, Steamboat Springs, Craig, and Grand Junction (along with many other cities and towns). Adding more oil train traffic in particular raises safety risks for the often densely populated areas that must be carefully analyzed. The EIS should include consideration of the environmental justice implications of these additional hazardous trains.

Similarly, both the Craig Line and main UP line parallel sensitive river systems—the Yampa and Colorado Rivers, along with South Boulder Creek. Both could be affected by any spills that may occur from incidents associated with the new rail traffic induced by the project. The Yampa River is a vital wild river and the rail line follows the Yampa just upstream of Dinosaur National Park. Any spills could have catastrophic effects on wildlife, recreation, agriculture and drinking water. Similarly, the Colorado River is the most important river in the Southwest United States, providing water supply for millions, habitat for endangered species, heavily-used recreation resources and irrigation water. South Boulder Creek is a critical source for water for the Denver Water system, habitat for the Prebles' Meadow Jumping Mouse and valuable recreation. CDPHE regulates water quality in all of these river systems.

Air quality impacts from pollutant emissions are limited by regulations, standards and implementation plans established under the federal Clean Air Act, as Administered by CDPHE's Air Pollution Control Division (APCD) under authorization of the U.S. Environmental Protection Agency. In order to provide thorough comments, APCD requests additional information regarding the commodities and products that will be transported into Colorado as a result of the proposed project. We recommend that the EIS include a cumulative effects analysis, including climate change impacts, with a description of the anticipated environmental impacts of the proposed action in relationship to all other effects from past, present and reasonably foreseeable future federal, non-federal, and private actions within the spatial and temporal bounds of the proposed project.

The proposed project may require a Land Development Air Pollutant Emissions Notice (APEN). Under Colorado air quality regulations, land development refers to all land clearing activities, including but not limited to land preparation such as excavating or grading, for residential, commercial or industrial development. Land development activities release fugitive dust, a pollutant regulated by APCD. Small land development activities are not subject to the same reporting and permitting requirements as large land activities. Specifically, land development activities that are less than 25 contiguous acres and less than six months in duration do not need to report air emissions to the APCD. However, it is important to note that even if a permit is not required, fugitive dust control measures included in the Land Development APEN Form APCD-223 must be followed at the site. APCD also has APEN requirements for internal combustion engines; however, non-road engines are not required to submit an APEN. APEN forms and guidance documents can be accessed online: https://www.colorado.gov/pacific/cdphe/air/air-permit. All applicable requirements and permits should be discussed in the EIS.

APCD recognizes that the transportation of products and commodities via rail could potentially reduce transportation emissions as compared to the current method of truck transportation. However, according to the Uinta Basin Railway Project website, the proposed action may result in increased oil and gas, agriculture, and mining activity. Emissions from these activities can travel great distances, affecting air quality and public health including in the Denver/North Front Range ozone nonattainment area. In addition, Colorado recently established new greenhouse gas (GHG) emissions reduction goals of 50% GHG reductions by 2030 and 90% GHG reductions by 2050 (based on 2005 levels) stemming from House Bill 1261, which was signed by Governor Polis on May 1, 2019. Therefore, we request an analysis of intrastate and interstate air pollution transport from criteria pollutant and GHG emissions that may result from the proposed project and potential mitigation measures. Consideration of these indirect, secondary and cumulative impacts is required by the Council on Environmental Quality regulations implementing the National Environmental Policy Act.

Several sections of the proposed Craig Route are less than 10 miles away from Dinosaur National Monument (DNM), as depicted in *Figure 3—Craig Study Area*. DNM is a class II air quality "floor" under the prevention of significant deterioration federal 1963 Clean Air Act, as amended, but is a class I area by Colorado standards for sulfur dioxide (SO2). This means that development can be permitted in the vicinity (within 10-25 kilometers depending on the size of the development) of the park as long as the levels of all criteria pollutants except SO2 do not exceed the Class II increment requirements. Class I increment consumption requirements apply for SO2 (Colorado Regulation No. 3, Part D, §VIII.B). According to the National Park

Service, ozone, visibility, and nitrogen deposition impacts are of significant concern for DNM. Increased energy development in the Uinta Basin may emit significant quantities of air pollutants in the DNM area, resulting in visibility degradation, adverse effects to human health, and adverse ecosystem effects from nitrogen deposition and ozone impacts to vegetation. These effects should be thoroughly discussed in the EIS.

CDPHE expects that the EIS will thoroughly consider alternatives such as the use of pipelines for oil transportation, along with mitigation for all of the safety risk, water, species, air quality and climate impacts that may be associated with impacts.

CDPHE appreciates the opportunity to provide these preliminary scoping comments and looks forward to reviewing the project EIS. If you have any questions or need additional assistance, please call me at 303-692-3397 or email me at john.putnam@state.co.us.

Sincerely,

[signature]

John Putnam

Director of Environmental Programs

E. Gaddis Letter to J. Wayland, Utah Department of Environmental Quality Preliminary Comments

June 14, 2019

Dear Mr. Wayland,

Thank you for the opportunity to submit preliminary comments on the Seven County Infrastructure Coalition proposal to build an 80-mile rail line to transport commodities and products in and out of the Uinta Basin.

The Utah Department of Environmental Quality's Division of Water Quality (DWQ) is tasked with protecting, maintaining, and enhancing the quality of Utah's surface and underground waters for their designated beneficial uses. Beneficial uses include drinking water, recreation, protection of aquatic life, and agriculture. To protect these beneficial uses, the state develops numeric and narrative water quality standards for surface waters in Utah. DWQ collects water-quality data, monitors the health of the state's waterways, issues permits for surface water discharges, evaluates the condition of watersheds, and coordinates with partners on water-quality issues associated with specific public health concerns.

DWQ's scoping comments address common impacts to water quality from railways in general as well as conditions that are specific to the local area covered by the three proposed routes.

General Comments

Soil erosion and product spills pose the greatest water-quality impacts from rail line construction and operations. According to Priscila Silva Lucas, et.al, railway disturbances can often result in significant impacts to the environment:[1]

"The abrupt change of soil required to establish the railway embankment leads to vegetation loss, compresses the soil, and compromises water drainage (Ferrell and Lautala 2010). Thus, soil becomes exposed and subject to an increasing runoff that promotes its erosion (Chen et al. 2015).

The erosion of rail embankments can result in a washing out of sediments (Jin et al. 2008) that cause water pollution.

Infrastructures associated with railways (e.g., leakages of petroleum products from fuel storage tanks) contribute, together with pollutants, to aquatic ecosystems. (Schweinsberg et al. 1999; Vo et al. 2015). Levengood et al. (2015) documented high concentrations of PAHs [polycyclic aromatic hydrocarbons] and heavy metals in waterways bisected or bordered by railways. They showed that the PAH concentration was higher downstream than upstream of the railway (Levengood et al. 2015). They also found that phenanthrene and dibenzo (a, h) anthracene (a PAH element) concentrations at some sites represented a risk to aquatic life."

Water quality impacts will vary based on railway alignment, acreage disturbed, proximity to waterways, frequency of rail traffic, and products and

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[1] Lucas P.S., de Carvalho R.G., Grilo C. 2017, Railway Disturbances on Wildlife: Types, Effects, and Mitigation Measures. In: Borda-de-Agua L., Barrientos R., Beja P., Pereira H. (eds), Railway Ecology. Springer, Cham.

commodities carried on the rail line.[2] These impacts will also vary between the construction and post-construction (operational) phases.

- Impacts during the construction phase
    - Soil erosion and subsequent impacts on water quality are greatest during construction. Removal of vegetation for initial clearing and grading activities expose soil and make it more susceptible to erosion. Rail line alignment, location of construction staging, and erosion control measures could ameliorate some of these impacts.
    - Heavy-machinery traffic may increase erosion depending on the type of roadways used (paved versus gravel or dirt roads).
    - Heavy-machinery emissions and deposition may also be an issue depending on proximity to waterways. (See comments below on impacts from emissions).
- Impacts during the operational phase (post-construction)
    - There is high potential for an increase in runoff and erosion due to elevated railways. The extent of the impacts depends on the rail alignment and proximity to waterways.
    - Soils in the area are subject to freeze-thaw cycles that could increase the potential for

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[2] Environmental Protection Agency. 1996. Indicators of the Environmental Impacts of Transportation: Highway, Rail, Aviation, and Maritime Transport. EPA 230-R-96-009

erosion, particularly during spring runoff and storm events.

- Exhaust emissions of carbon monoxide (CO), oxides of nitrogen (NOx), volatile organic compounds (VOCs), sulfur dioxide (SO2), particulate matter, particulate matter (PM), carbon dioxide (CO2), methane (CH4), nitrous oxide (N20), and ammonium (NH4) from train traffic are expected. The impact to water quality from dry and wet deposition of these chemicals into nearby waterways is unclear.3 Emissions of creosote, polycyclic aromatic hydrocarbons (PAHs), and phenols from railroad ties treated with creosote are also a source of concern.[4]
- Spills of waxy crude, fracturing sand, coal, soda ash, Gilsonite, phosphorus, and diesel fuel leaks or discharges into waterways could cause significant water-quality impacts, depending on the extent and location of the spill. Effective spill prevention and response protocol will be critical to protecting water resources along the route.
- Soils in proximity to rail lines have higher levels of PAHs from fuel and creosote

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[3] *Ibid.*

[4] Martin Kohler,*, Tina Künniger, Peter Schmid, Erika Gujer, Rowena Crockett, and Max Wolfensberger. 2000.

Inventory and emission factors of creosote, polycyclic aromatic hydrocarbons (PAH) and phenols from railroad ties treated with creosote. *Environmental Science & Technology 34* (22), 4766-4772 DOI: 10.1021 /es000103h leaching from railway ties.[5] There could be potential impacts to aquatic life from PAHs depending on the hydrocarbon load that reaches the waterway from runoff or erosion. Utah does not currently have water-quality criteria for PAHs as they are still considered an emerging contaminant. National criteria could be referenced to compare concentrations in affected waters.

- Livestock transport along the rail line could result in increased fecal matter entering nearby waterways from either direct deposition or runoff, depending on the frequency of livestock transport and proximity of the rail line to waterways.
- Herbicides along the rail route could be an additional source of water pollution.[6] "... Schweinsberg et al. (1999) discovered that in Germany before the 1990s, a much higher total amount of these compounds [herbicides] were applied on railway tracks than in agriculture. Recently, Vo et al. (2015) showed that many herbicides applied during the operation of the railway are at concentrations that are lethal to most of the aquatic fauna, particularly fish populations; they indicate that compounds such as Imazapyr or Diuron concentrations can take 6 and 48 months,

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[5] Wilkomirski B, Sudnik-Wøjcikowska B, Galera H, Wierzbicka M, Malawska M. 2011. Railway transportation as a serious source of organic and inorganic pollution. *Water Air Soil Pollution.* 218(1-4):333- 345. DOI:10.1007/s11270-010-0645-0

[6] *Op. cit.,* Railway Disturbances on Wildlife.

> respectively, to drop below 50 (percent) of their original levels."

Comments Specific to the Affected Area

Erosion will be one of the primary issues for all routes since the geology/soils in the region are significant natural sources of soluble salts. Geologic features are dominated by the slightly-to-moderately saline Uinta and Duchesne River formations and the highly saline Mancos Shale formation. Total dissolved solids (TDS), selenium (Se), arsenic (As), and boron (B) water-quality impairments in the area are generally due to the composition of the bedrock coupled with erosion-causing activities such as oil and gas operations, irrigation, grazing, and road construction. The proposed setback distance from surface waters and wetlands will play a large role in the severity of erosion-related impacts.

Watershed planning is an important tool for protecting vital water resources. The Duchesne River Watershed Restoration Plan covers portions of the proposed routes and is intended to help local communities, watershed organizations, and agencies operating within the Duchesne River watershed develop and implement plans to meet water-quality standards, protect water resources and provide a cohesive strategy for implementing needed water-quality improvements in the Duchesne River and tributaries.[7] One of the goals of the plan is to "improve

[7] Uinta Basin Watershed Council. 2015. Duchesne River Watershed Restoration Plan. https://deq.utah.gov/legacy/programs/water-quality/watersheds/docs/2015/08Aug/Duchesne.pdf

water quality in the watershed by decreasing total dissolved solids (TDS) and sediment loads." Railroad construction is contradictory to this goal, since the project will likely increase erosion and related water quality impacts. The Duchesne Plan, however, is not intended to prevent projects that increase erosion. Rather, it focuses on responsible erosion-control practices to reduce erosion from anthropogenic activities in the watershed.

All three proposed routes cross impaired water segments, designated geographically as water-quality assessment units (AUs). An AU is deemed impaired when it fails to meet the water-quality standards associated with its beneficial uses. Following Section 303(d) of the Clean Water Act, DWQ identifies and prioritizes impaired waters that require restoration to meet water-quality standards. As part of the restoration process, total maximum daily loads (TMDLs) are written to mandate the maximum allowable discharge of a pollutant from both point and non-point sources to a water segment while still meeting applicable water-quality standards. Several of the assessment units associated with the rail lines have TMDLs in place for total dissolved solids and/or are impaired for other pollutants commonly associated with soil disturbance in these areas. DWQ has attached a table with the beneficial use(s), impairments, and TMDLs for AUs along the proposed routes as an addendum to this letter.

Conclusion

Erosion and spills present the most significant impacts to water quality along the three proposed routes. The extent of the erosion impacts will depend on the alignment of the routes and their proximity to waterways. Spills are always a concern along transportation corridors, but safety and response protocols can minimize these impacts. Increases to rail traffic beyond the frequency proposed in the scoping document would likely increase impacts from erosion and possible spills and should be taken into consideration along with other impacts that may qualify as cumulative impacts under 40 CFR § 1508.7.

The project as proposed will require construction storm water permit coverage since it will disturb more than one acre. The UPDES Construction General Permit Number UTRC00000 permit application and requirements are available on the DWQ webpage. Projects that require a U.S. Army Corps of Engineers (USACE) Individual Section 404 Permit will require a Section 401 Water Quality Certification through DWQ. The purpose of the Section 401 Certification is to allow the state to certify whether projects/activities will violate any applicable state water-quality standards. An application for a Section 401 Water Quality Certification should be made simultaneously with an application for a Section 404 Permit through USACE.

Thank you again for the opportunity to comment on the proposed rail line in the Uinta Basin. Please feel free to contact Elise Hinman at ehinman@utah.gov or (801) 536-4346 with any questions or concerns.

Sincerely,

[signature]

Erica Gaddis, PhD

Director

EBG/EH/blj

S. Hackett Letter to J. Wayland, Colorado Department of Public Health & Environment Scoping Comments

August 5, 2019

Re: Colorado Department of Public Health and Environment's Scoping Comments on the Seven County Infrastructure Coalition—Uinta Basin Railway Environmental Impact Statement

Dear Mr. Wayland:

The Colorado Department of Public Health and Environment (CDPHE) appreciates the opportunity to provide scoping comments on the Seven County Infrastructure Coalition (Coalition) Uinta Basin Railway proposal (Uinta Basin Railway or Railway). We are encouraged to see that the Surface Transportation Board's Office of Environmental Analysis is preparing an Environmental Impact Statement (EIS) that will analyze the potential environmental impacts for the Uinta Basin Railway. CDPHE conducts National Environmental Policy Act (NEPA) reviews and provides comments as a cooperative agency to ensure compliance with applicable Federal and State requirements intended to avoid or minimize impacts to public health and the environment. Based on its potential negative impacts to public health and the environment, as well as potential wildlife impacts identified by Colorado Parks and Wildlife, CDPHE recommends that the Craig route not be chosen as the final route for this project.

CDPHE believes it is essential to expand the study area contemplated for the EIS in order to capture potential effects from enabling more trains every day, some portion of which will be carrying crude oil, gilsonite, coal and other mineral and agricultural products in environmentally sensitive and populated areas in Colorado. Regardless of the alternative chosen, the Coalition estimates that the Uinta Basin Railway will induce additional rail activity—as many as seven trains per day. If the Coalition chooses the Craig Route, this additional rail activity would enter into Colorado via the Union Pacific (UP) rail line east of Axial. After passing through the UP Craig Subdivision, it would travel through the Denver area and then south and east to the Colorado border.

The EIS needs to thoroughly analyze and discuss the safety risks associated with routing additional hazardous rail cargo along the environmentally sensitive corridors to which the Uinta Basin Railway would connect. Any rail traffic induced by the Railway and using the UP system would transit through metropolitan Denver, and depending on the route, through populated areas like Pueblo, Colorado Springs, Glenwood Springs, Steamboat Springs, Craig, and Grand Junction (along with many other cities and towns). Adding more oil train traffic in particular raises safety risks for the often densely populated areas that must be carefully analyzed. The EIS should include consideration of the environmental justice implications of this additional rail activity.

Similarly, both the Craig Line and main UP line parallel sensitive river systems—the Yampa and Colorado Rivers. Both could be affected by any spills that may occur from incidents associated with the new rail traffic induced by the Uinta Basin Railway. The Yampa River is a vital wild river and the rail line follows the Yampa just upstream of Dinosaur National Park. Any spills could have catastrophic effects on wildlife, recreation, agriculture and drinking water. Similarly, the Colorado River is the most important river in the Southwest United States, providing water supply for millions, habitat for endangered species, heavily-used recreation resources and irrigation water. CDPHE regulates water quality in these river systems.

Air quality impacts from pollutant emissions are limited by regulations, standards and implementation plans established under the federal Clean Air Act, as Administered by CDPHE's Air Pollution Control Division (APCD) under authorization of the U.S. Environmental Protection Agency (EPA). CDPHE recommends that the EIS include a cumulative effects analysis, including climate change impacts, with a description of the anticipated environmental impacts of the proposed action in relationship to all other effects from past, present and reasonably foreseeable future federal, non-federal, and private actions within the spatial and temporal bounds of the proposed project.

While the notice indicates that the EIS will evaluate potential air quality impacts from the operation of trains on the Uinta Basin Railway, the freighted product and rail line construction activities, it does not indicate that the EIS will quantify potential greenhouse gas emissions resulting from the downstream combustion of the crude oil, gilsonite and coal that it will transport. Because the Uinta Basin Railway is a necessary precondition for the downstream combustion of these products, they are connected actions under NEPA and they must be considered together in a single EIS.

The proposed project may require a Land Development Air Pollutant Emissions Notice (APEN). Under Colorado air quality regulations, land development refers to all land clearing activities, including but not limited to land preparation such as excavating or grading, for residential, commercial or industrial development. Land development activities release fugitive dust, a pollutant regulated by APCD. Small land development activities are not subject to the same reporting and permitting requirements as large land activities. Specifically, land development activities that are less than 25 contiguous acres and less than six months in duration do not need to report air emissions to the APCD. However, it is important to note that even if a permit is not required, fugitive dust control measures included in the Land Development APEN Form APCD-223 must be followed at the site. APCD also has APEN requirements for internal combustion engines; however, non-road engines are not required to submit an APEN. APEN forms and guidance documents can be accessed online: https://www.colorado.gov/pacific/cdphe/air/air-permit.

All applicable requirements and permits should be discussed in the EIS.

APCD recognizes that the transportation of products and commodities via rail could potentially reduce transportation emissions as compared to the current method of truck transportation. However, according to the Uinta Basin Railway website, the proposed action may result in increased oil and gas, agriculture, and mining activity. Emissions from these activities can travel great distances, affecting air quality and public health including in the Denver/North Front Range ozone nonattainment area. In addition, Colorado recently established new greenhouse gas (GHG) emissions reduction goals of 50% GHG reductions by 2030 and 90% GHG reductions by 2050 (based on 2005 levels) stemming from House Bill 1261, which was signed by Governor Polis on May 30, 2019. Therefore, we request an analysis of intrastate and interstate air pollution transport from criteria pollutant and GHG emissions that may result from the proposed project and potential mitigation measures. Consideration of these indirect, secondary and cumulative impacts is required by the Council on Environmental Quality regulations implementing NEPA.

Several sections of the proposed Craig Route are in close proximity to Dinosaur National Monument (DNM). DNM is a class II air quality "floor" under the prevention of significant deterioration federal 1963 Clean Air Act, as amended, but is a class I area by Colorado standards for sulfur dioxide (SO2). This means that development can be permitted in the vicinity (within 10- 25 kilometers depending on the size of the development) of the park as long as the levels of all criteria pollutants except SO2 do not exceed the Class II increment requirements. Class I increment consumption requirements apply for SO2 (Colorado Regulation No. 3, Part D, §VIII.B). According to the National Park Service, ozone, visibility, and nitrogen deposition impacts are of significant concern for DNM. Increased energy development in the Uinta Basin may emit significant quantities of air pollutants in the DNM area, resulting in visibility degradation, adverse effects to human health, and adverse ecosystem effects from nitrogen deposition and ozone impacts to vegetation. These effects should be thoroughly discussed in the EIS.

CDPHE expects that the EIS will thoroughly consider alternatives such as the use of pipelines for oil transportation, along with mitigation for all of the safety risk, water, species, air quality and climate impacts that may be associated with impacts.

CDPHE appreciates the opportunity to provide these scoping comments and looks forward to reviewing the project EIS. If you have any questions or need additional information, please call me at 303-692-3662 or email me at sean.hackett@state.co.us.

Sincerely,

____

Sean Hackett

CDPHE Energy Liaison

Excerpts from SCIC Response to OEA's Second Information Request, FD 36284

October 10, 2019

* * *

OEA Request: If it is assumed that "helper" locomotives would be used on the proposed rail line, provide the estimated number of helper locomotives that would be used on a train, the type of train (manifest or oil), and where along the proposed rail line they would be used, with references to mileposts.

Response:

The use of "helper" locomotives is not anticipated on the UBRY. Trains are expected to operate with eight 4,300 to 4,400-horsepower locomotives without addition or subtraction en route between the railroad's proposed interchange with the national railroad network at Kyune, and the loading terminal(s) proposed at South Myton Bench and Leland Bench. It is expected that a 110-car loaded train will require 30,000 horsepower, or seven 4,300-horsepower locomotives, to overcome gravity and rolling resistance. It is anticipated that an eighth locomotive will be added to reduce the risk of train stalling should a locomotive experience mechanical failure.

OEA Request: Indicate whether the estimated average number of crude oil trains per day assumes that crude oil currently trucked to Salt Lake City refiners would continue to move by truck or whether it would be transported as part of the 3.5 loaded trains per day estimate.

Response:

The estimated average number of crude oil trains per day assumes that rail transportation will not displace truck transportation for purposes of shipping crude oil to Salt Lake City refiners. Based on recent analysis, rail shipment from the Uinta Basin to Salt Lake City refiners is not economically viable for several reasons including (1) the lack of infrastructure to receive and unload crude oil unit trains in the vicinity of the Salt Lake City-area refineries and then transport that oil via pipeline to the refineries and additional costs associated with constructing and operating such infrastructure; (2) the operating and capital cost of transloading oil from truck to rail within the Uinta Basin, which is not required for the existing all-truck haul; and (3) the relatively short haul by a connecting carrier (either UP or BNSF) to the Salt Lake City area, which reduces the economies of rail transportation. Thus, it is not anticipated that crude oil will be shipped by rail from the Uinta Basin to Salt Lake City refiners.

OEA Request: Provide any assumptions made regarding the number of new oil and gas wells that would be drilled to provide production sufficient to supply the anticipated number (trains/day, plus trucking, if applicable) of crude oil transport.

Response:

Oil production in the Uinta Basin is expected to continue transitioning from a historic pattern of vertical wells with a single completion per well and each well on a single well pad, to vertical wells with multiple laterals per well ("horizontal wells") at various depths and in various directions radiating from the vertical well. This transition is expected to result in multiple completions per well and multiple wells on a single well pad. Laterals are typically completed sequentially, i.e., after the oil from the first lateral completed for a given well is extracted, the second lateral is completed and its oil resource extracted, and so forth. "Completion" consists of the activity of hydraulically fracturing the lateral.

- To produce 130,000 barrels of oil per day, it is anticipated that 130 new lateral completions will be required initially, and 26 new lateral completions will be required per year to sustain that production level to account for the gradual decline in production of the initial 130 lateral completions.
- To produce 350,000 barrels of oil per day, it is anticipated that 350 new lateral completions will be required initially and 70 new lateral completions will be required per year to sustain that production level to account for the gradual decline in production of the initial 350 lateral completions.

At present, new oil well completions in the Uinta Basin are initially producing between 500 and 3,000 barrels per day, with an average of 500 barrels per day for wells producing from the Green River Formation, and 1,000 barrels per day for wells producing from the Wasatch Formation.

As of October 2019, five oil rigs were drilling oil wells in Uintah and Duchesne Counties, sustaining a production of approximately 90,000 barrels of oil per day. Accordingly, each rig is sustaining approximately 18,000 barrels per day of production. Of the approximately 90,000 barrels of oil produced each day, approximately 70,000 to 80,000 barrels of oil are trucked to refineries in the Salt Lake City area each day. The balance of the oil produced in Uintah and Duchesne Counties is trucked to rail transload facilities outside of the Uinta Basin and then transported by rail to refineries or export terminals in areas other than Salt Lake City. Assuming oil rig productivity neither declines nor improves, a total of 11.66 oil rigs would be required to produce 130,000 barrels of oil per day in addition to the maximum of 80,000 barrels per day that can be consumed by Salt Lake City refineries. Assuming oil rig productivity neither declines nor improves, a total of 23.66 oil rigs would be required to produce 350,000 barrels per day in addition to the maximum of 80,000 barrels per day that can be consumed by Salt Lake City refineries. Regardless of whether the UBRY is developed, it is anticipated that new oil production in the Uinta Basin will be driven by market factors and will continue to be transported by truck.

No assumptions have been made about the number of gas wells that could be drilled in the future. While natural gas has historically been produced in the Uinta Basin, it is not expected that natural gas, in either its gas or liquid form, will be shipped via the UBRY. Natural gas produced in the Uinta Basin is currently being transported by pipeline on a regional basis; this practice is expected to continue regardless of the UBRY project.

OEA Request: Indicate if it was assumed that most new oil and gas wells would be drilled in Duchesne and

Uintah counties, given that is where most of the current oil and gas production occurs.

Response:

It is assumed that all crude oil shipped on the UBRY will come from known oil resources and reserves in Duchesne and Uintah counties. At present, there are no other known significant sources of crude oil that would be economically available for railway transportation, as opposed to pipeline or truck transportation, in the area of the UBRY. No gas (e.g., liquified natural gas) is expected be shipped on the UBRY, regardless of location of production.

OEA Request: Provide assumptions used in estimating the number of manifest trains, including assumptions about the quantity of fracking sand, well pipe and equipment, and other goods that would be needed for new wells and the production of crude at the assumed/forecast level. Also provide assumptions about the number of carloads, averaged per day and per year, of such commodities that would be transported to the Uinta Basin on the proposed rail line.

Response:

As stated previously, no manifest trains are expected to be operated on the UBRY. Thus, no such assumptions have been made.

Excerpts from SCIC Uinta Basin Oil Pipeline Study: Final Report

September 2017

3.2 Refiner Interviews

Interview Process

- Refiner interviews were conducted either in person, by telephone and/or via e-mail
- Purpose of the interviews was to ultimately identify:
    - Alternate market locations for Uinta waxy crude oil.
    - Rank those alternate market locations by 'Higher Priority' and 'Lower Priority'.
    - Identify refinery locations and/or regions where there is significant local
    - opposition to receipt of crude oil by rail.
    - Identify refinery locations where Uinta waxy crude oil is NOT a good fit.
- Refiner interview questions included the following:
    - How waxy crude oils are captured in refiner linear program runs.
    - Views on prospective Uinta waxy crude oil pricing differentials vis-a-vis WTI.
    - Potential demand for Uinta crude oil.
    - Potential opportunities to blend Uinta Basin waxy crude oil with other crude oils in
    - order to obtain a price uplift.
    - Other commercial considerations

Findings Summary

- There are nine top rated refinery targets outside the SLC refining region.
- Seven of the nine are in the USGC:

Louisiana	Calumet Shreveport ExxonMobil Baton Rouge Marathon Garyville Valero St Charles
Texas	ExxonMobil Baytown Shell Deer Park Valero Port Arthur

- The other two top rated refinery targets are both BP refineries.

Indiana	BP Whiting
Washington	BP Ferndale

- Six of the nine top rated refineries have rail offload. The three that do not are all interested in adding rail offload capability.
- There are no top rated California refineries owing to significant local opposition to crude by rail – of any kind.

In all, there are 64 refining locations with the capability of processing some Uinta waxy crude oil in meaningful quantities. See Table 8 and Table 9 in Appendix 1 for a complete list.

Appendix 1 Table 8: Refinery Targets

(see foldout on next page)

Appendix 1

Table 8: Refinery Targets

Refiner	Location	State	Atmospheric Distillation	Catalytic Reforming High Pressure	Fuels Solvent Deasphalting	Distillate Hydro-cracking	Gas Oil Hydro-cracking	Residual Hydro-cracking	Total Hydro-cracking	Lubricant Capacity	Potential Products Produced From Running Uinta Basin Waxy Crude	Distance from Uinta basin	Scale	Distance	Rail Offload	Steam Capability	Notes
Salt Lake City Refineries - Presently Served by Trucks																	
Big West Oil	North Salt Lake	Utah	32,000	8,500					-		RPPs	124	Small	Closer	N	N	
Chevron	Salt Lake City	Utah	56,000	8,500					-		RPPs	119	Small	Closer	N	N	
HollyFrontier	Woods Cross	Utah	26,400	8,400	6,000		9,000		9,000		RPPs, Extracted Base Oil, Converted Base Oil	126	Small	Closer	N	N	
Tesoro	Salt Lake City	Utah	63,000	11,400					-		RPPs	119	Small	Closer	N	N	
			177,400	1%													
Top-Ranked Alternate Market Locations																	
BP Cherry Point	Ferndale	Washington	236,000				65,000		65,000		Converted Base Oil	1,048	Medium	Medium	Y	N	May be difficult to reconfigure rail rack to add steam - designed for Bakken offload
BP Products	Whiting	Indiana	430,000	65,000					-		RPPs	1,347	Large	Medium			Considering rail rack with steam for offload of Canadian underdiluted bitumen blend
Calumet Specialty Products	Shreveport	Louisiana	60,000						-	12,500	Base Oil User	1,310	Small	Medium	Y	Y	Uinta yellow wax is an approved crude. Shreveport will NOT take in black wax crude.
ExxonMobil	Baton Rouge	Louisiana	523,200			27,000			27,000	16,500	Converted Base Oil, Base Oil User	1,581	Large	Distant	Y	Y	Genesis Energy Terminal, Baton Rouge 60,000 bbls/d
ExxonMobil	Baytown	Texas	584,000		47,000	29,500			29,500	28,000	Extracted Base Oil, Converted Base Oil, Base Oil User	1,412	Large	Medium	N		Better fit from refinery perspective than Baton Rounge, but have not created rail offload capability at Baytown
Marathon Petroleum	Garyville	Louisiana	574,000		38,000		117,000		117,000		Extracted Base Oil, Converted Base Oil	1,622	Large	Distant	N	N	Proposed Pinoak terminal in Garyville would be a potential fit.
Shell / PEMEX	Deer Park	Texas	340,000	24,500			60,000		60,000		RPPs, Converted Base Oil	1,338	Large	Medium	Y	Y	Kinder Morgan Deer Park rail terminal is immediately to the west of the refinery site.
Valero	Port Arthur	Texas	415,000				123,000		123,000		Converted Base Oil	1,475	Large	Medium	Y	Y	Rail offload at Valero's Lucas terminal in Beaumont
Valero	St Charles	Louisiana	220,000			28,000	70,000		98,000		Converted Base Oil	1,640	Medium	Distant	Y	Y	30,000 bbls/d rail offload at the refinery.
			3,382,200	24%													
Lower-Ranked Alternate Market Locations																	
Marathon Petroleum	Catlettsburg	Kentucky	292,000	31,000	13,000				-		RPPs, Extracted Base Oil	1,654	Large	Distant	N	N	
Marathon Petroleum	Galveston Bay	Texas	481,000		17,000	69,000		75,000	144,000		Extracted Base Oil, Converted Base Oil	1,439	Large	Medium	N	N	
PBF	Paulsboro	New Jersey	166,000						-	12,000	Base Oil User	2,091	Medium	Distant	Y	N	No rail at Paulsboro refinery, but can rail to PBF's Delaware City refinery and barge the oil to Paulsboro.
PBF	Delaware City	Delaware	190,200				22,300		22,300		Converted Base Oil	2,093	Medium	Distant	Y		70,000 bbls/d rail offload servicing PBF's Delaware City and Paulsboro refineries
PBF	Toledo	Ohio	188,000	51,800		52,000			52,000		RPPs, Converted Base Oil	1,636	Medium	Distant			
Phillips 66	Linden (Bayway)	New Jersey	251,000		22,000				-		Extracted Base Oil	2,106	Large	Distant	Y		75,000 bbls/d rail offload
Motiva	Port Arthur	Texas	635,000				82,000		82,000	39,000	Converted Base Oil, Base Oil User	1,475	Large	Medium	Y	N	Have own rail offload? Can be served by Jefferson (Beaumont) or GT Logistics (Port Arthur) rail terminals
Motiva	Norco (St Charles)	Louisiana	250,000				44,000		44,000		Converted Base Oil	1,640	Large	Distant			Potential rail service by IMTT (St Rose), LBC (Geismar), EnLink (St Gabriel)
Motiva	Convent	Louisiana	255,000	40,000				52,000	52,000		RPPs, Converted Base Oil	1,617	Large	Distant			Potential rail service by IMTT (St Rose), LBC (Geismar), EnLink (St Gabriel)
Valero	Corpus Christi	Texas	300,000	10,000			50,000		50,000		RPPs, Converted Base Oil	1,406	Large	Medium	Y		Trafigura Terminal in Corpus Christi 30,000 bbls/d offload
Valero	Ardmore	Oklahoma	88,000			14,000			14,000		Converted Base Oil	1,065	Small	Medium	Y		Sovereign Development rail offload in Ardmore 40,000 bbls/d offload
Valero	Meraux	Louisiana	128,000		22,000		48,700		48,700		Extracted Base Oil, Converted Base Oil	1,667	Medium	Distant			Potential rail service by IMTT (St Rose), LBC (Geismar), EnLink (St Gabriel)
Valero	Sunray	Texas	172,000	18,000	14,500		27,000		27,000		RPPs, Extracted Base Oil, Converted Base Oil	745	Medium	Closer			
Valero	Memphis	Tennessee	195,000			28,500			28,500		Converted Base Oil	1,499	Medium	Medium			
Valero	Texas City	Texas	231,000		33,500				-		Extracted Base Oil	1,402	Medium	Medium			
Valero	Houston	Texas	103,000		18,000	71,900			71,900		Extracted Base Oil, Converted Base Oil	1,389	Small	Medium			
Valero	Three Rivers	Texas	91,000	10,000	10,500		28,000		28,000	1,900	RPPs, Extracted Base Oil, Converted Base Oil, Base Oil User	1,337	Small	Medium			
			4,016,200	29%													

Excerpts from R.L. Banks & Associates to SCIC, Pre-Feasibility Study of a Prospective Railroad Connecting the Uinta Basin to the National Rail Network

August 9, 2018

*   *   *

Because of the more speculative nature of these prospects, RLBA used Higher and Lower forecasts, with Lower forecasts reflecting lower, later developing or no forecasted rail carloads and Higher forecasts reflecting the dates and volumes presented by the interviewee, translated into carloads.

3. Prospective Uinta Basin Rail Shippers with Limited Traffic Volume Forecasting Ability - Forecasts of conventional oil production were handled a third way that RLBA deemed more appropriate to the situation. More specifically, attempts to use a more conventional approach to forecasting potential use of the UBRR by crude oil producers would have been thwarted by the fact that producers don't tend to forecast as far into the future as required to support prospective railroad carloads and that production is distributed across a large number of producers. So, in the alternative, RLBA decided to discuss potential total Uinta Basin production with almost all of the largest producers currently in the Basin and to use the extremes manifest in their estimates to drive its Lower and Higher carload forecasts. Further detail on RLBA's Higher and Lower forecasts for each commodity can be found in the following sections.

2.3 Developing Higher and Lower Forecast Volumes

The railroad industry is different from most other industries in two major ways: 1) it requires a small cost of materials relative to revenues earned to produce its outputs; and 2) it also requires a high capital investment relative to revenues. However, once a railroad achieves a break-even level of freight traffic, a surprisingly large percentage of incremental revenue drops to the "bottom line" as traffic is added and a railroad can become highly profitable when measured against just about any metric except return on invested capital. A common expression of this phenomenon is that the railroad industry is said to manifest extremely high operating leverage. As a result, for a railroad to succeed, it must attract and keep a significant volume of traffic on which it can charge competitive rates. The need to achieve and sustain a high volume of traffic and revenue is even more critical in the case of a railroad such as that investigated herein because the financial performance of the Uinta Basin Railroad will be tested further by the need to overcome the extremely high capital costs that are a necessary element of a railroad being constructed in excess of 126 miles.

As a consequence of the above, it is absolutely essential that the SCIC be provided one or more traffic volume and associated revenue forecasts in which it can repose confidence. Through the course of the study, RLBA determined there to be four significant potential challenges to the achievement of the projected volumes forecasted herein, including:

1. Stability of the Future Price of Oil - The World oil market has been anything but stable since 1973, and there is every reason to think that such volatility might continue. The viability of the UBRR is grounded on the assumption that oil markets will be stable or favorable, which is a reasonable assumption to make. However, a significant and long-term downturn in the price of WTI, particularly in the early years of the prospective railroad, could result in significant shortfalls from the performance indicated herein;

2. Barriers to Timely Construction of the UBRR - There are risks that permits or financing associated with the UBRR might be denied or delayed significantly, to the point that prospective Uinta Basin rail shippers might seek alternative "take away" capability or divert investment dollars to other regions, thereby diverting or postponing volumes of crude oil and other commodities which otherwise might traverse the UBRR;

3. Reluctance to Commit - While the economics of the UBRR may be promising, the region's producers might be reluctant or otherwise unable to make the commitments necessary to secure financing, even if such assurances are ultimately required to advance the project and;

4. Unknown Demand - The demand for Uinta Basin's waxy crude, which is not well known outside of Utah, in large part due to lack of transportation infrastructure to ship product out of the Uinta Basin, may not be as readily accepted as initial indications would suggest. While there appear to be a large number of refineries at least prospectively interested in Uinta Basin crude, additional work should be undertaken to increase the likelihood that sufficient demand will manifest itself by the time the UBRR is about to be constructed. Ideally, that demand will manifest itself not only in interest expressed by out-of-state refineries that the Basin's waxy crudes have been modeled successfully by the refineries, but also that the volumes desired are significant enough in total to consume the supply side at pricing at or near WTI taking into consideration the need to unload unit trains at or nearby refineries to keep rail transport costs to a minimum, and that arrangements already have been or can be made to provide sufficient heating to prevent the waxy crude from "setting up."

In light of these challenges, to best define the potential volumes, RLBA developed forecasts of the carloads it believes are reasonable to assume would be carried by the prospective railroad during the period 2022 through 2034 (and every year beyond) were it built, managed and operated at a reasonable cost. More specifically, RLBA developed "Lower" and "Higher" forecasts in connection with crude oil and seven other commodities it believes might be hauled on that railroad in its early years.

A summary of estimated annual Higher and Lower forecasts of various commodities is shown in Table 2-2.

The carloads in the Higher forecast reflect assumptions made by RLBA consistent with a theme that decisions would be made that would result in actions that would be favorable to the prospective railroad's viability. Primary among those favorable assumptions is that Basin oil producers will be able and motivated to extract, and market conditions will encourage the extraction of, no less 225,000 bpd on a consistent basis if the railroad is built and operated as presently envisioned. That threshold volume has been articulated by several major oil producers in the Basin even though it represents almost a tripling of recent production volumes there. The application of those assumptions results in a forecast of [redacted] carloads over the prospective railroad in its first full year, 2022, in the Higher case and carloads hauled by that railroad in the Higher case in 2034 and beyond. As a sensitivity test, RLBA also developed a Lower case in which [redacted] carloads were forecast to be carried in 2022 and [redacted] were assumed to be hauled in 2034 and beyond.

Table 2-2

Estimated Annual Carloads Originating/Terminating in Uinta Basin, 2022-2044

[redacted]

In both the Higher and Lower cases, railroad volumes were assumed to ramp up in the early years of the forecast, driven by increased production of crude oil in the Basin and the inputs that enable same, as well as greater and greater acceptance of the Basin's crudes at various refineries, primarily located in Gulf Coast states. Similarly, and perhaps more importantly, the viability of the prospective railroad is extremely dependent upon and sensitive to assumptions made about the ramp up rate and total production of crude oil in the Basin. Not only is crude oil by far the largest single commodity moved on the prospective railroad, but frac sand and steel pipe movements into the Uinta Basin, supporting the production of crude oil are obviously equally dependent upon how much oil is extracted in the Basin and are also significant contributors to the prospective railroad's viability.

2.4 Additional Study Contributions

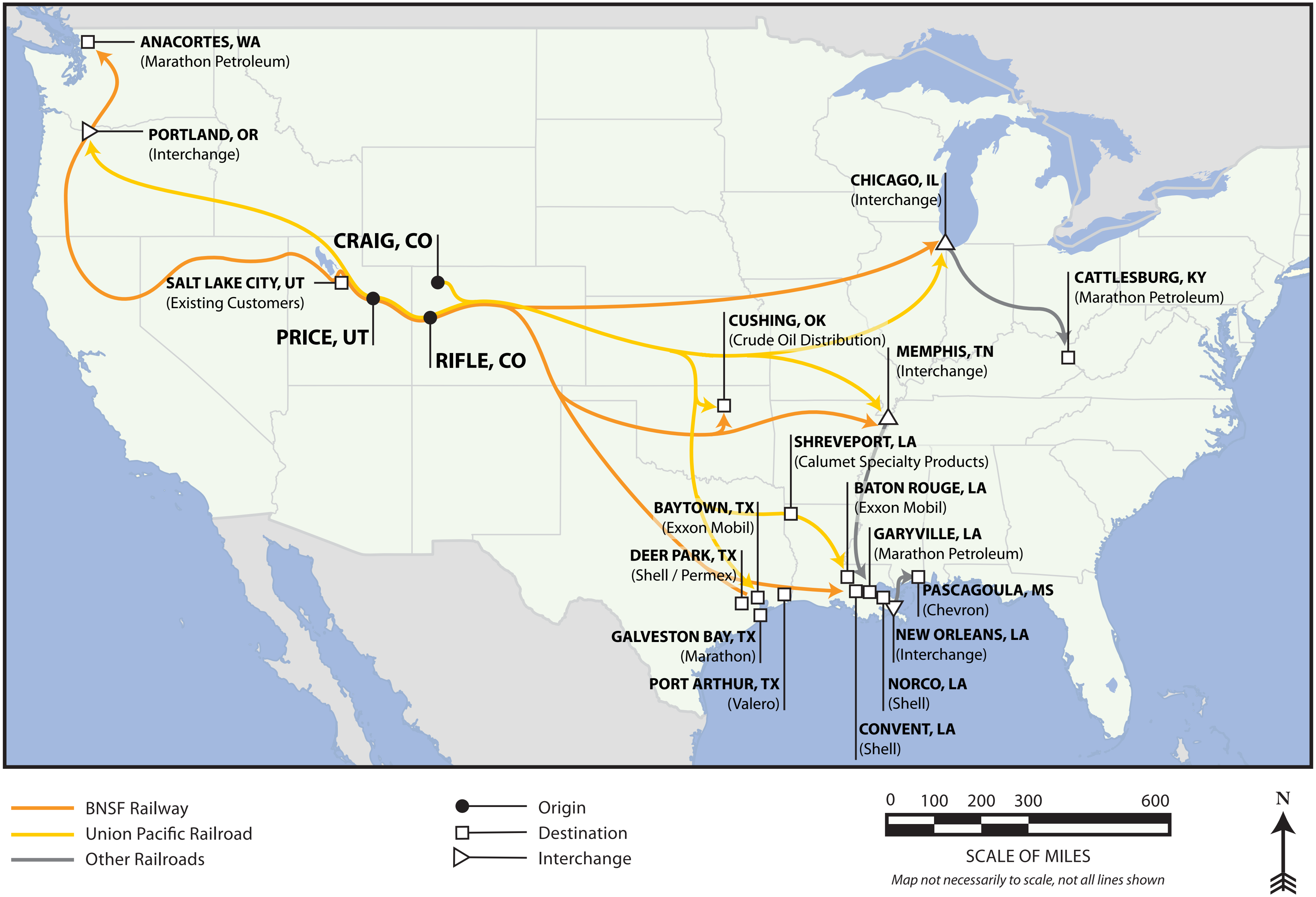
To further assist in the study, the SCIC contracted with Marc Eckels, an experienced oil and gas consultant based in Park City, UT, to interview representatives of select refineries primarily in the Gulf Coast and discuss with them in detail, to the extent possible, the prospective interest of those refineries in the Basin's oil. After interviewing in person representatives of five companies operating eleven refineries believed to be possible consumers of Basin crudes, Mr. Eckels concluded that demand exists today for at least somewhere between 320,000 and 340,000 bpd of Basin oil.

Several caveats should be taken into consideration in digesting that forecast. First, and most importantly, the work performed by Mr. Eckels is not complete, as he was only able to meet with officials representing eleven of the nineteen refineries he originally targeted. It is the intent of Mr. Eckels to make a good faith effort to complete interviews with representatives of the remaining eight refineries. As such, the results of this report are subject to change pending the outcome of said interviews.

Map 4-1: Proposed National Destinations and Routings for Uinta Basin Crude Oil

(see foldout on next page)

Map 4-1
Proposed National Destinations and Routings for Uinta Basin Crude Oil



Eagle County Comments on *Draft Environmental Impact Statement Before the Surface Transportation Board*, STB Docket No. FD 36284 (Feb. 12, 2021)

Introduction

The Board of County Commissioners of Eagle County Colorado ("Eagle County"), a political subdivision of the State of Colorado, hereby submits the following comments in response to the Uinta Basin Railway Draft Environmental Impact Statement ("DEIS"), issued by the Surface Transportation Board's ("STB" or "Board") Office of Environmental Analysis ("OEA") on October 30, 2020, in *Seven County Infrastructure Coalition—Construction and Operation—in Utah, Carbon, Duchesne, and Uintah Counties, Utah*, Finance Docket No. FD 36284. Chaffee County, Lake County, the Town of Buena Vista, the City of Salida, and Eagle River Watershed Council have authorized Eagle County to represent that they each adopt and join in these comments.

In accordance with the National Environmental Policy Act of 1969 ("NEPA"), the OEA has prepared the DEIS in order to evaluate the environmental impacts of a proposal submitted by the Seven County Infrastructure Coalition ("Coalition") to construct an approximately 85-mile rail line connecting the Uinta Basin in Utah to the national rail network ("Uinta Basin Railway" or "Project"), primarily for the purposes of shipping crude oil produced in the Uinta Basin to markets elsewhere, and its alternatives. As one of the jurisdictions through which the DEIS projects an overwhelming majority of the shipments of crude oil are projected to pass, and whose communities are accordingly likely to bear potentially far-reaching impacts, Eagle County is a key stakeholder in the outcome of the Project and an important voice in this environmental review process. As such, Eagle County urges the OBA to address serious flaws in the DEIS, including most importantly the lack of consideration of a proposal to offer new service on a 163.1 mile long connecting line between Parkdale, Colorado, and a location known as Sage, near Dotsero, Colorado, known as the Tennessee Pass Line (Colorado, Midland and Pacific Railway Co. ("CMP"), *Verified Notice-Lease and Operation Exemption Containing Interchange Commitment-Union Pacific R.R. Co.,* STB Docket No. 36471 (Filed December 31, 2020) (the "CMP Notice of Exemption")), as well as failures to adequately state the Project's purpose and need, consider downline impacts and reasonable alternatives, evaluate environmental impacts, or propose mitigation measures. Because CMP filed its Notice of Exemption after the STB issued the DEIS, this Board must, at a minimum, publish a supplement to the DEIS to address the potential effects of the Project on the Tennessee Pass Line.

I. Factual and Procedural Background

Eagle County, CO, is one of several western Colorado counties through which the vast majority of shipments resulting from the Project are anticipated to pass via a line owned by the Union Pacific Railroad Company ("UP") known as the Central Corridor. *See* DEIS at 2-1; 3.1-13; Colorado Department of Transportation, Colorado Freight and Passenger Rail Plain, 22, 50 (2018) ("Colorado State Rail Plan"), *available at:* https://www.codot.gov/programs/

transitandrail/plans-studies-reports/statewidetransit plan/2018-colorado-freight-and-passenger-rail-plan.pdf. The Central Corridor is the only regularly used rail line to cross the Colorado Rocky Mountains, via a route that is known as the Moffat Tunnel Subdivision, and is therefore an important route for UP and BNSF Railway ("BNSF"), which has operating rights over the Central Corridor. Colorado State Rail Plan at 22. The Central Corridor also is used to serve Amtrak's California Zephyr daily passenger service as well as seasonal ski train passenger service between Denver and Winter Park, Colorado. Colorado State Rail Plan at 21.

Eagle County, CO, is also the county in which the Tennessee Pass Line, the only east-west rail alternative in Colorado to the Moffat Tunnel Subdivision, connects to the Central Corridor near the community of Dotsero on the western border of the County. The Tennessee Pass Line is owned by UP and has not been abandoned, although it has not seen freight service in over 20 years. Colorado State Rail Plan at 50. The Tennessee Pass Line runs through the Eagle River Valley alongside a portion of the I-70 Corridor, which is home to a number of burgeoning communities that have developed substantially over the past few decades, with future growth anticipated. Colorado Department of Transportation, *I-70 Mountain Corridor Final Programmatic Environmental Impact Statement* 1-14 to 1-15 (2011), *available at:* https://www.codot.gov/projects/i-70-old-mountaincorridor/final-peis/final-peis-file-download.html. The alpine character of the area, with stunning vistas and rugged terrain, also creates challenges in the operation and maintenance of transportation infrastructure. *Id.* at 1-1. On its eastern end the Tennessee Pass Line joins BNSF/UP mainlines at Pueblo, CO.

On October 30, 2020, OEA issued the DEIS for the Project, which is a proposal to construct an approximately 85-mile long rail line connecting two tennini in the Uinta Basin near South Myton Bench, Utah, and Leland Bench, Utah to the national rail network via an existing line at Kyune, Utah. DEIS at 1-1. The Project has been submitted for STB review by the Coalition, an independent political subdivision of the State of Utah composed of member counties Carbon, Daggett, Duchesne, Emery, San Juan, Sevier, and Uintah Counties. DEIS at S-2. The Coalition does not propose to operate the Uinta Basin Railway itself, but rather intends to contract with an existing rail carrier, the Rio Grande Pacific Corporation ("RGPC"), to provide common carrier rail service. DEIS at S-2, 1-1. The stated purpose of the Project is "to provide common carrier rail service connecting the Basin to the interstate common carrier rail network using a route that would provide shippers with a viable alternative to trucking." DEIS at 1-3.

On December 9, 2020, in response to requests from a number of parties for extension of the comment period, the STB extended the initial 45-day public comment period for the DEIS, originally requiring submissions due by December 14, 2020, to January 28, 2021. *Notice,* Docket No. FD 36284 (Service Date Dec. 9, 2020). In light of the December 31, 2020, filings by RGPC and its subsidiary and the apparent connections between the Uinta Basin Railway and the proposed operations on the Tennessee Pass Line, described further below, Eagle County filed a Motion for Extension of Time and Petition for Reconsideration of the STB's regulatory process for the Uinta Basin Railway proposal on January 25, 2020. The Board further extended the deadline for comment to February 12, 2021, in response to Eagle County's request. *Notice,* Docket No. FD 36284 (Service Date January 28, 2021).

On December 31, 2020, CMP, a wholly-owned subsidiary of the RGPC, submitted a Notice of Exemption announcing that CMP would be entering into a lease with UP for the majority of the Tennessee Pass rail line between Parkdale and Sage, Colorado, and that it had filed for common carrier authority to operate. Verified Notice of Exemption, *Rio Grande Pacific Corp.—Continuance in Control Exemption—Colorado, Midland* & *Pacific Ry. Co.,* STB Docket No. FD 36470 (filed Dec. 31, 2020) (the "RGP Notice of Exemption"); *see also* the CMP Notice. In its press release announcing the lease with UP, CMP stated that it intended to explore development opportunities for freight rail services originating or terminating on the Tennessee Pass Line.[1]

II. Legal Background

NEPA is "our basic national charter for protection of the environment." *Barnes v. U.S. Dep't of Transp.,* 655 F.3d 1124, 1131 (quoting former 40 C.F.R.

[1] *See https://rgpc.com/wp-content/uploads/2021/01/TN-Pass-press-release-final-CMP.pdf.*

§ 1500.1(a) (2019)).[2] NEPA is intended to ensure that Federal agencies consider the environmental impacts of their actions in the decision-making process concerning proposed federal actions. "For any proposed major federal action ... NEPA requires the agency to prepare an [EIS]." *Lands Council v. Powell,* 395 F.3d 1019, 1026 (9th Cir. 2004). An EIS must provide "full and fair discussion of significant environmental impacts and [] inform decision makers and the public of reasonable alternatives that would avoid or minimize adverse impacts or enhance the quality of the human environment." 40 C.F.R. § 1502.l (2020). Specifically, an EIS must include details on the environmental impact of a proposed action, any adverse environmental effects which cannot be avoided should the proposal be implemented, and alternatives to the proposed action. 42 U.S.C. § 4332(2)(C)(i)-(iii). Environmental impacts that must be covered in an EIS include reasonably foreseeable environmental trends and planned actions in the area. 49 C.F.R. § 1502.15. Reasonably foreseeable impacts are those that are "sufficiently likely to occur that a person of ordinary prudence would take it into account in reaching a decision." *Mid States Coalition for Progress v. STB,* 345 F.3d 520, 549 (8th Cir. 2003). The fact that the specifics of a reasonably foreseeable impact are not known with precision does not mean that they may be ignored when the nature of the effect is reasonably foreseeable. *Id.* 345 F.3d at 549-50.

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[2] As discussed in this section, new NEPA regulations were promulgated in 2020. Hereinafter, where a NEPA regulation is not dated or is dated 2020, it refers to the current regulations.

A. Council on Environmental Quality NEPA Regulations

The Council on Environmental Quality ("CEQ") first promulgated regulations governing the implementation of NEPA in 1978. *See* 40 C.F.R. §§ 1500-1508. In July 2020, the CEQ adopted comprehensive revisions to these regulations. 85 Fed. Reg. 43,304 (July 16, 2020). On January 20, 2021, President Biden signed Executive Order 13990, "Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis." 86 Fed. Reg. 7037 (Jan. 25, 2021). Simultaneously, President Biden announced a list of agency actions that heads of agencies would review in accordance with Executive Order 13990, which included, *inter alia,* CEQ's July 2020 NEPA regulations.[3]

While the relevant portions of CEQ's July 2020 NEPA regulations do not conflict with its NEPA regulations that preceded those revisions, i.e. it is possible for the STB to comply with both versions, we note that the July 2020 regulations appear to be narrower in some respects. Given the uncertainty around the status of CEQ's current interpretation of NEPA, we urge OEA to ensure that the DEIS comports with both the pre-2020 NEPA regulations and those NEPA regulations adopted in July 2020. Inasmuch as CEQ's pre-2020 NEPA regulations were based upon and implemented statute, and inasmuch as federal court decisions interpreting those regulations were also grounded in statute, they are

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[3] *See* https://web.archive.org/web/20210120151809/https:/buildbackbetter.gov/press-releases/fact-sheet-list-of-agency-actions-for-review/

still good law and should guide OEA's preparation of the EIS for the Uinta Basin Railway.

B. STB's NEPA Regulations

The STB has also adopted its own regulations governing how NEPA applies to railroad construction projects. 49 C.F.R. Part 1105. Under these regulations, the OEA generally prepares an EIS for new railroad construction proposals. 49 C.F.R. § 1105.6(a). The STB invites public comment on the scope of the environmental review and on the DEIS. 49 C.F.R. § 1105.l0(a). The FEIS should discuss the comments received on the DEIS and note any changes made in response to them. *Id.* When determining whether to authorize a construction project, the STB considers the environmental record, which includes the FEIS and any comments and responses concerning environmental issues. *Id.* § 1105.l0(f).

III. Comments

A. The Federal Railroad Administration and Pipeline and Hazardous Materials Safety Administration Must Be Cooperating Agencies.

Under NEPA, a "cooperating agency" means any Federal agency, other than a lead agency, that has jurisdiction by law or special expertise with respect to any environmental impact involved in a proposed project or project alternative." 40 C.F.R. § 1508.5. The lead agency is required to "[r]equest the participation of each cooperating agency in the NEPA process at the earliest possible time." 40 C.F.R. § 1501.6(a)(1). An agency may also request the lead agency to designate it a cooperating agency. *Id.* § 1501.6. In this instance, the knowledge arising from the Federal Railroad

Administration's ("FRA") general rail safety expertise and the Pipeline and Hazardous Materials Safety Administration's ("PHMSA") regulation of hazardous materials shipments is essential to a thorough analysis of potential risks and anticipated impacts in connection with the Project.

Between 1992 and 1998, the Central Corridor was among the locations in Utah and Colorado that experienced seven derailments that caused releases of diesel fuel, taconite, and sulfuric acid into rivers adjacent to the railroad serious enough to trigger enforcement of the Clean Water Act.[4] UP entered into a consent decree with the U.S. Department of Justice in 2000 that required the railroad to pay $800,000 in fines and institute a number of operating safety measures, including the "implementation of a comprehensive rock fall hazard mitigation project".[5]

Given the history of wrecks and spills in the Central Corridor, the proposed shipment of crude oil from the Project presents elevated risks and potential impacts to communities along the line in the event of a derailment or other accident. The DEIS identifies the potential for 40% increased risk of rail-related accidents along UP' s Central Corridor. DEIS at 3.2-6. In a 2018 report to Congress comparing the shipment of crude oil by rail, truck, and pipeline, PHMSA noted that the safety record of crude oil shipments by rail between 2007 and 2016 was highly variable, with rail

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[4] U.S. Dept. of Justice, Press Release, June 8, 2000, available at: https://www.justice.gov/archive/opa/pr/2000/June/328enrd.htm.

[5] *U.S. v. Southern Pac. Transp. Co.,* Notice of Lodging of Consent Decree Under the Sections 309(b) and 311(b) of the Clean Water Act, 65 Fed. Reg. 38,574 (Dep't of Justice, June 21, 2000).

in some years involving almost 900% more crude oil spills than either pipeline or truck shipments.[6] PHMSA noted that variability of rail's safety record for crude oil spills was driven by "high-impact incidents."[7] In other words, when things go wrong with shipments of crude oil by rail, they go dramatically wrong. Accordingly, the Project does not consist solely of the construction of rail facilities and generalized operations, but expressly involves the shipment of a commodity whose handling is governed by a specific and specialized regulatory regime.[8]

The expertise of these sister U.S. Department of Transportation agencies will aid in the thorough evaluation of risks and potential impacts of the Project and will not be duplicative or redundant with the STB's role as lead agency. For instance, "Congress vested the FRA with primary authority over national rail safety policy and assigned the [Surface Transportation Board] the duty to ... [assess] individual railway proposals subject to its authority." *Tyrrell v. Norfolk S. Ry. Co.,* 248 F.3d 517,523 (6th Cir. 2001). Although the DEIS reflects that OEA "sent consultation letters to agencies soliciting their input, comments, ideas, and concerns" of a generic nature (DEIS at 5-2), Table 5.1 of the DEIS lists FRA, but not PHMSA, among the agencies contacted, and does not reflect the affirmative outreach to those two agencies

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[6] PHMSA, Report to Congress—Shipping Crude Oil by Truck, Rail and Pipeline (March 19, 2019), at 7, Fig. 3. Available at: https://www.plm1sa.dot.gov/news/report-congress-shipping-crude-oil-truck-rail-and-pipeline,

[7] *Id.*

[8] 49 C.F R. part 174.

as their respective expertise would demand in accordance with the CEQ regulations.

B. The Project's DEIS Fails To Consider New Proposed Operation Over the Tennessee Pass Line, Either As a Connected Action or In Its Downline Impact Analysis

CMP's recent Notice of Exemption to conduct freight service on the Tennessee Pass Line in Colorado demonstrates that the proposal to provide new service on the Tennessee Pass Line and the Uinta Basin Railway are connected actions, and they must be analyzed together in a Supplemental DEIS. Despite the assertions of CMP's parent, RGP, that it does not currently plan to ship crude oil over the Tennessee Pass Line (Seven County Infrastructure Coalition, Comment, STB Docket No. FD 36284—STB OEA Document Number EI-27080 (Filed January 26, 2021), Verified Statement of Mark W. Hemphill), the Coalition also observes in that filing that the Tennessee Pass Line has not been abandoned, and therefore remains part of the national freight rail network. The Coalition does not rule out what future operations CMP may conduct on the Tennessee Pass Line.

According to the DEIS, if the STB authorizes the proposed construction and operation of the Uinta Basin Railway, RGPC would operate and maintain the line. DEIS at 2-L Further, OEA states that RGPC is intended to be included when the DEIS refers to the Coalition. DEIS at 1-1 n. 1, 2-1 n. 1. Accordingly, RGPC is the party that will be subject to a common carrier obligation and is effectively an applicant in this proceeding.

On December 31, 2020, RGPC announced that its wholly owned subsidiary, CMP, had entered into a lease with Union Pacific Railroad for the majority of the Tennessee Pass Line between Parkdale and Sage, Colorado, and that it had filed for common-carrier authority to operate with the STB. RGP Notice of Exemption. In its press release announcing the lease with UP, CMP stated that it intended to explore development opportunities for freight rail services originating or terminating on the Tennessee Pass Line.[9] While the same release states that RGPC had no plans to carry crude oil from Utah over the Tem1essee Pass Line, it appears this was included only to address speculation and community concern; nothing in the RGPC Notice of Exemption or CMP Notice of Exemption precludes transport of oil and, as a common carrier, RGPC would be required to provide rail service to any shipper upon reasonable request.

1. The proposal to reinstitute freight rail service on the Tennessee Pass Line is a federal action that must be considered connected and evaluated together with the Project for the purposes of NEPA

The Tennessee Pass rail line is connected to the Uinta Basin Railway for the purposes of NEPA analysis. CEQ regulations provide that an agency *must* consider connected actions in determining the scope and significance of a federal action. 40 C.F.R. §§ 1501.3(b), 1501.9(e)(1). Actions are connected if

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[9] *See* https://rgpc.com/wp-content/uploads/2021/01/TN-Pass-press-release-final-CMP.pdf.

they are "closely related," 40 C.F.R. § 1501.9(e)(1). CMP is a wholly owned subsidiary of RGPC, a real party in interest in the instant STB proceeding, and a physical connection between the Uinta Basin Railway line and the Tennessee Pass line in Colorado could be readily established. Moreover, the Tennessee Pass line would connect the Project line with the most likely markets for the crude oil that is expected to be transported from the Uinta Basin, and would serve as an alternative route to the line that has been identified as likely to be used for the vast majority of daily shipments expected to result from the Project. The Uinta Basin Railway and the Tennessee Pass line are interrelated parts of a larger action—a rail network in Utah and Colorado for the transport of freight -- and they depend on this larger action for their justification. *Id.* § 1501.9(e)(1)(iii).

CMP's lease with UP and related STB proceeding to transpo1t freight over the Tennessee Pass Line represent fundamental changes in the scope of the "project" to be analyzed in the Uinta Basin Railway EIS. The introduction of freight service on the Tennessee Pass Line—including, potentially, oil from the Uinta Basin—presents a significant new circumstance that raises new environmental concerns about the impacts of the Uinta Basin Railway. Transport of crude oil over the remote, steep, winding, and mountainous Tennessee Pass Line would introduce risks associated with accidents, including spills or releases in or near sensitive areas such as a river, wetland, important wildlife habitat area, or recreational sites.

In such circumstances, OEA must prepare a Supplemental DEIS. The duty to prepare a Supplemental DEIS is based on the need to facilitate informed decision making. *S. Utah Wilderness Alliance v. Norton,* 301 F. 3d 1217, 1238 (10th Cir. 2002), *rev'd on other grounds and remanded,* 542 U.S. 55 (2004). A supplement is required where there are "significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts." 40 C.F.R. § 1502.9(d)(1)(ii).[10]

While failure to issue a supplemental EIS is not unlawful if the relevant environmental impacts have already been considered in the NEPA process, *Friends of Marolt Park v. U.S. Dept. of Transp.*, 382 F.3d 1088, 1097 (10th Cir. 2004), that is not the case here. The DEIS for the Project considers downline impacts in Colorado only in the Moffat Tunnel Subdivision, and the Tennessee Pass Line is not mentioned at all. Indeed, the Tennessee Pass Line could conceivably serve as an alternative to the UP's Moffat Tunnel Subdivision to Denver, which under the DEIS is currently expected to carry the vast majority of increased rail traffic caused by the Project. See the

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[10] STB's regulations implementing NEPA provide that an EIS "*may* be supplemented" in the face of significant new and relevant information, *see* 49 C.F.R. § 1510(a)(5), whereas CEQ's regulations make supplementation mandatory in circumstances where there is significant new information relevant to environmental concerns. *Compare* 49 C.F.R. § 1510(a)(5) *with* 40 C.F.R. § 1502.9(d)(1)(ii). Where an agency's regulations conflict with NEPA and the implementing regulations promulgated by the CEQ, CEQ's regulations are controlling. *Sierra Club v. US. Dept. of Agriculture,* 777 F. Supp. 2d 44, 68 (D.D.C. 2011).

Map attached as *Exhibit A* to these Comments, showing the relationship between the Project, the Tennessee Pass Line, the connection both lines share to the UP Central Corridor, and the surrounding freight rail network. Consideration of the Tennessee Pass Line proposal in conjunction with the Uinta Basin Railway is necessary to prevent OEA from conducting piecemeal environmental reviews that will not result in an understanding of the full impacts of the rail system additions being contemplated. *See, e.g.*, *W Chi. V United States Nuclear Regulatory Com.,* 701 F.2d 632, 650 (7th Cir. 1983) ("piecemealing" allows an agency to evade NEPA requirements "by segmenting an overall plan into smaller parts involving action with less significant environmental effects"). This is contrary to the intent of NEPA to provide a comprehensive, full, understanding of a proposal's impact prior to approving a project. *See, e.g.*, *Citizens Comm. To Save Our Canyons v. United Stales Forest Serv.,* 297 F.3d 1012, 1028 (10th Cir. 2002) ("One of the primary reasons for requiring an agency to evaluate connected actions in a single EIS is to prevent agencies from minimizing the potential environmental consequences of a proposed action (and thus short-circuiting NEPA review) by segmenting or isolating an individual action that, by itself, may not have a significant environmental impact.").

Accordingly, OEA must prepare a Supplemental DEIS that analyzes the impacts of reintroducing service on the Tennessee Pass line along with the other impacts of the Uinta Basin Railway identified in the DEIS.

2. Even if not a connected action, opening of the Tennessee Pass Line must be considered as part of the downline impacts of the Project

Even if the introduction of new service along the Tennessee Pass Line did not constitute a "connected action," it would nevertheless need to be considered in the downline impact analysis. The DEIS defines the "downline study area" as "segments of existing rail lines outside of the Uinta Basin that could experience an increase in rail traffic above OEA's thresholds at 49 C.F.R. § 1105.7(e)(5) if the proposed rail line were constructed." DEIS at 3.2-1.

As discussed above, the OBA analyzed potential markets and rail routes in order to identify rail lines over which downline impacts should be assessed. This assessment did not anticipate the introduction of new service over the Tennessee Pass Line, although it has not been abandoned. However, RGPR's and CMP's recent filings regarding renewed operations over the Tennessee Pass Line, combined with the strategic connection that the Tennessee Pass Line makes between the Project and the most likely markets for Uinta Basin-sourced crude oil, make consideration of the downline impacts to the area and communities adjacent to the Tennessee Pass Line necessary in order to consider all reasonably foreseeable impacts caused by the Project.

The need to evaluate impacts is particularly the important here given the general absence of service along this line for more than 20 years, the growth of development in the area that may increase the severity of safety risks and impacts, and the often-difficult access and challenging terrain of the route. The Board's environmental regulations at 49 C.F.R. § 1105.7(e)(3) require the assessment of impacts a project may have on land use patterns in affected communities, including:

> (i) Based on consultation with local and/or regional planning agencies and/or a review of the official planning documents prepared by such agencies, state whether the proposed action is consistent with existing land use plans. Describe any inconsistencies.
>
> (ii) Based on consultation with the U.S. Soil Conservation Service, state the effect of the proposed action on any prime agricultural land.

The terrain through which the Tennessee Pass Line travels is characterized by rangelands and a narrow mountain river valley. Communities along the line have experienced significant development since the line was last active in the mid-l 990s and many are laid out longitudinally in parallel with the river and rail line because of the topographic limitations imposed by steep canyon sides. Examples of development that a Supplemental DEIS must take into account include:

- The Town of Minturn has developed and is expanding a significant network of trails. *See* the Town of Minturn 2009 Community Plan at 21-22, available at: https://www.mintum.org/sites/g/files/vyhlif3486/f/uploads/2009communityplan.pdf
- The rail line runs through the downtown Avon, which has been developed as a pedestrian and bicycle zone that is a significant focus of

resident and visitor activity. See the Town of Avon's website at: https://www.avon.org/2038/Free-Spaces-to-Explore.

- The Town of Buena Vista is bisected by the rail line, and any slow or stopped trains that block at-grade crossings would hamper emergency response.
- In general, the re-introduction of freight rail service will drive additional expense and impose the administrative burden on municipalities of training local first responders to address rail-related accidents and incidents.

C. The DEIS's Existing Downline Impact Analysis Is Insufficient

Among other requirements for environmental reporting, the STB's environmental regulations require rail construction proposals to " [d]escribe the effects, including indirect or downline impacts, of the new or diverted traffic over the line if the thresholds governing energy, noise and air impacts in §§ l105.7(e)(4), (5), or (6) are met." 49 C.F.R. § 1105.7(e)(11)(v).

The threshold for energy according to 49 C.F.R. § l105.7(e)(4) is: "If the proposed action will cause diversions from rail to motor carriage of more than: (A) 1,000 rail carloads a year; or (B) An average of 50 rail carloads per mile per year for any part of the affected line, quantify the resulting net change in energy consumption and show the data and methodology used to arrive at the figure given." *Id.* § 1105.7(e)(4)(iv).

The threshold for air according to § l105.7(e)(5) is (as is relevant here):

- "If the proposed action will result in ... [a]n increase in rail traffic of at least 100 percent (measured in gross ton miles annually) or an increase of at least eight trains a day on any segment of the rail line affected by the proposal," *Id.* § 1105.7(e)(5)(i); or
- "If the proposed action affects a class I or nonattainment area under the Clean Air Act, and will result in , ... [a]n increase in rail traffic of at least 50 percent (measured in gross ton miles annually) or an increase of at least three trains a day on any segment of rail line." *Id.* § 1105.7(e)(5)(ii).
- However, these regulations also provide that for new construction of a line or reinstitution of service over a previously abandoned line, only the train car threshold (not the percentage threshold) applies. *Id.* §§ 1105.7(e)(5)(i)(C), 1105.7(e)(5)(ii)(C).

The threshold for noise according to § 1105.7(e)(6) is: "If any of the thresholds identified in [§ 1105.7(e)(5)(i), i.e. the air quality threshold] are surpassed, state whether the proposed action will cause (i) An incremental increase in noise levels of three decibels Ldn or more; or (ii) An increase to a noise level of 65 decibels Ldn or greater." § 1105.7(e)(6).

The DEIS states that "to assess the potential impacts of increased rail traffic on main lines outside of the immediate Project area, OEA defined a downline study area that extends from the proposed connection near Kyune to the northern, eastern, and southern edges of the Denver Metro/North Front Range air quality nonattainment area." DEIS at S-11. For the downline study area, the DEIS identifies that "[t]he impacts from the additional traffic on these main lines could include air quality impacts associated with locomotive exhaust, increased wayside noise, increased risk of accidents at at-grade road crossings, and increased vehicular delay at road crossings." *Id.* However, in the DEIS the OEA states that it "does not expect that downline impacts would be significant." *Id.* The downline study area, based expressly on the threshold levels in 49 C.F.R. § 1105.7(e)(5), were applied in the DEIS to analyze downline impacts related to roadway vehicle safety and delay (DEIS at 3.1.-1 to 3.1-2), and rail operations safety (DEIS at 3.2-1), in addition to air quality (DEIS at 3.7-3).

Appendix C to the DEIS provides how the OEA identified the study area for its downline impact analysis. Appendix C first notes the STB's environmental regulations provided at § 1105.7(e) and provides that OEA determined that the eight- and three-train thresholds for air impacts and the noise thresholds in § 1105.7(e)(6) were applicable to the Project. The OEA further provides that, "[b]ased on its experience applying the thresholds for air and noise on freight rail construction and operation projects, OEA has determined that these thresholds should also apply to freight rail safety and grade-crossing safety and delay." DEIS App. C, at C-1. In determining which potential downline routes might be affected, and therefore must be analyzed, Appendix C provides that:

> There are many factors that determine possible destinations for loaded crude oil trains originating in the Basin and the routes those trains could take within the national (downline) freight rail network to reach those destinations. The possible destinations and routes then determine where the estimated increase in rail traffic could warrant analysis based on the Board's thresholds. OEA determined the downline study area by first considering the likely destinations for crude oil that would be transported by the proposed rail line. OEA then considered potential routing to those destinations and where the estimated project-related rail traffic would exceed the analysis thresholds.

After analyzing the feasibility and market dynamics of a number of refineries with actual or potential rail connections between them and the Uinta Basin Railway, OEA concluded that "a reasonable estimated distribution of destinations for Uinta Basin-sourced crude oil transported on the proposed rail line would be 50 percent to Houston/Port Arthur, 35 percent to Louisiana Gulf Coast, 10 percent to Puget Sound, and 5 percent to P ADD 2 refineries in Kansas and Oklahoma." DEIS App. C, at C-3 to C-4.

The OEA then estimated the most likely routing between the Uinta Basin and these destinations on UP and BNSF Railway lines using a routing program and calculated the number of additional trains per day expected on each route for both low and high estimates. DEIS App. C, at C-4. It concluded that the overwhelming majority of rail traffic from Kyune to

Denver would travel along UP's Central Corridor via the Moffat Tunnel Subdivision, and that the regulatory threshold for air quality would be exceeded along this route and within the metropolitan Denver area. DEIS App. C, at C-5 to C-6.[11] Furthermore, for Uinta Basin-related traffic from Denver to Houston/Port Arthur and Louisiana, the high traffic scenario exceeded three trains a day, and nearly met the three train threshold for the low rail traffic scenario. DEIS App. C Table C-4, at C-5. In fact, OEA calculated that the total average trains per day reaching Houston/Port Arthur in the high traffic scenario would be 5.26 trains, and likewise the average daily trains for the Louisiana destination under the high traffic scenario would be 3.68 trains, both above the three-train threshold. *Id.*

The OEA states that because Denver is a nonattainment area (i.e. the three train threshold applies there), and because of uncertainty associated with the estimated distribution of rail traffic out of Denver, it set the downline study area for the Project as the boundaries of the Denver Metro/North Front Range air quality nonattainment area. DEIS App. C, at C-5.

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[11] The DEIS does not expressly identify the route as the Central Corridor or the Moffat Tunnel Subdivision, but the map on page C-6 of Appendix C and the OEA's description reflects this.

1. The downline impact analysis inappropriately omits consideration of other hazardous or dangerous commodities and of the uniquely hazardous character of crude oil shipments

In addition to conventional crude oil, the Coalition admits that other commodities, including natural gas and coal, may also be shipped over the constructed rail line to other markets. DEIS at 2-1. Indeed, in addition to some of the largest oil shale deposits in the world, the Uinta Basin is also home to some of the largest natural gas fields in Utah, as well as marginal coal deposits. *See* Michael D Vanden Berg, Utah's Energy Landscape, Circular 121, Utah Geological Survey, Utah Department of Natural Resources, 16, 29, 34 (2016), available at: https://ugspub.nr.utah.gov/publications/circular/c-121.pdf.

However, although shipment of these commodities is expressly contemplated, the DEIS analysis of downline impacts focuses exclusively on oil shipments, based on the assertions of the Coalition that the primary commodity expected to be transp01ied over the constructed rail lines will be crude oil. DEIS at 2-1; App. C, at C-1. Accordingly, expected shipping routes for crude oil have informed the downline study area, excluding routes that are likely to serve markets for other commodities, including oil shale, natural gas, coal, and other mineral deposits. *Id.* For instance, the OEA's analysis eliminated westward routes from consideration under its downline impact analysis due to its market analysis for crude oil, even though West Coast ports may very well serve as the logical rail destination for expanding international markets for other commodities such as natural gas.

Many of the additional non-oil commodities that are explicitly identified as potentially transported have particular impacts that cannot be properly assessed by merely looking at the shipment of oil. To take but two examples, the unique and dangerous aspects of coal (e.g. impacts of fugitive coal dust and combustion) and natural gas (e.g. vaporization and flammability) require specific consideration. *See* PHMSA, *Risk Assessment of Surface Transport of Liquid Natural Gas, Final Report,* 92 (March 20, 2019), *available at:* https://www.phmsa.dot.gov/sites/phmsa.dot.gov/files/docs/research-anddevelopment/hazmat/reports/7l651/fr2-phmsa-hmtrns16-oncall-20mar20l9-v3.pdf (noting the particular difficulty in cleaning up an LNG incident); Robert. Kotchenruther, *Fugitive Dust .from Coal Trains. Factors Effecting Emissions & Estimating PM2. 5,* EPA Region 10, NW-AIRQUEST (2013).

Changing market factors and transportation dynamics, as well as the effects of induced demand, discussed below at Section III.E, suggest that even if current expected volumes of non-oil shipments are low, they may not remain that way. This is particularly so considering the significance of resources in the Uinta Basin and the long-term presence and operability of rail infrastructure.

Yet no explanation is provided for why the impacts from shipment of these other commodities, which are clearly reasonably foreseeable, are not or should not be considered in assessing downline impacts. The complete reliance on oil shipments in considering downline impacts reflects the same sort of shortcut analysis used in applying air quality standards to rail safety impacts, discussed further below at III.C.2.

2. The threshold for assessing air quality issues is inadequate to analyze safety issues particular to shipping oil

The OEA states that "[b]ased on its experience applying the thresholds for air and noise on freight rail construction and operation projects, OEA has determined that these thresholds should also apply to freight rail and safety and grade-crossing safety and delay." DEIS App. C, at C-1. Unless OEA "describes its basis for applying the standard under which it has arrived at this conclusion, supported by plausible explanation," there is no basis for determining whether the decision is arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with the law. *See Ober v. Whitman,* 243 F.3d 1190, 1195 (9th Cir. 2001). A review of STB decisions indicates no explanation of why OEA could use the threshold for air for freight rail and safety and grade-crossing safety and delay.

Even if OBA may have applied these thresholds for safety-related issues in other cases, simply relying on prior use is not sufficient because "[e]ach project is different, and the agency is required to rationally explain its decision in the context of project-specific effects." *Northern Plains Resource Council, Inc. v.*

Surface Transp. Bd., 668 F.3d 1067, 1078 (9th Cir. 2011). The particularly hazardous nature of crude oil makes air quality standards inadequate for analyzing the safety issues presented by these trains throughout their trip from the Uinta Basin to their likely destinations, including Houston/Port Arthur, Louisiana, Puget Sound, Kansas, and Oklahoma. DEIS App. C, at C-3 to C-4. As the Congressional Research Service recently noted, "[u]nit trains of crude oil concentrate a large amount of potentially environmentally harmful and flammable material, increasing the probability that, should an accident occur, large fires and explosions could result." John Frattelli et al., *US. Rail Transportation of Crude Oil: Background and Issues for Congress,* Congressional Research Service, 12 (2014), *available at:* https://fas.org/sgp/crs/misc/R43390.pdf. The risks involved with crude oil accidents are arguably less about volume of oil and more about where a spill occurs; a spill near a sensitive ecosystem, such as a river, will have a greater impact and cost more to clean up than a larger spill in a less sensitive area. *Id.* at. 11.

OBA attempts to downplay the downline safety risks of the Project by focusing on the "waxy" semisolid character of Uinta Basin crude oil at room temperatures, which makes it potentially easier to contain event of a spill. DEIS at 3.3-29. However "cleanup friendly" it may be compared to other crude oils, waxy crude remains a highly flammable commodity whose dangers should not be underestimated or considered through the rubric of an air quality standard. Furthermore, waxy crude presents its own unique logistical challenges and impacts, including, for instance, the need to heat it at various stages to enhance its fluidity.

Accordingly, it is therefore in error to use air quality limits completely unconnected to the risks associated with waxy crude oil to establish the standard for evaluating the downline impacts envisioned under the Project.

3. The OEA incorrectly limits analysis to contiguous rail segments where an applicable regulatory threshold is reached rather than to anticipated routes serving a project that has reached the applicable regulatory threshold(s)

OEA does not explain why it does not consider *all* downline impacts for the entire journey to expected refining destinations, rather than focus only on individual segments over which the increase in traffic is expected to exceed the regulatory threshold provided in the STB's regulations for air quality impacts. In its methodology, OEA apparently limited the scope of the downline study area by only including contiguous[12] segments of rail connected to the Project that were themselves expected to see an increase of traffic. DEIS App. C. at C-1. However, the STB's regulations require rail construction proposals to "describe the downline impacts if the thresholds governing energy, noise and air impacts in

[12] As discussed below, OEA does not mention or explain why only contiguous segments of rail line that meet the regulatory thresholds are included in the downline study area, even though OEA's own analysis indicates that this threshold may be met in other areas of the country as a result of the project.

§ 1105.7(e)(4), (5), or (6) are met." 49 C.F.R. § l105.7(e)(11)(v). The regulations do not limit the evaluation of downline impacts only to segments where thresholds are met; rather they logically require downline impacts to be considered when the thresholds are met *by the project*. Otherwise, it would be possible to completely discount all downline impacts if routes connecting to the Project were numerous enough to diffuse the average number of trips per route. This would certainly undermine the purpose of 49 C.F.R. § 1105.7(e)(11)(v).

Here, according to the proponent's and OEA's own analysis, the regulatory thresholds are met by the Project, both on the line to be constructed and on existing segments, particularly the segments between Kyune and Denver. No explanation is given as to why it is appropriate to completely ignore downline impacts over the great majority of the routes that the project-generated traffic would use; rather doing so would conflict with the requirement of 49 C.F.R. § 1105.7(e)(11)(v) to "describe the effects ... , of the new or dive1ted traffic over the line."

4. The scope of the downline study area does not include analysis of segments of rail line outside of Utah and Colorado that may or will likely exceed the regulatory thresholds that OEA uses

Even if OEA were correct in the manner in which it applied the regulatory thresholds to define the downline impact study area, the resulting study area does not reflect OEA's own methodology. In establishing the downline study area OEA relies on the thresholds provided in 49 C.F.R. § 1105.7(e)(5) relating to air impacts, i.e. an increase in eight trains a day on average, or three trains a day on average in air quality non-attainment areas. *See* DEIS at 3.1-1 to 3.1-2; 3.2-1; 3.7-3; App. C, at C-1). Nothing in the threshold or methodology suggests that segments of rail line, yards, or terminals that meet the threshold but are non-contiguous with other lines that meet the threshold, should be excluded. OEA does not mention or explain why segments of rail lines outside of Utah and Colorado that may meet the regulatory thresholds are not included in the downline study area, even though OEA's own analysis indicates that the increased traffic may result in exceeding the threshold there. OEA's analysis clearly establishes the expectation that Uinta Basin crude oil will likely end up in only a few places, mostly in Houston/Port Arthur and Louisiana. Although OEA does not share the specific routing data it used, the routes owned by the two railroads analyzed (BNSF and UP), and the incentive to route efficiently, would suggest that much or all of this traffic would likely take the same limited number of routes and pass through the same yards, some of which may be within nonattainment areas. Not considering the impacts in these areas, let alone not including them in the downline study area, is irrational.

For instance, the greater Houston metropolitan area, through which traffic between Houston and the Uinta Basin is expected to be the greatest, and through which through traffic to Louisiana appears likely to travel, is identified as a nonattainment area. *See* EPA, Green Book, https://www3.epa.gov/airquality/greenbook/map/mapnpoll.pdf (EPA Green

Book) (visited Jan. 21, 2021); Texas Department of Transportation, Texas Non-Attainment Areas, https://gistxdot.opendata.arcgis.com/datasets/texas-nonattainment-areas (visited Jan. 21, 2021). Areas in Kansas and Louisiana through which Uinta Basin-related trains might travel may also qualify under the established regulatory air thresholds for non-attainment areas. *See* EPA Green Book.

OEA estimates in the high rail traffic scenarios that 5.26 additional trains per day on average will travel between Houston/Port Arthur and Uinta Basin, and that 3.68 additional trains per day on average will travel between Uinta Basin and Louisiana. DEIS, App. C, Table C-4, at C-5. Averaging the high and low rail traffic scenarios for traffic to Houston/Port Arthur also results in an average that exceeds the threshold for nonattainment areas (3.55 trains per day on average), indicating that the range of expected increased traffic to this destination is above the regulatory threshold OEA uses. OEA does not even mention these expected exceedances, let alone explain why they would not qualify to be included in the downline study area.

5. The OEA incorrectly excludes multiple routes that in **aggregate would meet the regulatory thresholds that OEA uses to identify the scope of the downline impacts**

Even if specific routes east of the Denver metropolitan area individually would not experience expected increases in traffic that would reach the regulatory threshold cited by OEA, OEA's data clearly shows that in the aggregate routes to some of the destinations for traffic would exceed thresholds under the high rail traffic scenario. Specifically, Houston/Port Arthur and Louisiana would see 5.26 and 3.68 more trains per day on average, respectively, under the high rail traffic scenario. Combined, these two destinations would also see 3.13 more trains per day on average under the low rail traffic scenario, and 8.94 more trains per day on average under the high rail traffic scenario. These increases would all exceed the threshold for nonattainment areas, such as the Houston metropolitan area, and the combined high rail traffic scenario would exceed the eight trains per day threshold applicable for all rail lines in aggregate along all of the potential routes to Houston. OEA does not explain how the aggregate impact of these trains would not result in comparable impacts that should be taken into account as downline impacts. This is particularly the case with rail-related accidents, which will still have the same likelihood of occurring whether they are calculated along one or several lines. Increased downline impacts do not vanish or decrease merely because there are two or three routes to the same destination, rather than one.

D. The Project DEIS's Stated Purpose and Need Is Unsupported

An environmental impact statement must include a discussion of the purpose of and need for the proposed action. 40 C.F.R. § 1502.13. When reviewing an application for authorization, the agency is to base the purpose and need on the goals of the applicant and the agency's authority. *Id.*

In the DEIS, OEA states that the purpose of the Project is "to provide common carrier rail service connecting the Basin to the interstate common carrier rail network using a route that would provide shippers with a viable alternative to trucking." DEIS at 1-3. The Project is needed, according to the Coalition, because freight from the Uinta Basin can only move into and out of the basin on one of two two-lane highways (U.S. Highways 191 and 40). *Id.* The DEIS states that the Project is to "provide customers in the Basin with multi-modal options for the movement of freight to and from the Basin; promote a safe and efficient system of freight transportation in and out of the Basin; further the development of a sound rail transpo1tation system; and foster sound economic conditions in transportation and effective competition and coordination between differing modes of transportation." *Id.* Based on these assertions, OEA states that the Coalition's stated purposes "appear to be consistent with" the public convenience and necessity standard contained in 49 U.S.C. § 10901(c) and the Rail transportation Policy contained in 49 U.S.C. § 10101.

1. Purpose and need conclusions are unsupported in the record

OEA fails adequately to justify its statement of the purpose and need for the Project. In particular, the alleged need for the Project - to provide an alternative means to transport crude oil from the Basin to markets across the United States—is unsupported. While an agency may not completely ignore a project proponent's stated objectives, *Colo Envtl. Coalition v. Dombeck,* 185 F.3d 1162, 1175 (10th Cir. 1999), it also may not simply accept a proponent's stated objectives. *Id.* Rather, an agency must develop its own purpose and need based on the agency's independent review of the underlying problem or opportunity, informed by the goals of the applicant and the agency's authority. 40 C.F.R. § 1502.13.

Here, OEA fails to provide a justification for its acceptance of the asserted need for alternative transporation modes into and from the Uinta Basin. OEA does not analyze whether opportunities for highway transport of crude oil from the Uinta Basin are currently inadequate, whether a pipeline exists or might be constructed to transport crude oil from the Basin, or whether markets exist for any increased crude oil that development of this proposed rail line might facilitate or make more likely. On the contrary, OEA seems simply to accept that the absence of a railroad in this area demonstrates the need for one.

2. The DEIS suggests without support that the public convenience and necessity supports the purpose and need of the Project

OEA states that the Coalition's purpose appears to be consistent with the public convenience and necessity contained in 49 U.S.C. § 10901 and the Rail Transportation Policy contained in 49 U.S.C. § 10101, without explaining how the public convenience and necessity analysis actually fits into the Project's purpose and need.

In authorizing construction of a rail line, the STB is required to grant authorization unless it would be inconsistent with the public convenience and necessity. 49 U.S.C. § 10901(c). *See also Alaska Survival v. STB,* 705 F.3d 1073, 1085 (9th Cir. 2013). To determine public convenience and necessity, the

STB looks at a "variety of circumstances" surrounding the proposed action. *Northern Plains,* 668 F.3d at 1078. ln the context of an authorization to construct or operate a rail line, the factors commonly cited by the STB have been "whether: (1) the applicant is financially fit to undertake the construction and provide service; (2) there is a public demand or need for the proposed service; and (3) the construction project is in the public interest and will not unduly harm existing services. Public convenience and necessity is also evaluated in light of the rail transportation policy of 49 U.S.C. § 10101." *Dakota, Minnesota and Eastern R.R. Corp. Construction Into the Powder River Basin,* STB Finance Docket No. 33407, slip op. at 16 (Service Date Dec. 10, 1998). *See also Northern Plains,* 668 F.3d at 1092. While the statutory language has been read to emphasize the interests of private parties, particularly shippers, some broader consideration of the public interest must still be considered. *See Alaska Survival,* 705 F.3d at 1085. Exemption from the application process under 49 U.S.C. § 10502 requires a finding, in part, that the procedures are not necessary to carry out the rail transportation policy set forth in 49 U.S.C. § 10101.

Aside from quoting the policy statements provided in 49 U.S.C. § 10101 and noting the benefit to certain shippers, the DEIS contains no analysis or assessment of the public convenience and necessity. DEIS at 1-3 to 1-4. In fact, several of the federal policy objectives in Section 10101, such as promotion of a safe, efficient, and competitive rail transportation system, may be hindered by limitations in the economic situation or market positioning of the Project proposal. 49 U.S.C. § 10101(3), (4), (5). The Project's consequences will likely also detract rather than encourage and promote energy conservation, 49 U.S.C. § 10101(14), while there is also serious concern that construction and operation will be to the detriment of public health and safety, 49 U.S.C. § 10101(8).

Rather than considering the public convenience and necessity standard, OEA attempts to boot the issue over to the Board, stating that "[w]hile the Board will ultimately determine whether to authorize or deny the petition, the Coalition's stated purposes appear to be consistent with the PC&N contained in § 10901 and the Rail Transportation Policy contained in § 10101." DEIS at 1-3. Yet in its January 5, 2021 decision granting exemption status and "preliminarily" determining the "transportation merits" of the proposed construction, the Board suggests the opposite, stating that "[t]he decision issued today is a preliminary determination that does not prejudge the Board's final decision, nor diminish the agency's environmental review process concerning the proposed Line's construction." *Seven County Infrastructure Coalition—Rail Construction & Operation Exemption—In Utah, Carbon, Duchesne, and Uintah Counties, Utah,* STB Docket No. FD 36284, slip op. at 10 (Service Date Jan. 5, 2021). Unfortunately, the Board's January 5th decision does exactly that by suggesting that the Board's public convenience and necessity standard has been met without engaging in by far the most important public engagement component that is part of the approval process. As a result, the OBA and the full Board can each refer to the other while neither actually does the work of considering the public interest component that both federal statute and the STB's own precedent states is required. Two incomplete and insufficient analyses of the public convenience and necessity do not add up to a complete and sufficient analysis under this standard.

E. The Project's DEIS Fails To Analyze The Increased Risk of Cataclysmic Wildfire in The Project Area and in Drought-Ravaged Adjacent To Downline Rights-of-Way

The DEIS fails to adequately assess the potential consequences that the increased risk of fire due to the additional shipments of highly flammable commodities such as crude oil will have on impacted communities and ecosystems, particularly those downline of the Project.

Focusing predominantly on wildfires caused by regular railroad operations--e.g., exhaust sparks and hot brake shoe fragments-the analysis in the DEIS completely omits consideration of ignition due to the primary commodity proposed to be shipped, crude oil, which is highly flammable. *See* DEIS at 3.4-38–39. Given that the DEIS itself projects a collision or derailment to occur *within the project area alone* every 3-10 years, DEIS at 3 .2-4, and accidents along certain downline routes eve1y 2-4 years, DEIS at 3.2-6, it is unreasonable to fail to consider the potential risk and effect of wildfires caused by the contents of the commodities to be shipped in addition to regular railroad operations.

Furthermore, in its analysis of wildfire risks due to the Project the OEA also focuses primarily on the probability of accidents without considering their potential severity. OEA's conclusion that the risk of fire from train accidents is "very low" is based largely on low probabilities relative to other sources of wildfire. *See* DEIS at 3.4-39. For instance, the DEIS states that "[o]f all the wildfires with a reported cause, approximately 0.5 percent and 0.2 percent of the fires in the lower 48 states and Utah, respectively, were caused by railroads." DEIS at 3.4-13. Although the percentage of wildfires caused by railroads may appear small in comparison to the many causes of such blazes, this statistic fails to measure the size and impact of rail-caused wildfires in remote regions where firefighting crews may have difficulty gaining access. Additionally, the Project would introduce a new causal risk of wildfire to an area where such hazards currently do not exist.

The potential impact of catastrophic fires and explosions caused by crude-by-rail shipments is far from unforeseeable. In 2013, the blaze and explosions from an oil train derailment in Lac Megantic, Canada, left 47 people dead, 2000 people forced from their homes, and much of the downtown core destroyed.[13] In 2014-2015, the Pipeline and Hazardous Materials Safety Administration ("PHMSA") embarked on a rulemaking process regarding safety measures for shipping high-hazard flammable trains precisely because of this risk. *See, e.g.*, *Notice of proposed rulemaking,* 79 Fed. Reg. 45,015 (Sept. 30, 2014). In doing so, PHMSA noted that "[t]he growing reliance on trains to transport large volumes of flammable liquids poses a significant risk to life, property, and

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[13] https://www.tsb.gc.ca/eng/rappor1s-reports/rail/2013/rl3d0054/r 13d0054-r-es.html.

the environment. These significant risks have been highlighted by the recent instances of trains carrying crude oil that derailed in Casselton, North Dakota; Aliceville, Alabama; and Lac-Megantic, Quebec, Canada." *Id.* 79 Fed. Reg. at 45,016.

In terms of geographic scope, there is no discussion of increased fire risk in downline routes through Colorado in Appendix C, "Downline Analysis Study Area and Train Characteristics", or serious consideration anywhere in the DEIS regarding the downline impact of wildfires. The assumed route to Denver over the UP Moffat Tunnel Subdivision runs adjacent to hundreds of thousands of acres of public lands, including the Colorado National Monument near Grand Junction, the White River National Forest from Palisade through Glenwood Canyon to Dotsero, and the Medicine Bow-Routt and Arapaho Roosevelt National Forests to the East. In 2020, Colorado's historic wildfires ravaged many of these areas.

- The Pine Gulch Fire, (north of Grand Junction) was at the time the largest fire in Colorado history, burning 139,000 acres.[14]
- Surpassing the Pine Gulch Fire in size was the East Troublesome Fire, (adjacent to the UP ROW near Grandby) which, when fully contained on November 30, had burned a total of 193,812 acres.[15]

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[14] *"Pine Gulch, Fire Information—lnciWeb the Incident Information System".* https://inciweb.nwcg.gov/incident/6906/

[15] "East Troublesome Fire Information—InciWeb Incident Information System", https://inciweb.nwcg.gov/incident/7242/.

- The Grizzly Creek Fire that surrounded the UP ROW in Glenwood Canyon burned 323,631 acres, closed Interstate 70 through the canyon, and forced rerouting of freight and Amtrak rail traffic north over UP's Wyoming route between Denver and Salt Lake City.[16]

In total, the suppression costs for all fires during the 2020 Colorado fire season amounted to well over $200 million.[17] The lack of consideration in the DEIS evaluating how the Project will exacerbate the risk of wildfire, and the ensuing costs to local communities who are most directly affected, is glaring.

The mitigation measures for wildfire in the DEIS are likewise inadequate. OEA concludes that the probability of a major rail accident that could cause a fire would be low if the mitigation measures set forth in the Draft EIS are implemented. OEA recommends requiring the Coalition develop and implement a wildfire management plan in consultation with appropriate state and local agencies, including local fire departments. "The plan should incorporate specific information about operations, equipment, and personnel on the rail line that might be of use in case

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[16] See https://inciweb.nwcg.gov/incident/6942/. https://www.postindependent.com/news/amtrak-union-pacific divert-trains-from-glenwood-springs-while-grizzly-creek-fire-rages-in-canyon/. https://www.thedenverchannel.com/news/wildfire/train-service-resumes-in-area-struck-by-grizzly-creek-fire

[17] Victoria Carodine, *How 2020 Has Affected the Way We Should Manage Forest Fires,* 5280, https://www.5280.com/2020/12/how-2020-has-affected-the-way-we-should-manage-forest-fires/ (Dec. 15, 2020)

a fire occurs and should evaluate and include, as appropriate, site-specific techniques for fire prevention and suppression. If OEA's recommended mitigation is implemented, OEA concludes that the impacts of wildfire on vegetation would not be significant." DEIS at 3.4-39.

The DEIS 's mitigation measures do not take into account the increased risk of wildfire based on climate change. The DEIS ignores the reality that any such response plan may not prevent a fire from spreading quickly under the current high drought conditions in Colorado and Utah, conditions that are predicted to persist and increase due to climate change. In Colorado and Utah, like in other Western states, wildfires over the past few decades have become larger and more frequent, and global climate model projections indicate an increase in the frequency and severity of heatwaves, drought, and wildfires due to climate change warming. *See* Amber Childress et al., Colorado Climate Change Vulnerability Study, A Report by the University of Colorado Boulder and Colorado State University to the Colorado Energy Office, at 14, 32-33 (2015), *available at:* https://wwa.colorado.edu/climate/co2015vulnerability/co_vulnerability_report_2015_final.pdf; Colorado Department of Public Safety, 2018-2023 Colorado Hazard Mitigation Plan, at 3-238, 3-306 (2018), *available at:* https://www.colorado.gov/pacific/mars/atom/151586; Utah Department of Public Safety, Division of Emergency Management, 2019 Utah State Hazard Mitigation Plan, at 268 (2019) ("Utah SHMP"), *available at:* https://hazards.utah.gov/wp-content/uploads/UtahState-Hazard-Mitigation-Plan-

2019.pdf.; U.S. Environmental Protection Agency, *What Climate Change Means for Colorado,* EPA 430-F-16-008, at 1 (Aug. 2016), *available at:* https://19january2017snapshot.epa.gov/sites/production/files/2016-09/documents/climate-change-co.pdf. Increased wildfires will significantly impact ecosystems and communities both directly and indirectly through their impact on water quality and supply. Childress *et al., supra*, at 33, 67, 69. Increased risks of wildfire, heatwaves, and other climate-related impacts also increase the risk of damage to infrastructure, including rail lines and associated facilities. Childress *et al*., at 119; Utah SHMP at 246.

The DEIS acknowledges the general threat of wildfire but fails to meaningfully or adequately apply this info1mation through analysis. The Discussion of "Wildfire Ecology" within the Project area (DEIS at 3.4-13-15) generally recognizes that Utah suffers from increasing risk of catastrophic wildfires, with an estimate of 800 to 1,000 wildfires every summer, and in 2017 consuming over 200,000 acres in the state. The DEIS states: "In Utah, firefighters suppress 95 percent of wildfires on initial attack, but adverse weather and topography, heavy fuel loads, and urban development all combine to create catastrophic wildfire conditions in the state (Utah Division of Emergency Management 2019)." DEIS 3.4-13. OEA also recognizes that the impacts of fire can last many years. "Forest fires along portions of US 191 and Argyle Canyon Road in 2019 have left behind hillsides with few shrubs, little herbaceous vegetation, and charred trunks. Once the forest begins to regrow, *over many years,* these areas would provide a partial visual buffer from the proposed rail line." DEIS at 3.12-8

(Emphasis added). However, the DEIS fails to consider the foreseeable implications of these statements or connect them to other data included in the DEIS. For instance, likelihood of drought and wildfire will likely further postpone any regrowth, while the acknowledged vulnerability of the Project area to landslides (see DEIS at 3.57 to 3.5-8) will be exacerbated by the lack of vegetation. Similarly, climate-related considerations addressed in the DEIS are largely limited to air quality assessment, notwithstanding the predicted effect that such warming will have on wildfire risks. *See* DEIS at 3.7-1, 3.15-27.

F. The Project's DEIS Fails To Consider the Increase in Environmental Impacts Resulting From the Increased Fossil Fuel Extraction and Consumption That Will Result From the Project

NEPA requires consideration of connected actions, which includes actions that are interdependent parts of a larger action and depend on the larger action for their justification. 40 C.F.R. § 1501.9(e)(1)(iii). The pre-2020 NEPA regulations also require the consideration of reasonably foreseeable "indirect effects," which "may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density, or growth rate, and related effects on air and water and other natural systems, including ecosystems." 40 C.F.R. § 1508.8(b) (2019). While express reference to "indirect effects" is not included in CEQ's 2020 NEPA regulations, CEQ has noted that the elimination of this phrase was merely intended to simplify analysis by avoiding unnecessary categorizations, in order to focus on effects "that are reasonably foreseeable and have a reasonably close causal relationship to the proposed action." 85 Fed. Reg. 43,343. This may include effects both direct and indirect—notably, the CEQ declined in its 2020 changes to affirmatively state that consideration of indirect effects is not required. 85 Fed. Reg. at 43,344.

Here, the growth inducing effects leading to reasonably foreseeable impacts are clear from the Project description. The Project will result in the establishment of common carriage service, which is by law required to serve all shippers upon reasonable request, 49 U.S.C. § 11101(a), and is generally open to all commodities and products, *Union Pacific R.R. Co.—Petition for Declaratory Order,* STB Finance Docket No. 35219, slip op. at 3 (Service Date June 11, 2009), including those such as crude oil, coal, natural gas.

The Uinta Basin is home to significant crude oil fields, oil shale deposits, and natural gas fields, as well as some coal deposits in the area. *See* Vanden Berg, *supra*, 16, 22, 29, 34. While various factors, such as specific commodity characteristics, infrastructure needs, and market fluctuations may affect the likelihood of transport of these commodities on rail over the proposed rail line (as is the case with crude oil as well as coal, natural gas, and other commodities), it would be unreasonable to conclude that construction of durable long-term transportation infrastructure such as a rail line would *not* induce additional exploitation of natural resources in the Uinta Basin.

The Project's proponents are clearly looking to proactively expand access to markets for resources sourced from within their jurisdictions, a consequence of which would inevitably accelerate resource extraction. This is reflected in the Project proposal itself as well as in other potentially unrelated activities by Coalition members. For instance, members of the Seven County Coalition (including Carbon, Emery and Sevier Counties) appear to have sought to support development of a rail-marine intermodal terminal in Oakland, California, to export coal to China using the same state funding vehicle that is now supporting development of the Uinta Basin Railway. *See* Robin Kaizer-Schatzlein, *Lawsuit over proposed fossil fuel railway in Utah moves forward,* High Country News, Dec. 15, 2020, https://www.hcn.org/articles/energy-industrylawsuit-over-proposed-fossil-fuel-railway-in-utah-moves-forward; Brian Maffly, *Utah coal: California, here it comes—and not everyone is happy,* The Salt Lake Tribune, Apr. 27, 2015, https://archive.sltrib.com/article.php?id=2425141&itype=CMSID. While not strictly connected to the Project, such activity clearly indicates the foreseeable inducement of increased extraction in the Uinta Basin beyond the current levels that serve as the basis for analysis under the DEIS. This reasonably foreseeable consequence of the Project must be considered in the DEIS.

Given that the Uinta Basin has coal deposits and large natural gas fields, and that the Coalition notes that these commodities may be another commodity that is shipped (DEIS at 2-1), OEA should consider the additional natural gas and coal-related impacts that construction of the rail line could induce. This requires reassessment of the downline study area.

G. The Project's DEIS Failed To Contain Adequate Mitigation for Anticipated Greenhouse Gas Emissions

Although some federal case law originally questioned the need to evaluate climate impacts under NEPA, jurisprudence has become increasingly settled that such impacts must be included in NEPA analyses. NEPA also requires an agency to "include appropriate mitigation measures not already included in the proposed action or alternatives." 40 C.F.R. §§ 1502.14(e).

While NEPA requires consideration and discussion of mitigation measures, it does not have a "substantive requirement that a complete mitigation plan be actually formulated and adopted." *Robertson v. Methow Valley Citizens Council,* 490 U.S. 332, 351-53 (1989). Nonetheless, the Tenth Circuit has held that a discussion of mitigation measures "must be reasonably complete in order to properly evaluate the severity of the adverse effects of a proposed project prior to making a final decision." *Colorado Envtl. Coal. v. Dombeck,* 185 F.3d 1162, 1173 (10th Cir. 1999) (internal quotation marks and citations omitted). The CEQ has made clear in a guidance document that even where an impact is not considered "significant," mitigation measures must still be identified:

> "The mitigation measures discussed in an EIS must cover the range of impacts of the proposal. ... Mitigation measures must be considered even for impacts that by themselves would not be considered

> 'significant.' Once the proposal itself is considered as a whole to have significant effects, all of its specific effects on the environment (whether or not "significant") must be considered, and mitigation measures must be developed where it is feasible to do so."[18]

In the DEIS, OEA estimates the reasonably foreseeable greenhouse gas ("GHG") emissions that would result from implementation of the Project, both during the construction phase and the operations phase. Anticipated GHG emissions during constructions range from 208,697 metric tons of total CO2 equivalent for the Indian Canyon alternative to 289,737 CO2e for the Wells Draw Alternative. DEIS at 3.7-19. GHG emissions during rail operations for the preferred alternative, Whitmore Park, are estimated to range from 44,476 CO2e at the low-rail traffic scenario to 131,169 CO2e at the high-rail traffic scenario. *Id.* at 3.7-21. The DEIS seeks to explain away the significance of these emissions by stating that they represent a small percentage of existing emissions. It notes that the Wells Draw alternative could result in up to 211,621 metric tons of CO2e per year under the high rail traffic scenario, "which represents approximately *5* percent of GHG emissions in the regional study area, 1 percent of statewide GHG emissions, and 0.0004 percent of global GHG emissions." *Id.*

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[18] Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulations, 46 Fed. Reg. 18,026, 18,031 (Mar. 23, 1981).

To address these GHG emissions, OEA is "recommending mitigation measures requiring the Coalition consider actions that would reduce GHG emissions during rail construction and operations," *id.,* including:

> AQ-MM-4. The Coalition shall require its contractors to use diesel fuel that contains a minimum biodiesel content of 5 percent (BS blend). If B5 is not available from local fuel suppliers, the Coalition shall use fuel with the highest biodiesel content that is available to reduce greenhouse gas emissions.
>
> AQ-MM-5. The Coalition shall consider procuring alternative engine and fuel technologies, e.g., hybrid-electric diesel equipment, for construction and operation of the rail line to reduce greenhouse gas emissions.
>
> AQ-MM-6. The Coalition shall evaluate the feasibility of installing solar and wind microgeneration technologies on site offices, lodgings, and other project-related facilities to reduce the use of grid or privately generated electricity to reduce greenhouse gas emissions. As part of its evaluation, the Coalition shall consider the suitability of site conditions and location of solar and wind generation and the technical and economic feasibility of supplementing site electricity demands with renewable power.

DEIS at 4-14. These mitigation measures are inadequate to address the GHG emissions anticipated because they are largely optional and procedural and are therefore unlikely to reduce GHG emissions. While AQ-MM-4 appears reasonably fashioned to reduce GHG emissions by directing the Coalition to require its contractors to use diesel fuel containing a minimum biodiesel content of 5%, that direction is excused if such fuel is not available from local suppliers. AQ-MM-5 is even less likely to result in GHG-emissions reductions, inasmuch as it only directs the Coalition to "consider" using hybrid-electric diesel equipment for construction and operation activities. Similarly, AQ-MM-6 directs the Coalition only to "evaluate" the use of solar and wind microgeneration technologies at project facilities, and to "consider" site conditions in its evaluation.

The DEIS should be revised to require the Coalition to take concrete steps to mitigate the foreseeable GHG emissions of the Uinta Basin Railway; directing the Coalition to evaluate and consider actions is inadequate. NEPA requires a "reasonably complete discussion of possible mitigation measures," such that fair evaluation of the environmental consequences of the alternatives is possible. *Robertson v. Methow Valley Citizens Council,* 490 U.S. 332, 352 (1989).

Here, an analysis of the effectiveness of the mitigation measures is not only missing—it's impossible. One cannot reasonably say what actions the Coalitions' "consideration" of alternative fuel or engine technologies or "evaluation" of installing solar or wind technologies might yield, let alone what the mitigative effect of such technologies on GHG emissions or climate impacts might be. Such general and vague mitigation measures do not satisfy NEPA's "hard look" requirement. *See Neighbors of Cuddy Mountain v. U.S. Forest Service,* 137 F.3d 1372, 1381 (9th Cir. 1998) (NEPA violated where the mitigation measures were "so general that it would be impossible to determine where, how, and when they would be used and how effective they would be").

H. The DEIS Fails To Adequately Consider Reasonable Alternatives Such as a Pipeline

Federal agencies must "study, develop, and describe appropriate alternatives to recommended courses of action." 42 U.S.C. § 4332(2)(E). CEQ Regulations require that an EIS shall "[e]valuate reasonable alternatives to the proposed action, and, for alternatives that the agency eliminated from detailed study, briefly discuss the reasons for their elimination." 40 C.F.R. § 1502.14(a). Reasonable alternatives are those that constitute "a reasonable range of alternatives that are technically and economically feasible, meet the purpose and need for the proposed action, and, where applicable, meet the goals of the applicant." 40 C.F.R. § 1508.1(z). Each reasonable alternative discussed must be "considered in detail, including the proposed action, so that reviewers may evaluate their comparative merits." 40 C.F.R. § 1502.14(b). "[A]n EIS need not include every available alternative where the consideration of a spectrum of alternatives allows for the selection of any alternative within that spectrum." 85 Fed. Reg. at 43,330.

As discussed *supra* at Section III.D.1, there is no adequate basis provided in support of the purpose and need of the Project beyond the stated desire of the

Coalition. To the extent a purpose and need is demonstrated in the DEIS, it reflects providing oil extraction companies located in "an isolated geographical region" with an alternative to trucking oil to outside markets. DEIS at 1-3. Although the DEIS discusses other shippers besides oil producers, the Coalition's assertions reflect that the overwhelming majority of shipments would be for crude oil and oil extraction-related materials, and the proposed alternatives are only evaluated in terms of the shipment of crude oil. DEIS at 1-3 to 1-4.

To address this purpose and need, the DEIS considered three action alternatives involving the construction of rail lines—the Indian Canyon Alternative, the Wells Draw Alternative, and the Whitmore Park Alternative—which the DEIS states were developed over the course of several years of analysis by the Utah Department of Transportation (UDOT), the Coalition, and OEA. DEIS, at S-5. All other alternatives explored similarly involved the construction of rail lines. DEIS at 2-2.

The DEIS fails to demonstrate consideration of the full spectrum of potentially reasonable alternatives. Most glaringly, and perhaps reflecting the failure to include other key federal agencies with jurisdiction such as PHMSA, the DEIS does not even mention, let alone consider, a pipeline alternative to transporting crude oil by rail. DEIS at 2-2. This is so even though elsewhere in the DEIS's impact analysis there are references to crude oil and natural gas pipelines that run through the area. DEIS at 3.5-18.

There is nothing in the DEIS's stated purpose and need for the Project that suggests that a pipeline alternative would not be a reasonable alternative to consider even at a preliminary stage. While the proposed rail line is expected to ship other products and commodities besides oil, the overwhelming majority of shipments will be crude oil. The statements of the Coalition, if taken at face value, make clear that the economic feasibility is centered on transporting oil alone. Accordingly, it is reasonable to consider a pipeline as a transportation alternative.

Indeed, it appears that the Coalition and others have in fact considered a pipeline alternative in the past, making its absence in the DEIS alternatives analysis even more curious. For instance, in 2017 the Coalition published an oil pipeline study analyzing the prospects for such a pipeline. *See* Seven County Infrastructure Coalition, *Uinta Basin Oil Pipeline Study, Final Report* (2017), *available at:* https://scicutah.org/storage/app/uploads/public/5d0/27e/9ad/5d027e9adl453049115378.pdf. In addition, in 2014 a company with an oil refinery in Salt Lake City initiated a study regarding connecting the Uinta Basin to Salt Lake City via a pipeline specially designed to accommodate the waxy character of crude produced from the Uinta Basin. *See Uinta-Wasatch-Cache National Forest; Utah; Uinta fapress Pipeline Project,* 79 Fed. Reg. 4657 (Jan. 29, 2014) (US Forest Service notice of intent to prepare an environmental impact statement). The prospects identified in these evaluations and their comparison with rail alternatives are unknown because the DEIS does not make the comparison, even though a pipeline appears to meet the purpose and need of the Project.

CONCLUSION

For the reasons set forth above, Eagle County and its allied jurisdictions respectfully request that OEA issue a Supplemental DEIS to include FRA and PHMSA as cooperating agencies, analyze the potential impacts of the Project on the Tennessee Pass Line, and rectify areas of insufficient analysis.

Respectfully submitted,

[signature]

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Counsel for Eagle County

February 12, 2021

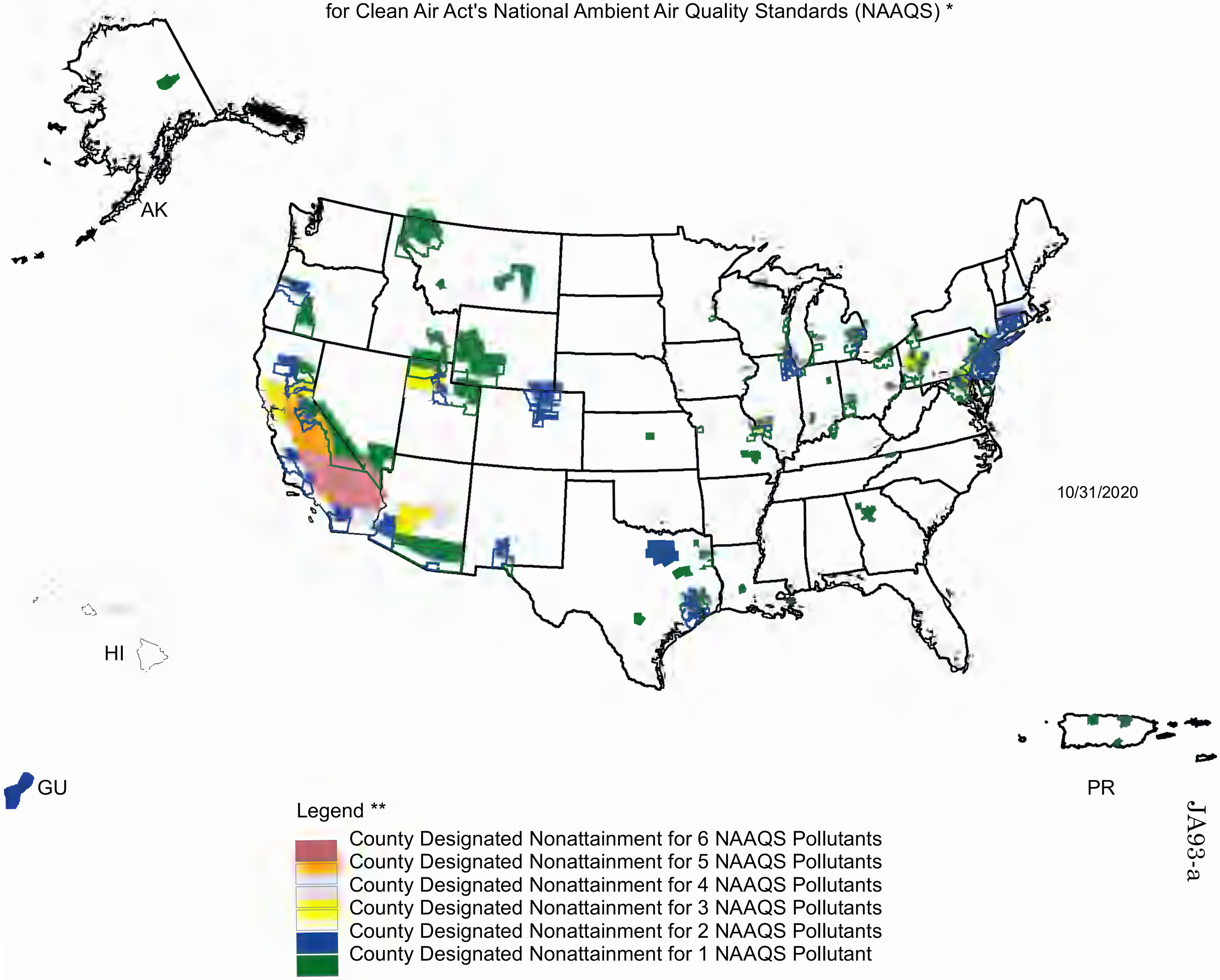
EPA Map of Counties Designated "Nonattainment" for Clean Air Act's National Ambient Air Qualty Standards (NAAQS)

February 12, 2021

(see foldout on next page)

Counties Designated "Nonattainment"

for Clean Air Act's National Ambient Air Quality Standards (NAAQS) *



JA93-a

* The National Ambient Air Quality Standards (NAAQS) are health standards for Carbon Monoxide, Lead (1978 and 2008), Nitrogen Dioxide, 8-hour Ozone (2008), Particulate Matter (PM-10 and PM-2.5 (1997, 2006 and 2012), and Sulfur Dioxide.(1971 and 2010)

** Included in the counts are counties designated for NAAQS and revised NAAQS pollutants. Revoked 1-hour (1979) and 8-hour Ozone (1997) are excluded. Partial counties, those with part of the county designated nonattainment and part attainment, are shown as full counties on the map.

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S.1 Introduction

On May 29, 2020, the Seven County Infrastructure Coalition (Coalition) filed a petition with the Surface Transportation Board (Board) pursuant to 49 United States Code (U.S.C.) 10502 requesting authority to construct and operate approximately 85 miles of new rail line in Carbon, Duchesne, Uintah, and Utah Counties, Utah. Also known as the Uinta Basin Railway, the proposed rail line would provide a common-carrier rail connection between the Uinta Basin in northeastern Utah and the existing interstate common-carrier rail network.

The Board's Office of Environmental Analysis (OEA), together with five cooperating agencies, prepared this ~~Draft~~ Environmental Impact Statement (EIS) in accordance with the National Environmental Policy Act (NEPA), Council on Environmental Quality (CEQ) regulations, and the Board's environmental rules.[1]

The ~~Draft~~ EIS is intended to provide federal, state, and local agencies; American Indian tribes; and the public with clear and concise information about the potential environmental impacts of the proposed rail line. In preparing the ~~Draft~~ EIS, OEA considered three reasonable alternatives, known as the Indian

[1] While much of the ~~Draft~~ EIS generally refers only to OEA, the document reflects input from all cooperating agencies, as well as other participating agencies that OEA consulted with during the preparation of the ~~Draft~~ EIS.

Canyon Alternative, the Wells Draw Alternative, and the Whitmore Park Alternative (collectively referred to as the Action Alternatives), as well as the No-Action Alternative. As summarized in the following sections, OEA concludes that any of the Action Alternatives would result in significant environmental impacts. Appropriate mitigation would lessen those impacts and this ~~Draft~~ EIS recommends mitigation conditions for the Board to impose if the Board decides to authorize construction and operation of the proposed rail line. Should the Board decide to authorize the Coalition's petition, OEA ~~preliminarily~~ recommends that the Board authorize the Whitmore Park Alternative to avoid and minimize environmental impacts.

OEA issued~~is issuing~~ the Draft EIS for public review and comment. ~~Following the end of the public comment period on December 14, 2020,~~ OEA ~~will~~ considered all comments received on the Draft EIS and responded to all substantive comments in the~~a~~ Final EIS. The Final EIS ~~will~~ includes OEA's final environmental recommendations, including final recommended mitigation conditions. The Board will now~~then~~ consider the entire environmental record, the Draft EIS and the Final EIS, all public and agency comments, and OEA's environmental recommendations in making its final decision on the Coalition's petition.

The sections that follow summarize the key elements of the development of the ~~Draft~~ EIS, including the project purpose and need, the Action Alternatives, and OEA's major conclusions regarding the potential environmental impacts of the proposed Uinta Basin Railway.

S.1.1 Purpose and Need

The proposed federal action in this case is the Board's decision to authorize, deny, or authorize with conditions the Coalition's petition. If the Board were to grant~~authorize~~ the petition, the proposed rail line would be operated as a common carrier rail line. As a common carrier, the Coalition would be required to provide rail service to any shipper upon reasonable request. The proposed rail line is not being proposed or sponsored by the federal government. Therefore, the purpose and need of the proposed rail line is informed by both the goals of the Coalition, as the project applicant, and the Board's enabling statute, 49 U.S.C. § 10901. Construction and operation of new rail lines requires prior authorization by the Board under 49 U.S.C. § 10901(c), which directs the Board to grant construction proposals "unless" the Board finds the proposal "inconsistent with the public convenience and necessity (PC&N)." This is a permissive licensing standard that presumes that rail construction projects are in the public interest unless shown otherwise. The Coalition, however, has sought an exemption under § 10502 from the regulatory requirements of § 10901; therefore, the public convenience and necessity standard in § 10901—although instructive—does not directly apply in this case. Under § 10502, the Board here must grant an exemption if it finds that the application of § 10901 (in whole or in part) is not necessary to carry out the Rail Transportation Policy contained in § 10101 and either the rail construction and operation is of limited scope or the application

§ 10901 is not needed to protect shippers from the abuse of market power.

The Coalition's petition states that the purpose of the proposed rail line would be to provide common carrier rail service connecting the Basin to the interstate common carrier rail network using a route that would provide shippers with a viable alternative to trucking. Because it is surrounded by high mountains and plateaus, the Basin has limited access to all transportation modes and all freight moving into and out of the Basin is currently~~currented~~ transported by trucks on the area's limited road network. According to the Coalition, the proposed rail line would provide customers in the Basin with multi-modal options for the movement of freight; promote a safe and efficient system of freight transportation; further the development of a sound rail transportation system; and foster sound economic conditions in transportation and effective competition and coordination between differing modes of transportation. While the Board will ultimately determine whether to authorize or deny the petition, the Coalition's stated purposes appear to be consistent with the PC&N.[2]

S.1.2 Proposed Action

The Coalition is an independent political subdivision of the State of Utah established under an interlocal agreement by the Utah counties of Carbon,

[2] The Board issued a preliminary decision on the transportation merits under the 10502 exemption criteria in this proceeding on Jan. 5, 2021, *Seven County Infrastructure Coalition—Rail Constr. and Oper. Exemption—In Utah, Carbon, Duchesne, and Uintah Counties, Utah*, FD 36284 (Jan. 5, 2021).

Daggett, Duchesne, Emery, San Juan, Sevier, and Uintah. The Coalition has entered into or intends to enter into agreements with Drexel Hamilton Infrastructure Partners (Drexel Hamilton), Rio Grande Pacific Corporation (RGPC~~Rio Grande~~) and the Ute Indian Tribe of the Uintah and Ouray Reservation (the Ute Indian Tribe). If the Board were to authorize the proposed construction and operation, the Coalition ‘~~s petitions~~ states that Drexel Hamilton would be responsible for financing and commercialization of the proposed rail line and RGPC~~Rio Grande~~ would operate and maintain it. The Coalition expects that the Ute Indian Tribe would become an equity partner in the proposed rail line.[3]

The proposed rail line would consist of a single main track with sidings to let trains pass each other. The track would be constructed of steel rail supported by timber, steel, or concrete ties. The rail right-of-way would be approximately 100 feet wide along most of its length but could be considerably wider in some locations where the rugged topography would require large areas of cut-and-fill. Numerous bridges and culverts would be required to cross major roads, waterways, and topographical features and several tunnels would also be constructed under mountain summits. Other permanent project features would include at-grade road crossings, communications towers, signaling and safety equipment, and permanent access roads and road realignments.

[3] As used in this EIS, references to the Coalition as the project applicant also refer to any private partners that may be involved in the construction and operation of the proposed rail line, including Drexel Hamilton and RGPC.

Construction of the proposed rail line would involve a variety of construction methods and equipment. Bulldozers, front end loaders, and dump trucks would be used to create the appropriate corridor and grade. Cranes may be needed to construct bridges over roads and surface waters. The Coalition anticipates that mining and potentially blasting methods would be used to construct tunnels. Rail would be laid and welded by track welding machine or crews where necessary. During construction, temporary access roads would be necessary for construction equipment to reach construction sites. One or more temporary camps would be installed to house construction workers and land outside of the permanent rail right-of-way would have to be cleared to create temporary laydown and staging areas.

Following construction, the Coalition anticipates that trains on the proposed rail line would primarily transport crude oil produced in the Basin to markets across the United States, but could also carry other bulk commodities and products, including fracturing sand, building products, industrial materials, and agricultural products. Depending on future market conditions, including the global price of crude oil, the Coalition anticipates that between approximately 3.68 or as many as 10.52 trains could operate~~move~~ on the proposed rail line each day, on average, including both loaded and empty trains.

S.1.3 Cooperating Agency Actions

Four federal agencies and one state agency, acting as lead agency for other Utah State agencies, provided input throughout~~on~~ the development of the~~this~~ Draft EIS and Final EIS as cooperating agencies~~ and will~~

~~continue to participate in the Board~~'~~s environmental review process throughout the public comment period and issuance of the Final EIS~~. Those agencies and their potential actions are listed below.

- The Department of Agriculture, U.S. Forest Service (Forest Service) intends to consider the Coalition's request for a special use permit allowing the Coalition to cross National Forest System lands if the Board were to authorize an alternative that crosses Ashley National Forest. The Forest Service has given notice that its decision to permit the proposed rail line may include amending the existing in the areas of visual quality and scenery management pursuant to the Forest Service's 2012 Planning Rule (36 Code of Federal Regulations [C.F.R.] Part 219).
- The Department of the Army, U.S. Army Corps of Engineers (Corps), through the Regulatory Program, administers and enforces Section 10 of the Rivers and Harbors Act of 1899 and Section 404 of the Clean Water Act. Under Rivers and Harbors Act Section 10, a permit is required for work or structures in, over, or under navigable waters of the United States. Under Clean Water Act Section 404, a permit is required for the discharge of dredged or fill material into waters of the United States. On September 30, 2020, the Corps issued a public notice announcing that it was evaluating the Coalition's application for a permit under Section 404 of the Clean Water Act.

- The Department of the Interior, Bureau of Indian Affairs (BIA) intends to consider the Coalition's request for a right-of-way across Tribal trust lands within the Ute Indian Tribe's Uintah and Ouray Reservation if the Board authorizes an alternative that crosses Tribal trust lands.
- The Department of the Interior, Bureau of Land Management (BLM) intends to consider the Coalition's request for a right-of-way across SLM-administered lands if the Board authorizes an alternative that crosses SLM-administered lands. The issuance of a right-of-way would be subject to the requirements of the BLM's applicable Resource Management Plans (RMPs), including the Vernal Field Office RMP, Price Field Office RMP, and Pony Express RMP. As proposed, the Indian Canyon Alternative and Wells Draw Alternative would not be in compliance with greater sage-grouse noise thresholds in the Price Field Office RMP and Pony Express RMP, and BLM may need to amend these plans to issue a right-of-way grant. BLM may also need to amend the Vernal Field Office RMP based on where the Wells Draw Alternative crosses BLM Visual Resource Management Class II land and the Lears Canyon Area of Critical Environmental Concern.
- The State of Utah's Public Lands Policy Coordinating Office (PLPCO) is coordinating the participation of state agencies in the Board's environmental review process. The

Coalition intends to seek permits or approvals from multiple state agencies to construct and operate the proposed rail line, including rights-of-way across state lands administered by the Utah State Institutional Trust Lands Administration (SITLA).

S.2 Draft EIS and Final EIS Process

OEA is the office at the Board responsible for conducting the environmental review process, independently analyzing environmental data, and making environmental recommendations to the Board. OEA considered~~will consider~~ all comments received on the~~this~~ Draft EIS and responded to substantive comments in this~~the~~ Final EIS, which~~ will~~ includes OEA's final recommended environmental mitigation. Changes made to the Draft EIS appear in blue in the Final EIS. The Board will now consider the entire environmental record, the Draft EIS and Final EIS, all comments received, and OEA's recommendations in making its final decision on the Coalition's petition.

S.2.1 Scoping and Consultation

S.2.1.1 Scoping

To help determine the scope of the EIS, OEA involved the public, government agencies, tribes, and other interested organizations. On June 19, 2019, OEA published a Notice of Intent (NOI) to prepare an EIS and a Draft Scope of Study for the EIS in the Federal Register. Publication of the NOI initiated a 45-day public scoping period that was scheduled to end on August 3, 2019. In response to requests to extend the public scoping period, the Board extended the scoping comment period for an additional 30 days.

The scoping comment period ended September 3, 2019.

During the scoping period, OEA held six public scoping meetings in the project area. Approximately 420 people attended the public meetings, including citizens; tribal members; representatives of organizations; elected officials; and officials from federal, state, and local agencies. OEA also met with federal and state cooperating and consulting agencies to discuss the scope of this EIS. OEA considered all input received during the scoping process. On December 13, 2019, OEA published the Final Scope of Study for the EIS in the Federal Register. The Final Scope of Study directed OEA's analysis for ~~this~~the Draft EIS.

S.2.1.2 Draft EIS Public Comment Period

On October 30, 2020. the Board issued the Draft EIS for review and comment. On that date. OEA published a Notice of Availability in the Federal Register. which announced the availability of the Draft EIS, instructions on how to submit comments on the Draft EIS, and the schedule and instructions for participating in online public meetings. The Notice of Availability noted that the comment period would end December 14, 2020. Following the issuance of the Draft EIS. the Board twice extended the public comment period. On December 9, 2020, OEA announced an extension of the public comment period for 60 days until January 28, 2021. On January 28, 2021. OEA announced an additional extension of the comment period for 15 days until February 12, 2021.

OEA conducted six online public meetings during the comment period. These meetings were held online due to OEA's concerns for public safety during the COVID-19 pandemic and COVID-19-related restrictions on large gatherings and travel. Over the course of the six online public meetings, 209 persons registered to attend. and 55 persons registered in advance to make oral comments. Persons who did not register in advance were able to participate in any of the meetings by following the instructions on the project website or by dialing the telephone number that OEA made available on the public website. When time permitted during an online public meeting. the meeting facilitator called upon persons desiring to make an oral comment. but who had not registered in advance to do so.

OEA received 1,934 comment submissions on the Draft EIS. including both written and oral comments. Of those. 1,065 were form letters associated with one of two master form letters. And 184 were form letters with some unique text. Of the total comment submissions. 869 were unique comment submissions.

~~S.2.1.2~~S.2.1.3 Agency Consultation

OEA consulted with appropriate federal, state, and local agencies during the preparation of this ~~Draft~~ EIS. As part of scoping under NEPA and before the NOI was published, OEA sent consultation letters to 27 agencies soliciting their input, comments, ideas, and concerns regarding this ~~Draft~~ EIS. Following the publication of the NOI, OEA sent consultation letters to 27 agencies soliciting their input, comments, ideas, and concerns regarding this Draft EIS. Following the publication of the NOI, OEA held biweekly conference calls with the cooperating agencies and other participating agencies. OEA also held teleconferences and in-person meetings with participating agencies, including the U.S. Environmental Protection Agency and U.S. Fish and Wildlife Service as needed throughout development of this ~~Draft~~ EIS to discuss resource-specific topics. ~~OEI will continue to meet with cooperating and other agencies throughout the course of developing the Final EIS.~~

~~S.2.1.3~~S.2.1.4 **Tribal Consultation**

OEA consulted with tribal organizations throughout the development of this ~~Draft~~ EIS. Executive Order 13175 requires that federal agencies conduct government-to-government consultations with federally recognized Indian tribes in the development of federal policies, as does Section 106 of the National Historic Preservation Act. On June 19, 2019, OEA sent letters to 12 federally recognized tribes that have current and ancestral connections to the area surrounding the proposed rail line inviting them to enter into government-to-government consultation and Section 106 consultation, as appropriate. The Ute Indian Tribe is the only federally recognized tribe that indicated it wanted to enter into both government-to-government consultation and Section 106 consultation. OEA met with representatives of the Ute Indian Tribe, including the Tribal Business Committee and the tribe's Cultural Rights Protection Department, in-person and by phone throughout the development of this Draft EIS to discuss the Section 106 process, provide updates on the EIS, and learn about issues of concern in the tribe.

The Hopi Tribe of Arizona did not enter into government-to-government consultation but opted to participate in Section 106 consultation. OEA held monthly conference calls with all Section 106 consulting parties between January 2020 and April 2021 and continued to invite the 12 federally recognized tribes to participate in these meetings throughout the development of this ~~Draft~~ EIS. OEA provided meeting transcripts and meeting materials from all Section 106 conference calls on the Board's website and the project website (www.uintabasinrailwayeis.com).

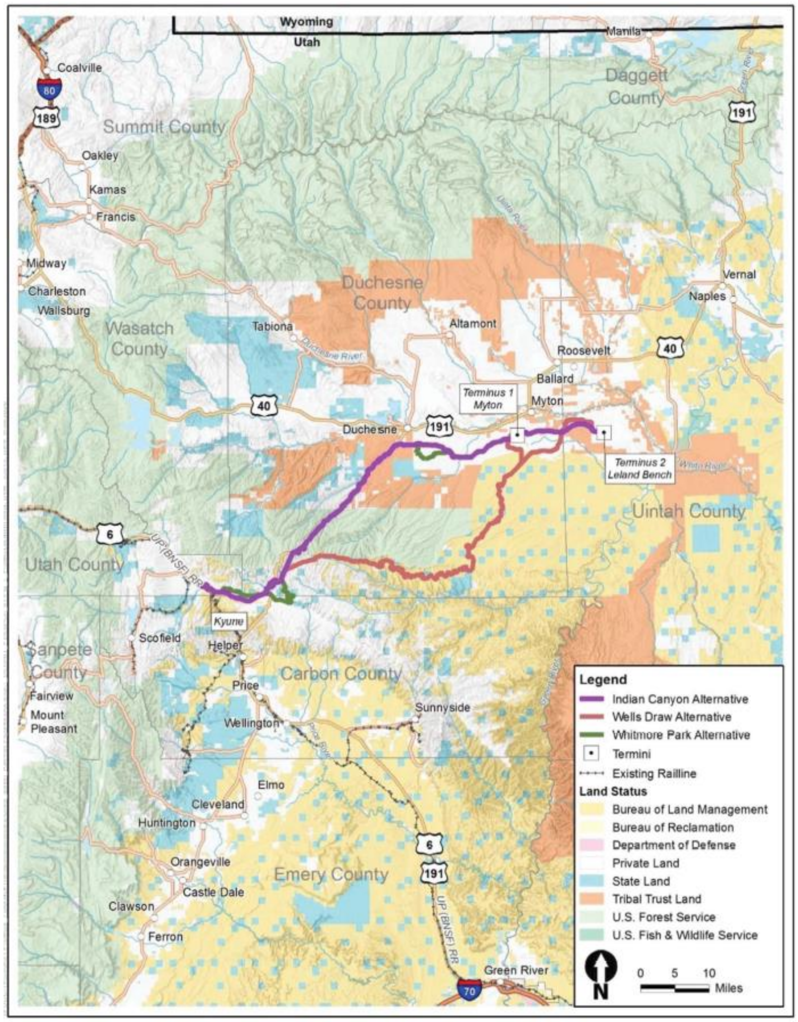
S.3 Alternatives

NEPA requires that federal agencies consider reasonable alternatives to the proposed action. To be reasonable, an alternative must meet the project purpose and need and must be logistically feasible and practical to implement. The three Action Alternatives examined in this ~~Draft~~ EIS—the Indian Canyon Alternative, the Wells Draw Alternative, and the Whitmore Park Alternative—were developed over the course of several years of analysis by the Utah Department of Transportation (UDOT) and the Coalition, and later OEA. Because the Basin is surrounded by high mountains and plateaus, there are very few feasible routes that would allow freight trains to operate within modern standards of safety and efficiency~~safely and efficiently~~. In 2014 and 2015, UDOT examined the feasibility of constructing a rail line to connect the Basin to the interstate railroad network. In 2019 and 2020, the Coalition reassessed the conceptual routes that UDOT identified and additional potential alignments identified by the Coalition. The Coalition initially proposed that OEA consider three routes as potential alternatives in the EIS, based on UDOT's and the Coalition's studies.

Those proposed alternatives were the Indian Canyon Alternative, the Wells Draw Alternative, and an alignment referred to as the Craig Route. After considering the comments that OEA received during the EIS scoping process, the Coalition proposed an additional route as a potential alternative. That route, the Whitmore Park Alternative, although similar to the Indian Canyon Alternative, would avoid some sensitive habitat and some residential areas relative to the Indian Canyon Alternative.

Based on the analyses conducted by UDOT, the Coalition, and OEA, as well as comments submitted during scoping, OEA concluded that, of the conceptual routes that were considered at various times, only three alternatives would be reasonable under NEPA. Those routes are the Indian Canyon Alternative, Wells Draw Alternative, and Whitmore Park Alternative (Figure S-1). OEA eliminated the Craig Route from detailed review in this ~~Draft~~ EIS because that alignment would not meet the Coalition's purposes and because it would have the potential to cause disproportionately significant environmental impacts compared to the Action Alternatives. In addition to the Action Alternatives, OEA also analyzed the No-Action Alternative, which would occur if the Coalition did not construct and operate the proposed rail line.

Figure S-1. Project Alternatives



Each of the Action Alternatives would extend from two terminus points in the Basin near Myton, Utah and Leland Bench, Utah to a proposed connection with the existing Union Pacific (UP) Provo Subdivision near Kyune, Utah. The Indian Canyon Alternative, Wells Draw Alternative, and Whitmore

Park Alternative would be approximately 81 miles, 103 miles, and 88 miles in length, respectively.

S.4 Conclusions on Environmental Impacts

OEA has conducted an extensive review of the environmental impacts that could result from construction and operation of the proposed rail line. Based on consultation with federal, state, and local agencies; consultation with tribes; input provided by organizations and the public; and its own independent environmental analysis, OEA has reached the following conclusions about the potential impacts of the Action Alternatives.

S.4.1 Major Impacts

OEA identified the following significant and adverse impacts that could occur as a result of the proposed rail line. Table S-1 provides additional details regarding these major impacts.

- **Water Resources.** Construction and operation of the proposed rail line, if authorized, would result in unavoidable impacts on surface waters and wetlands, including the loss of wetland habitat and permanent changes to surface water hydrology from crossing structures and stream realignments. Across the three Action Alternatives, the Whitmore Park Alternative would permanently affect the smallest total area of surface waters and wetlands, while the Wells Draw Alternative would affect the largest area. The Coalition has proposed voluntary mitigation measures related to water resources and OEA is recommending additional mitigation measures that would reduce but not eliminate impacts (Chapter 4, *Mitigation*). If the mitigation measures are implemented, the Coalition would need to obtain a permit from the Corps under Section 404 of the Clean Water Act before beginning construction of the proposed rail line. The Coalition would need to undertake efforts to avoid or minimize impacts on water resources during the final engineering and design phase, as part of the Section 404 permitting process. For unavoidable impacts on waters under the Corps' jurisdiction, the Coalition would need to develop and implement a plan for compensatory mitigation in consultation with the Corps.

- Any of the Action Alternatives would cross suitable habitat for several plant species that are listed as threatened or endangered under the Endangered Species Act, including Pariette cactus, Uinta Basin hookless cactus, Barne by ridge-cress, and Ute ladies'-tresses. OEA is consulting with the U.S. Fish and Wildlife Service (USFWS) to determine appropriate measures for avoiding, minimizing, or mitigating impacts on those species, but some impacts would be unavoidable. Any of the Action Alternatives would also cross habitat for the greater sage-grouse, a bird species that is managed by BLM and the State of Utah. The Action Alternatives would each pass near one or more greater sage-grouse leks, which are areas where male grouse perform mating displays and where breeding and nesting occur. Depending on the

Action Alternative, several of those leks could experience significant increases in noise during construction and during rail operations, which would disturb the birds and potentially cause them to abandon the leks. OEA has determined that the Whitmore Park Alternative would avoid or minimize impacts on greater sage-grouse relative to the other Action Alternatives because it would be located further away from more leks and associated summer brood rearing habitat. In addition, the Coalition, in consultation with OEA and the State of Utah, is developing voluntary mitigation to address impacts on greater sage-grouse by restoring or creating greater sage-grouse habitat outside of the immediate project area (Chapter 4, *Mitigation*). If that mitigation is implemented, and if the Whitmore Park Alternative is constructed, OEA concludes that impacts on greater sage-grouse would not be significant.

- **Wayside Noise.** Wayside noise refers to train noise adjacent to a rail line that comes from sources other than the locomotive horn, such as engine noise, exhaust noise, and noise from steel train wheels rolling on steel rails. During rail operations, wayside noise would depend on factors such as train speed, train length, and number of locomotives. If the volume of rail traffic were at the highest projected level of 10.52 trains per day, on average, then OEA concludes that up to six residences would experience an increase in noise that would exceed the Board's thresholds for adverse noise impacts, depending on the Action Alternative. Among the Action Alternatives, the Indian Canyon Alternative would result in the most severe noise impacts. OEA is recommending mitigation to address noise impacts, including a requirement for the Coalition to install sound insulation at residences that could experience an adverse noise impact (Chapter 4, *Mitigation*).

- **Land Use and Recreation.** Any of the Action Alternatives could significantly affect land uses on public, private, or tribal lands. The Indian Canyon Alternative and Whitmore Park Alternative would each cross inventoried roadless areas within Ashley National Forest and Tribal trust land within the Ute Indian Tribe's Uintah and Ouray Reservation. The Wells Draw Alternative would cross the Lears Canyon Area of Critical Environmental Concern (ACEC) and Lands with Wilderness Characteristics on SLM-administered lands. Noise and visual impacts would disturb recreational activities on those public lands, such as camping, hiking, and hunting, as well as recreational activities on private and tribal lands. If the mitigation measures set forth in this ~~Draft~~ EIS are implemented, the Coalition would need to consult with appropriate federal, state, and tribal land managing agencies to address impacts on land use and recreation (Chapter 4, *Mitigation*), but some impacts would be unavoidable.

- **Socioeconomics.** Construction and operation of the proposed rail line would result in locally significant impacts on socioeconomics. The impacts would include beneficial impacts, such as the creation of jobs for construction and operations and maintenance workers, as well as increased local tax revenue. Adverse socioeconomic impacts would include the acquisition and displacement of residential and nonresidential structures on private land and the severance of properties, which could reduce their value for grazing, agriculture, and other economic uses. The Indian Canyon Alternative would have the greatest adverse impact on smaller private property owners because it would cross the greatest number of smaller-subdivided properties; the Wells Draw Alternative~~Route~~ would affect the smallest area of private property, but would displace the largest number of residences; and the Whitmore Park Alternative would affect the largest total area of private property, and would primarily affect larger property owners and ranching and farming operations.
- **Tribal Concerns.** Through ongoing government-to-government consultation with the Ute Indian Tribe, OEA identified impacts related to vehicle safety and delay, rail operations safety, biological resources, air emissions, and cultural resources as areas of concern for the tribe. OEA has presented those impacts in this ~~Draft~~ EIS and is recommending appropriate mitigation to minimize the impacts. In particular, OEA

workedis ~~is working~~ with the Ute Indian Tribe and other Section 106 consulting parties to develop a Programmatic Agreement that sets~~will set~~ forth how cultural resources would be protected if the Board were to authorize the proposed rail line. In addition, OEA has identified impacts on the Pariette cactus and the Uinta Basin hookless cactus as disproportionately high and adverse impacts on an environmental justice community. Because those species are culturally important to the Ute Indian Tribe, OEA is recommending mitigation requiring the Coalition to consult with the Ute Indian Tribe regarding impacts on those special status plant species and to abide by the tribe's requirements for addressing the impacts (Chapter 4, *Mitigation*).

S.4.2 Minor Impacts

In addition to the major impacts listed above, this ~~Draft~~ EIS also discusses the following impacts that would not be significant if the Coalition's voluntary mitigation measures and OEA's recommended mitigation measures set forth in Chapter 4, *Mitigation* are implemented. Table S-1 provides additional details on those minor impacts.

- **Vehicle Safety and Delay.** Construction and operation of any of the Action Alternatives would introduce new vehicles (such as construction and maintenance vehicles) on public roadways and would require the construction of new at-grade road crossings. OEA believes that if the mitigation measures set forth in this ~~Draft~~ EIS are implemented impacts from the new vehicles and at-grade road crossings would not significantly affect vehicle safety on public roadways or cause significant delay for people traveling on local roads. Those mitigation measures include a requirement for the Coalition to consult with appropriate federal, tribal, state, and local transportation agencies to determine the final design of the at-grade crossing warning devices and to follow standard safety designs for at-grade road crossings, among other measures.

- Operation of any of the Action Alternatives would involve the risk of rail related accidents, potentially including collisions, derailments, or spills. OEA concludes that the probability of a major rail accident that could result in injuries or fatalities or that could release hazardous materials into the environment or cause a fire would be low if the mitigation measures set forth in this 9Fatt-EIS are implemented. Those mitigation measures include the requirement that the Coalition prepare a hazardous materials emergency response plan to address potential derailments or spills and distribute the plan to federal, state, local, and tribal emergency response agencies, among other measures.
- **Big Game.** Any of the Action Alternatives would cross big game movement corridors. The total number of affected movement corridors would be similar between the Action

Alternatives. Although the Wells Draw Alternative would affect the smallest total number of big game movement corridors, it would affect a greater number of high-importance movement corridors compared to the Indian Canyon Alternative and the Whitmore Park Alternative. Operation of the proposed rail line could injure big game due to collisions with trains and maintenance equipment around big game movement corridors. Higher mortality rates would likely occur around the locations of the movement corridors that cross or parallel the Action Alternatives (Appendix G, *Biological Resources Figures*, contains figures displaying the movement corridors for each big game species along the Action Alternatives). Disrupted migration along movement corridors could also prevent herds from reaching high-quality forage, which could result in physiological stresses and the expenditure of greater amounts of energy to reach resources. The mitigation set forth in this Final EIS would require the Coalition to work with landowners to define areas of the right-of-way that can be left without fences to maintain big game migration corridors. In addition, OEA is recommending mitigation requiring the Coalition develop a big game movement corridor crossing plan in consultation with the Ute Indian Tribe. UDWR, OEA, and appropriate land management agencies (Chapter 4, *Mitigation*). If this mitigation is implemented, OEA concludes that impacts on big game movement corridors would not be significant.

- **Fish and Wildlife.** In addition to special status animal species and big game species, construction and operation of any of the Action Alternative would affect other species of fish and wildlife, including reptiles, mammals, and birds. Habitat in the footprint of the proposed rail line would be permanently lost and other areas of habitat could be temporarily disturbed during construction. The proposed rail line would create a barrier to the movement of wildlife~~, including big game species~~. Among other measures, the mitigation set forth in this ~~Draft~~ EIS would require the Coalition work with landowners to define areas of the right-of-way that can be left without fences to maintain big game migration ~~measures~~ corridors and develop a big game movement corridor crossing plan that would benefit other wildlife species. If these mitigation measures are implemented, OEA concludes that impacts on biological resources would not be significant.

- **Vegetation.** In addition to the special status plant species discussed above, construction and operation of any of the Action Alternatives would affect other species of vegetation. Vegetation within the footprint of the proposed rail line would be permanently removed and vegetation in construction areas would be temporarily cleared or disturbed. It is possible that operation of the proposed rail line or a rail-related accident could trigger a wildfire, which could destroy larger areas of vegetation, but the risk that the proposed rail line would cause fire would be very low. If the mitigation measures set forth in this ~~Draft~~ EIS are implemented, OEA does not expect that impacts on vegetation would be significant. Among other requirements, the mitigation measures would require the Coalition to revegetate disturbed areas when construction is completed in consultation with appropriate federal, state, and tribal agencies.

- **Geology and Soils.** Construction of any of the Action Alternatives would involve large amounts of earthmoving and soil disturbance. During rail operations, the proposed rail line could potentially be affected by geological hazards, such as landslides, but this impact would be minimized by the implementation of appropriate mitigation measures, including pre-construction geotechnical investigations to identify areas that are at risk of landslide. OEA concludes that impacts related to geology, soils, and geological hazards would not be significant if the Coalition's voluntary mitigation measures and OEA's additional recommended mitigation measures are implemented.
- **Hazard Waste Sites.** Although none of the Action Alternatives would be located near hazardous wastes sites with a documented history of releasing hazardous materials into the environment, construction and operation

of the proposed rail line would affect both active and abandoned oil and gas wells. If OEA's recommended mitigation measures are implemented, OEA concludes that impacts involving hazardous wastes sites would not be significant. Among other requirements, those mitigation measures include a requirement for the Coalition to follow appropriate safety procedures for the abandonment of oil and gas wells in the footprint of the proposed rail line.

- Construction activities would result in noise from the operation of construction equipment, such as bulldozers, front end loaders, and dump trucks. The installation of bridges over waterways could involve pile-driving, which is an especially noisy construction activity that could disturb recreationalists and residences, as well as fish and wildlife. Noise impacts during construction would be temporary and would move or end over time. The mitigation set forth in this ~~Draft~~ EIS include a requirement for the Coalition to develop a construction noise and vibration control plan and to conduct noise and vibration monitoring, as necessary, during construction. If that and other recommended mitigation measures are implemented, noise impacts during construction would not be significant.
- **Vibration.** Construction activities would also result in vibrations, but these would be infrequent, temporary, and well below the intensity that could damage structures, such as residences. During rail operations, the

vibrations caused by trains moving on the proposed rail line would not be strong enough to cause damage or annoyance to people living nearby. OEA concludes that vibration impacts would not be significant if OEA's recommended mitigation measures, including the development of a noise and vibration control plan, are implemented.

- **Air Quality and Greenhouse Gases.** During construction, construction equipment would emit air pollutants, including criteria air pollutants that could contribute to poor air quality and greenhouse gases that would contribute to climate change. Construction-related air emissions would not cause concentrations of criteria air pollutants to exceed the National Ambient Air Quality Standards (NAAQS) and would not exceed the de minimis thresholds for air emissions within the Uinta Basin ozone nonattainment area or~~f~~ the Utah County PM10 Maintenance area. During rail operations, locomotives would emit criteria air pollutants and greenhouse gases. Those operations-related emissions would also not cause concentrations of criteria air pollutants to exceed the NAAQS~~expose residents living near the rail line to air pollutant concentrations that would exceed the NAAQS~~, even if rail traffic on the proposed rail line were at the highest projected level of 10.52 trains per day. Greenhouse gas emissions during construction and operation would represent a small percentage of statewide greenhouse gas emissions in Utah.

- **Energy.** Any of the Action Alternatives would cross existing utility corridors and roads used to transport energy resources, such as oil and natural gas. Active oil and gas wells within the footprint of the proposed rail line would be permanently abandoned. OEA's recommended mitigation measures, which include a requirement for the Coalition to design any crossings or relocations of pipelines or electrical transmission lines in accordance with applicable federal and state standards, would prevent significant impacts on energy infrastructure.
- **Paleontological Resources.** Any of the Action Alternatives would cross areas where scientifically important paleontological resources (fossils) may be located. Construction activities, such as digging, earthmoving, and tunnel construction, could damage or destroy known or undiscovered fossils in those areas. To address these potential impacts, OEA is recommending a mitigation measure requiring the Coalition to engage a qualified paleontologist to develop and implement a paleontological resources monitoring and treatment plan. If OEA's recommended mitigation is implemented, OEA concludes that impacts on paleontological resources would not be significant.
- **Visual Resources.** Construction and operation of the proposed rail line would introduce a new and highly noticeable industrial infrastructure that would affect

visual resources, including visually sensitive areas. Among other measures, OEA is recommending mitigation requiring the Coalition design bridges, ~~design bridges,~~ communications towers, and other project-related features to complement the natural landscape and minimize visual impacts on the landscape. OEA concludes that, if the mitigation measures are implemented, visual impacts from the proposed rail line would not be significant.

S.4.3 Downline Impacts

Rail traffic from the proposed rail line would merge on to main lines and move to destinations throughout the United States. To assess the potential impacts of increased rail traffic on main lines outside of the immediate project area, OEA defined a downline study area that extends from the proposed connection near Kyune to the northern, eastern, and southern edges of the Denver Metro/North Front Range air quality nonattainment area. The impacts from the additional traffic on these main lines could include air quality impacts associated with locomotive exhaust, increased wayside noise, increased risk of accidents at at-grade road crossings, and increased vehicular delay at road crossings. OEA does not expect that downline impacts would be significant.

S.4.4 Cumulative Impacts

OEA reviewed information on relevant past, present, and reasonably foreseeable projects and actions that could have impacts that coincide in time and location with the potential impacts of the proposed rail line. OEA identified 27~~6~~ relevant projects, including facility and infrastructure improvements, watershed improvements, road improvements, two interstate electric power transmission projects, one crude oil processing facility, one Programmatic Agreement for cultural resource preservation, projects on Forest Service lands, and projects on SLM-administered lands. OEA's cumulative impacts assessment also included an analysis of potential future oil and gas development in the Basin and the potential future construction and operation of new rail terminal facilities near Myton and Leland Bench. Based on the cumulative impacts analysis, OEA concludes that the impacts of those projects in combination with the impacts of the proposed rail line could result in cumulative adverse impacts on water resources, biological resources, paleontological resources, land use and recreation, visual resources, and socioeconomics.

S.4.5 Environmentally Preferred Alternative

Based on OEA's analysis and consultation with appropriate government agencies, the Ute Indian Tribe, other interested stakeholders, and the public, OEA ~~preliminarily~~ concludes that, among the three Action Alternatives, the Whitmore Park Alternative would result in the fewest significant impacts on the environment. In particular, the Whitmore Park Alternative would permanently affect the smallest area of water resources, including wetlands and perennial streams; would minimize impacts on greater sage-grouse leks and associated summer brood rearing habitat; and would avoid impacts on subdivided residential areas.

Compared to the Wells Draw Alternative, the Whitmore Park Alternative would permanently and temporarily affect a smaller area of wetlands and of intermittent streams, as well as a smaller number of springs. It would avoid impacts on special use areas on SLM-administered lands, including Areas of Critical Environmental Concern, Lands with Wilderness Characteristics, and areas classified by BLM as sensitive to visual impacts. The Whitmore Park Alternative would affect a smaller area of suitable habitat for the Pariette Cactus and Uinta Basin Hookless Cactus than the Wells Draw Alternative, would avoid potential impacts on moderately suitable habitat for the threatened Mexican spotted owl and a smaller area of big game habitat. In addition, it would result in fewer total emissions of criteria air pollutants and greenhouse gases during construction and during rail operations; would cross a smaller area of land that may be prone to landslides; would result in fewer displacements of residences; would involve a lower risk for accidents at at-grade road crossings; and would cross a smaller area with high potential for wildfires.

Compared to the Indian Canyon Alternative, the Whitmore Park Alternative would permanently and temporarily affect a smaller area of wetlands, a smaller area of riparian habitat, and smaller number of springs and would also require fewer stream realignments. It would avoid noise impacts on residences during rail operations, as well as visual and other impacts on residential areas in the Argyle Canyon and Duchesne Mini-Ranches areas of Duchesne County. The Whitmore Park Alternative would generate more employment, labor income, and local and state tax revenue during construction than the Indian Canyon Alternative and would cross a smaller area of geological units that may be prone to landslides and a smaller area of land with high wildfire hazard potential.

For these reasons, if the Board decides to authorize construction and operation of the proposed rail line, OEA ~~preliminarily~~ recommends that the Board authorize the Whitmore Park Alternative to minimize impacts of construction and operation on the environment. ~~OEA invites agency and public comment on this preliminary recommendation and will make its final recommendations to the Board in the Final EIS after considering all comments received during the public comment period.~~

S.5 Summary of Impacts

Table S-1 summarizes and compares potential impacts for each resource area as well as downline impacts. The table does not include the No Action Alternative because, under that alternative, existing conditions would remain the same.

Section 2 Excerpts, *Unita Basin Railway, Final Environmental Impact Statement*, STB Docket No. FD 36284 (Aug. 2021)

Chapter 2 Proposed Action and Alternatives

This chapter describes the Coalition's proposed rail line, the process for developing alternatives to the Coalition's proposal, and the final range of reasonable alternatives that OEA evaluated in this ~~Draft~~ EIS. The alternatives evaluated in this ~~Draft~~ EIS, as described below, are the Whitmore Park Alternative (the Coalition's preferred alternative), the Indian Canyon Alternative, and the Wells Draw Alternatives (collectively, the Action Alternatives). OEA also evaluated the No-Action Alternative, which would occur if the Board were to deny the Coalition's request for Board authority to construct and operate a rail line.

2.1 Proposed Action

The Coalition proposes to construct and operate an approximately 85-mile single-track rail line to connect the Uinta Basin (the Basin) to the existing interstate rail network. The proposed rail line would extend from two terminus points in the Basin near Myton, Utah and Leland Bench, Utah to a proposed connection with the existing Union Pacific (UP) Provo Subdivision near Kyune, Utah. The Coalition has entered into or intends to enter into agreements with Drexel Hamilton Infrastructure Partners (Drexel Hamilton), Rio Grande Pacific Corporation (RGPC) and the Ute Indian Tribe of the Uintah and Ouray Reservation (Ute Indian Tribe). If the Board were to authorize construction and operation for the proposed rail line, the Coalition states that Drexel Hamilton would be responsible for financing and commercialization of the proposed rail line and RGPC would operate and maintain it. The Coalition expects that the Ute Indian Tribe would become an equity partner in the proposed rail line.[1]

The Coalition anticipates that rail traffic on the proposed rail line would primarily consist of trains transporting crude oil from the Basin to markets across the United States. The Coalition also expects that trains would transport frac sand into the Basin for use in the oil and gas extraction industry. The total volume of rail traffic would depend on future markets for crude oil, which is driven by global demand and capacity at oil refineries. Depending on those future market conditions, the Coalition estimates that as few as 3.68 or as many as 10.52 trains could operate on the proposed rail line each day, on average.[2] That estimate includes between 3.68 and 9.92 crude oil trains, including both unloaded trains entering the Basin and loaded trains leaving the Basin, and between 0 and 0.6 frac sand trains, including both loaded trains entering the Basin and unloaded trains leaving the Basin. The Coalition expects that the majority of crude oil transported on the proposed rail line would originate from new extraction projects in the Uinta Basin or

[1] As used in this ~~Draft~~ EIS, references to the Coalition as the project applicant also refer to any private partners that may be involved in the construction and operation of the proposed rail line, including Drexel Hamilton and RGPC.

[2] In its petition, the Coalition has stated that projections of future rail traffic are based on conditions existing before the ongoing COVID-19 pandemic, and that it anticipates these conditions caused by the pandemic will be temporary in nature.

increased production at existing oil wells. The Coalition does not expect that the proposed rail line would divert existing oil truck traffic to rail transportation for the purposes of serving existing oil refineries in Salt Lake City in the short term.

The Coalition expects that shippers could also use the proposed rail line to transport various heavy and bulk commodities found in the Basin, such as soda ash, phosphate, natural gas, oil shale, gilsonite, natural asphalt, limestone, bentonite, heavy clay, aggregate materials, bauxite, low-sulfur coal, and agricultural products. These products would be transported in cars added to crude oil trains or frac sand trains. The Coalition does not anticipate that the volume of other commodities would be large enough to warrant dedicated trains.

The Coalition anticipates that shippers of crude oil or other third parties would construct terminals at the two terminus points of the proposed rail line near Myton and Leland Bench to facilitate the transportation of crude oil. The Coalition is not proposing to construct terminals at the two terminus points as part of its petition filed with the Board, and the Board would not have a role in permitting those facilities if another non-railroad party were to construct them. Because the potential terminals are not part of the proposed action being evaluated in this ~~Draft~~ EIS, those facilities are discussed separately in Chapter 3, Section 3.15, *Cumulative Impacts*.

2.2 Alternatives

This section discusses the process that was used to develop the alternatives considered in this ~~Draft~~ EIS, routes that were considered but were not analyzed in detail, and the final set of reasonable alternatives that were carried forward for detailed review. OEA incorporates by reference the following source documents referred to in this section.

The Board's website (www.stb.gov) and the Board-sponsored project website (uintabasinrailwayeis.com) include all documents incorporated by reference.

- 2014-2015 Utah Department of Transportation (UDOT) Studies:
  - *Alternatives Feasibility Report* (UDOT 2014a)
  - *Alternatives-Development and Screening Methodology Report* (UDOT 2014b)
  - *Uinta Basin Railroad Feasibility Study Summary Report* (UDOT 2015)
- 2019-2020 Coalition Reports:
  - *Uinta Basin Railway: Evaluation of Potential Route Alternatives* (Coalition 2019a)
  - *Uinta Basin Railway: Supplemental Route Selection Information* (Coalition 2020)

2.2.1 Alternatives Development

The National Environmental Policy Act (NEPA) requires that federal agencies consider reasonable alternatives to the proposed action. To be reasonable, an alternative must meet the project purpose and need and must be logistically feasible and practical to implement. In railroad construction cases, OEA typically determines the range of reasonable alternatives by first developing a list of conceptual routes. OEA then carefully considers those potential alternatives in consultation with appropriate agencies, other stakeholders, and the public. In determining whether an alternative is reasonable, OEA considers the totality of circumstances for each potential alternative, including the following:

- **Logistical constraints.** Some potential alternatives may not be logistically feasible because they would involve especially steep grades or high curvature ratios that would increase the risk of derailment and other accidents. A potential alternative may also be unreasonable if it would require unusual or unique design features, such as especially long tunnels or long viaducts that may be impossible or impractical to construct or to operate safely.
- **Length of the rail line.** In general, longer rail lines are more expensive to construct and operate and are likely to result in more environmental impacts than shorter rail lines. A conceptual route that is significantly longer than other potential alternatives may not be reasonable under NEPA if it does not offer potential benefits in terms of lower environmental impacts, improved operational safety, or increased economic efficiency relative to other potential alternatives.
- **Disproportionately significant environmental impacts.** A potential alternative that would cross areas containing especially sensitive environmental or cultural resources may ~~be~~ not be reasonable under NEPA when it is clear from initial desktop review that the potential alternative would result in significant environmental impacts that cannot be mitigated and that would be substantially greater than the impacts associated with other potential

alternatives. OEA believes it would be a misuse of public and agency time and resources to analyze in detail a potential alternative that the Board would not be able to ultimately authorize as its environmentally preferable alternative.

- **Construction and operation costs.** Because freight rail lines are typically constructed and operated by private companies using private investment funds, the costs of constructing and operating a new rail line are ultimately passed along to shippers in the form of rates charged by the rail line operator to transport freight. If the cost of constructing and operating a new rail line is prohibitively high, it could make it impossible for the operator to offer rates that would be competitive with other means of transportation. Some potential alternatives may, therefore, be economically infeasible because they would entail prohibitively high construction and operation costs.

Because each rail line construction case is unique, OEA does not have established thresholds for any of the above parameters. Therefore, to determine the range of reasonable alternatives, OEA carefully considered the totality of circumstances for each potential alternative, including agency and public comments received during the scoping process.[3]

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[3] OEA recognizes that other agencies may have the responsibility to assess the feasibility of potential alternatives under regulations other than NEPA, including Section 404 of the Clean Water Act (33 U.S.C. § 1344). Section 404 requires that the applicant consider all practicable alternatives and demonstrates the proposed action is the Least Environmental Damaging

The three Action Alternatives examined in this ~~Draft~~ EIS were developed over the course of several years of analysis by the Utah Department of Transportation (UDOT) and the Coalition, and later OEA. Because the Basin is surrounded by high mountains and plateaus, there are very few feasible routes that a rail line could follow that would allow for freight trains to operate within modern standards of safety and efficiency. This section summarizes the processes that UDOT, the Coalition, and OEA used to evaluate the feasibility of conceptual routes and determine the final range of alternatives. Additional details regarding the alternative development process, including the reports referenced in this section and listed in Section 2.2, *Alternatives*, are available to the public on the Board's website (www.stb.gov) and the Board-sponsored project website (www.uintabasinrailwayeis.com).

In 2014 and 2015, UDOT completed alternative feasibility studies that examined the feasibility of constructing a rail line to connect the Basin to the interstate railroad network (2014-2015 UDOT

Practicable Alternative (LEDPA). Although it is beyond the scope of the Board's environmental review under NEPA to present a full analysis for the purposes of Section 404, OEA believes that the information summarized in this section and provided in detail in the 2014-2015 UDOT Studies, the 2019-2020 Coalition Reports, and other sources referenced in this section should be reasonably sufficient to support the identification of practicable alternatives per the section 404(b)(1) guidelines. OEA also believes that the information provided in Chapter 3, *Affected Environment and Environmental Consequences*, is reasonably sufficient to support the selection of the LEDPA.

Studies).[4] The 2014-2015 UDOT Studies identified 26 conceptual routes for a potential rail line and applied four levels of screening to determine which, if any, of those routes could feasibly be constructed. In the first-level screening, UDOT assessed whether each route would meet the project's purpose and need. The second-level screening involved a high-level engineering analysis to determine whether the routes that passed the first-level screening would have a maximum grade of no more than 2.4 percent, which UDOT considered to be the maximum grade that a heavy freight rail line can safely and efficiently operate. In the third-level screening, UDOT overlaid the conceptual routes that passed the second-level screening with available geospatial data and eliminated those that would have disproportionate environmental impacts on residences, known resources of cultural and historic value, and unique or particularly sensitive wildlife habitat. In the fourth-level screening, UDOT conducted a more detailed engineering analysis of the conceptual routes that passed the third-level screening and eliminated the routes that would be infeasible to construct.

In 2019 and 2020, the Coalition issued their route alternative selection reports (2019–2020 Coalition Reports)[5], which detailed the Coalition's efforts to

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[4] See *Alternatives Feasibility Report* (UDOT 2014a); *Alternatives-Development and Screening Methodology Report* (UDOT 2014b); and *Uinta Basin Railroad Feasibility Study Summary Report* (UDOT 2015).

[5] See *Uinta Basin Railway: Evaluation of Potential Route Alternatives* (Coalition 2019a) and *Uinta Basin Railway: Supplemental Route Selection Information* (Coalition 2020).

reassess the conceptual routes identified in the 2014–2015 UDOT Studies. In addition to the 26 routes that UDOT identified, the Coalition also considered three additional routes that it had identified. The Coalition then conducted a three-level screening process to eliminate routes that would not be reasonable alternatives. In the first-level screening, the Coalition conducted a desktop analysis and eliminated routes that would cross areas of particularly sensitive wildlife habitat, areas known to contain important cultural resources, or highly developed areas with many residences, buildings, and infrastructure. In the second-level screening, the Coalition conducted a high-level engineering review of the routes that passed the first-level screening and eliminated those that would be infeasible to construct and operate; the primary criterion that the Coalition used in this second-level screening was a maximum grade of 2.5 percent, which is slightly higher than UDOT's criterion of 2.4 percent maximum grade. In the third-level screening, the Coalition eliminated several conceptual routes that passed the second-level screening due to being largely duplicative with other routes that passed the second-level screening. For routes that passed all three levels of screening, the Coalition provided additional information regarding the relative technical and economic feasibility of the route and the results of desktop review of potential environmental impacts.

The Coalition proposed that OEA consider three routes as potential alternatives in the EIS, based on UDOT's and the Coalition's screening results. Those proposed alternatives were the Indian Canyon Alternative, the Wells Draw Alternative, and an alignment referred to as the Craig Route. After considering the comments that OEA received during the EIS scoping process, which are available to the public on the Board's website, the Coalition proposed an additional route as a potential alternative. That route, the Whitmore Park Alternative, although largely similar to the Indian Canyon Alternative, would avoid some sensitive habitat and some residential areas relative to the Indian Canyon Alternative. The Coalition also concluded, based on new information received during scoping, that the Craig Route would not meet the Coalition's purpose and need and requested that OEA eliminated that route from further review.

Throughout 2019 and 2020, OEA conducted its own analysis of the conceptual routes that were considered by UDOT and the Coalition. OEA also requested and received from the Coalition additional, more detailed engineering information about some of the routes that were eliminated during the screening analysis that the Coalition conducted. OEA also consulted with and carefully considered comments from federal, state, and local agencies; tribes; other potentially affected stakeholders; and the public about potential alternatives during the scoping process.

Based on the analyses conducted by UDOT, the Coalition, and OEA, as well as comments submitted during scoping, OEA concluded that, of the conceptual routes that were considered at various times, only three routes would be reasonable under NEPA. OEA notes that the major reason that conceptual routes were found to be infeasible is due to the prevailing, challenging topography (e.g., mountain elevations, steep grades) surrounding the Basin. All of the routes identified by UDOT and the Coalition that OEA ultimately found infeasible would require substantial cut-and-fill and large or numerous bridges. Most routes would have also required numerous or large tunnels to pass through mountains. For example, the Coalition estimates that the least-cost route, the Indian Canyon Alternative, would cost approximately 1.29 billion dollars to construct, which is equivalent to approximately 16 million dollars per mile, while a typical rail line constructed on relatively flat terrain typically costs between approximately 1 and 2 million dollars per mile to construct. The other two reasonable alternatives analyzed in detail in this ~~Draft~~ EIS, the Whitmore Park Alternative and the Wells Draw Alternative, would have estimated construction costs of approximately 1.35 billion dollars and 2.14 billion dollars, respectively.

2.2.2 Routes Considered but Not Analyzed in the EIS

This section briefly discusses the conceptual routes that OEA considered but did not analyze in detail in this ~~Draft~~ EIS because they would be logistically infeasible or unreasonable to construct and operate. Additional information regarding the conceptual routes that OEA did not analyze in detail is provided in the 2014-2015 UDOT Studies and the 2019-2020 Coalition Reports, which are publicly available on the Board's website (www.stb.gov) and on the Board-sponsored project website (www.uintabasinrailwayeis.com). Notably, none of the routes are entirely unique and many include substantial overlap with other routes. Where appropriate, this section notes the similarities between routes.

2.2.2.1 Craig Route

The Craig Route would extend approximately 185 miles from terminus points in the Basin to an existing rail line near Axial, Colorado. From the terminus points in the Basin, the Craig Route would proceed generally northward then turn and proceed generally eastward, crossing the Green River approximately 5 miles south of Jensen, Utah. The route would then proceed southeasterly, entering Colorado approximately 3 miles northwest of Dinosaur, Colorado, and would connect to the Deseret Power Railroad (DPR) south of Dinosaur. The Craig Route would use approximately 13 miles of the DPR to proceed eastward and would depart the DPR approximately 2 miles west of the Deserado Mine. It would then proceed generally eastward to connect to the UP Craig Subdivision near the railroad timetable station at Axial.

The Craig Route was first identified in the 2019-2020 Coalition Reports, which concluded that the route would be logistically feasible to construct because, despite having a substantially longer length relative to other conceptual routes, it would traverse less challenging terrain. For this reason, OEA initially decided to carry the Craig Route forward for review in the EIS scoping process as a potential alternative. During scoping, however, OEA received comments raising concerns regarding the potential environmental impacts of the Craig Route, as well as the reasonableness and feasibility of that proposed alternative, as detailed below.

The Coalition submitted a comment letter to OEA explaining that, based on information obtained during scoping, the Coalition no longer believes the Craig Route would meet the project's purpose and need. First, the Coalition stated that two segments of the Craig Route are currently private rail lines, not common-carrier rail lines, which means that the Coalition would need to obtain the right to operate over those segments in order to construct and operate the Craig Route. Second, the Coalition noted that if the Craig Route were constructed, shippers in the Basin would gain access only to a rail line owned and operated by UP. According to the Coalition, the lack of access to two existing carriers on the Craig Route would result in higher rates for shippers and could affect the Coalition's ability to attract shippers and obtain financing. Third, the Coalition stated that the economic feasibility of the Craig Route could be affected by the high maintenance and operating costs on the UP Craig Subdivision, to which the Craig Route would connect. Because trains from the proposed rail line would be the primary source of rail traffic on the UP Craig Subdivision, the Coalition stated it could be forced to either purchase that UP line or incur substantial costs to ensure that it is adequately maintained. Finally, the Coalition noted the comments from federal, state, and local agencies discussed below regarding the disproportionate potential impact of the Craig Route on wildlife and other resources relative to the other proposed build alternatives.

The U.S. Department of the Interior, Bureau of Land Management (BLM) submitted comments requesting that OEA eliminate the Craig Route from detailed analysis in the EIS due to the likelihood of significant environmental impacts on specific resources in Colorado. BLM explained that the Craig Route would be inconsistent with BLM management decisions and would require an amendment to applicable BLM Resource Management Plans (RMPs) to permit a right-of-way. BLM identified potential significant environmental impacts on important greater sage-grouse (*Centrocercus urophasianus*) and sharp-tailed grouse (*Tympanuchus phasianellus*) habitat; important winter habitat for big game species, including pronghorn (*Antilocapra Americana*), mule deer (*Odocoileus hemionus*), and elk (*Cervus canadensis*); and habitat for the black-footed ferret (*Mustela nigripes*) in the Wolf Creek Management Area. Other issues raised by BLM regarding the Craig Route include potential visual impacts and impacts on several threatened and endangered plant species.

The National Park Service submitted comments identifying potential environmental impacts—including increased air pollution, noise, and altered daytime viewsheds and dark night sky views—of the Craig Route on Dinosaur National Monument (DNM) that would be caused by the Craig Route's close proximity (within 5 miles) to DNM. By comparison, the Indian Canyon Alternative and the Wells Draw Alternative would avoid these impacts because both routes would be more than 30 miles away from the DNM.

Colorado Parks and Wildlife (CPW) submitted comments raising concerns about the Craig Route due to the area's extremely high value for numerous wildlife species and the potential of the proposed route to adversely affect those species. CPW identified eight properties in which CPW maintains an interest that would be bisected by the Craig Route, potentially resulting in the fragmentation of wildlife habitat or affecting public use of the properties. CPW noted that the Craig Route would cross numerous tributary streams of the White River and the Yampa River, which serve as spawning areas for threatened and endangered fish species. In addition, CPW commented that the Craig Route would cross crucial winter range areas and migration routes for big game species and raised concerns regarding potential impacts on greater sage-grouse, sharp-tailed grouse, raptors, and black-footed ferrets. Finally, CPW identified several proposed projects in the vicinity of the Craig Route that could potentially result in significant cumulative impacts on biological resources when considered in conjunction with the proposed rail line, including the Transwest Express Transmission Line, Energy Gateway South Transmission Line, Tri-State's Colowyo coal mine expansion, federal oil and gas leasing projects, and proposals for sand and gravel mining.

In comments submitted during scoping, the commissioners of Moffat County, Colorado did not ask OEA to eliminate the Craig Route, but raised several issues unique to the Craig Route that would need to be addressed if that route were carried forward in the EIS. Among these issues are the lack of the Craig Route's connection to an existing common carrier rail line in Colorado, which would require the Coalition to acquire rights to operate over a private rail line in order to implement the proposed rail line if the Craig

Route were authorized. Moffatt County also pointed to potential bottleneck issues related to adding new rail traffic to parts of the proposed route that could make the Craig Route infeasible. Moffat County further noted the existence of several wildlife conservation easements along the Craig Route corridor and cited potential rail crossings that would need to intersect public roads and landowner concerns.

OEA's independent analysis of the Craig Route concluded that the route, due to its substantially longer length, would require a greater number of water body crossings than other proposed alternatives, would affect a greater area of wetlands, would likely require greater volumes of water during construction, and would have a greater potential to affect cultural resources, such as undiscovered archeological sites. The Craig Route is also the only one of the three initially proposed alternatives that would cross the Green River, which contains designated critical habitat for federally listed endangered fish species that are endemic to the Colorado River basin.

Based on the serious concerns discussed in this section, OEA concluded that the Craig Route would not be a reasonable alternative because it might not provide shippers with a viable rail alternative to trucking and would have the potential for disproportionately significant environmental impacts, including visual, noise, and air quality impacts on DNM and water quality impacts on the Green River related to the proposed crossing of that river.

2.2.2.2 Craig City Route

The Craig City Route would extend generally eastward approximately 181 miles from terminus points in the Basin to a connection with an existing rail line near Craig, Colorado. From the Basin, the route would head east toward and along DPR into Colorado before generally following U.S. Highway 40 (US 40) northeast to the rail connection near Craig.

The 2014-2015 UDOT Studies concluded that the Craig City Route would not meet the purpose and need of the proposed rail line and did not consider the route further. The 2019-2020 Coalition Reports concluded that the Craig City Route would be substantially duplicative of the Craig Route and did not consider the Craig City Route further as a distinct route. OEA reviewed the available information and concluded that, like the Craig Route, the Craig City Route is not a reasonable alternative because it might not provide shippers with a viable alternative to trucking and would have the potential for disproportionately significant environmental impacts, including visual, noise, and air quality impacts on DNM and water quality impacts on the Green River related to the proposed crossing of that river.

2.2.2.3 Axial-Meeker Route

The Axial-Meeker Route would extend approximately 183 miles from terminus points in the Basin to a connection with an existing privately owned rail line near Axial, Colorado. From the Basin, the route would head east toward and along the existing DPR into Colorado before following Colorado State Highway 64 (CO 64) to Meeker, Colorado. It would then turn north and follow Colorado State Highway 13 (CO 13) to the rail connection near Axial.

The 2014-2015 UDOT Studies concluded that the Axial-Meeker Route would not meet the purpose and need of the proposed rail line and did not consider the route further. The 2019-2020 Coalition Reports concluded that the Axial-Meeker Route would be substantively duplicative of the Craig Route and did not consider it further as a distinct route. OEA reviewed the available information and concluded that the Axial-Meeker Route is not a reasonable alternative because, like the Craig Route, it might not provide shippers with a viable alternative to trucking and would have the potential to result in disproportionately significant environmental impacts, including visual, noise, and air quality impacts on DNM and water quality impacts on the Green River related to the proposed crossing of that river.

2.2.2.4 Echo Canyon Route

The Echo Canyon Route would extend generally northwest approximately 157 miles from terminus points in the Basin to an existing UP rail line near Echo, Utah. From the Basin, the route would extend westward up the Duchesne River valley toward Wolf Creek Pass. It would then descend northwesterly from the summit, paralleling the Provo River through Kamas, Utah toward Echo. The route would require approximately 12.4 miles of tunnels to traverse areas of high elevation surrounding the Basin.

The 2014-2015 UDOT Studies concluded that the Echo Canyon Route would not meet the project's purpose and did not consider the route further. The 2019-2020 Coalition Reports found that the Echo

Canyon Route would be feasible to construct in the first-level screening but eliminated the route from further review in the second-level screening due to disproportionate impacts on the built and natural environments. Specifically, the 2019-2020 Coalition Reports concluded that the Echo Canyon Route would pass through extensively developed residential areas in the vicinity of Park City, Utah, and would likely require the relocation of or result in impacts on many residences and other aspects of the built environment. OEA reviewed the available information and concluded that the Echo Canyon Route is not a reasonable alternative because it would result in disproportionately significant impacts on residential areas near Park City, potentially including the relocation of numerous residences in that area, without offering benefits in terms of lower impacts on other environmental resources. OEA also concluded that the potential costs associated with the relocations of numerous residences and the acquisition of numerous properties in the Park City area would result in a prohibitively high construction cost that would make the Echo Canyon Route impractical to construct.

2.2.2.5 Sowers Canyon Route

The Sowers Canyon Route would extend generally southwest approximately 104 miles from terminus points in the Basin to a connection with an existing UP rail line near Kyune, Utah. From the Basin, the route would follow Sowers Canyon by way of Antelope Canyon and then travel through three tunnels to reach the Whitmore Park Plateau to the west of Nine Mile Canyon Road. It would then parallel Emma Park

Road to Kyune. The Sowers Canyon Route would be identical along much of its length to the Minnie Maud Canyon—Sowers Canyon Route and the Argyle Canyon—Sowers Canyon Route, all three of which would pass through Sowers Canyon. It would also be similar to the Indian Canyon Alternative, sharing the same terminus points in the Basin and the same connection to the existing UP rail line near Kyune.

The 2014-2015 UDOT Studies concluded that the Sowers Canyon Route would be logistically feasible to construct and operate. However, UDOT recommended that the Sowers Canyon Route not be considered further because it would be largely similar to the Indian Canyon Alternative but would result in more significant environmental impacts. The 2019–2020 Coalition Reports reevaluated the Sowers Canyon Route and concluded, in the second-level screening, that the route would not be logistically feasible to construct and operate while maintaining a maximum grade of 2.5 percent. OEA reviewed the available information and concluded that the Sowers Canyon Route is not a reasonable alternative because it would require extensive tunneling, extensive embankment construction on steep slopes, and numerous stream crossings in narrow canyons, all of which would substantially increase the risk of derailment and accidents, the costs associated with construction and operation, and the potential for significant environmental impacts.

2.2.2.6 Minnie Maud Canyon—Sowers Canyon Route

The Minnie Maud Canyon—Sowers Canyon Route would extend generally southwest approximately 112 miles from terminus points in the Basin to a connection with an existing rail line near Kyune. From the Uinta Basin, the route would follow Antelope Canyon to Sowers Canyon, where two tunnels would provide a connection to Minnie Maud Canyon. It would then extend southward through Nine Mile Canyon to the Whitmore Park Plateau, where it would parallel Emma Park Road to Kyune. The Minnie Maud Canyon—Sowers Canyon Route would be identical along much of its length to the Sowers Canyon Route and the Argyle Canyon—Sowers Canyon Route, all three of which would pass through Sowers Canyon. It would also be similar to the Indian Canyon Alternative, sharing the same terminus points in the Basin and the same connection to the existing UP rail line near Kyune.

The 2014-2015 UDOT Studies concluded that the Minnie Maud Canyon—Sowers Canyon Route would meet the project's purpose and need and would be logistically feasible to construct and operate. However, UDOT's third-level screening concluded that the route would have higher potential for environmental impacts than the largely similar Sowers Canyon Route because it would require a greater number of water crossings and would cross a larger area of wetland and cross larger areas of sensitive wildlife habitat, including greater sage-grouse habitat and black-footed ferret habitat. The 2019-2020 Coalition Reports reevaluated the Minnie Maud Canyon—Sowers Canyon Route and concluded, in the second-level screening, that the route would not be logistically feasible to construct and operate while maintaining a maximum grade of 2.5 percent. OEA reviewed the available information and concluded that the Minnie

Maud Canyon—Sowers Canyon Route is not a reasonable alternative because, in order to maintain a safe maximum grade, the route would require extensive tunneling, extensive embankment construction on steep slopes, and numerous stream crossings in narrow canyons, all of which would substantially increase the risk of derailment and accidents, the costs associated with construction and operation, and the potential for significant environmental impacts.

2.2.2.7 Argyle Canyon—Sowers Canyon Route

This conceptual route would extend generally southwest approximately 125 miles from terminus points in the Basin to a connection with an existing UP rail line near Kyune, Utah. From the Basin, the route would follow Antelope Canyon to Sowers Canyon, where a tunnel would connect to Argyle Canyon. It would then follow Argyle Canyon for approximately 13 miles before following Nine Mile Canyon south to the Whitmore Park Plateau, where it would head west along Emma Park Road to Kyune. The Argyle Canyon—Sowers Canyon Route would be identical along much of its length to the Sowers Canyon Route and the Minnie Maud Canyon—Sowers Canyon Route, all three of which would pass through Sowers Canyon. It would also be similar to the Indian Canyon Alternative, sharing the same terminus points in the Uinta Basin and the same connection to the existing UP rail line near Kyune.

The 2014-2015 UDOT Studies concluded that the Argyle Canyon—Sowers Canyon Route would meet the project's purpose and need and would be logistically feasible to construct and operate. However, UDOT's third-level screening concluded that the route would have higher potential for environmental impacts than the largely similar Sowers Canyon Route. The 2019-2020 Coalition Reports reevaluated the Argyle Canyon—Sowers Canyon Route and concluded, in the second-level screening, that the route would not be logistically feasible to construct and operate while maintaining a maximum grade of 2.5 percent. OEA reviewed the available information and concluded that the Argyle Canyon—Sowers Canyon Route is not a reasonable alternative because, in order to maintain a safe maximum grade, the route would require extensive tunneling, extensive embankment construction on steep slopes, and numerous stream crossings in narrow canyons, all of which would substantially increase the risk of derailment and accidents, the costs associated with construction and operation, and the potential for significant environmental impacts.

2.2.2.8 Nine Mile Canyon—Wells Draw Route

The Nine Mile Canyon—Wells Draw Route would extend generally southwest approximately 110 miles from termini in the Basin to a connection with an existing UP rail line near Kyune, Utah. From the Basin, the route would follow Wells Draw Road south through Gate Canyon and would then parallel Nine Mile Canyon Road to the Whitmore Park Plateau. It would then head west along Emma Park Road toward the rail connection near Kyune.

The 2014-2015 UDOT Studies concluded that the Nine Mile Canyon—Wells Draw Route would be logistically infeasible to construct due to a maximum grade of approximately 3.5 percent, which is in excess of the criterion of 2.4 percent set in those studies. The 2019-2020 Coalition Reports reevaluated the Nine Mile Canyon—Wells Draw Route and concluded, in the second-level screening, that the route would not be logistically feasible to construct and operate while maintaining a maximum grade of 2.5 percent. OEA reviewed the available information and concluded that the Nine Mile Canyon—Wells Draw Route is not a reasonable alternative because, in order to maintain a safe maximum grade, the route would require extensive tunneling, extensive embankment construction on steep slopes, and numerous stream crossings in narrow canyons, all of which would substantially increase the risk of derailment and accidents, the costs associated with construction and operation, and the potential for significant environmental impacts.

2.2.2.9 Nine Mile Canyon—Upper Green River Canyon Route

The Nine Mile Canyon—Upper Green River Canyon Route would extend generally southwest approximately 144 miles from terminus points in the Basin to a connection with an existing UP rail line near Kyune, Utah. From the Basin, the route would follow Nine Mile Canyon Road through Nine Mile Canyon from the Green River south to the Whitmore Park Plateau. It would then head west along Emma Park Road toward the rail connection near Kyune.

The 2014-2015 UDOT Studies concluded that the Nine Mile Canyon—Upper Green River Canyon Route would be impractical to construct due to the height of the canyon walls in the Green River Canyon, the high water flows that fill the canyon floor, and the lack of continuous bench or beach on which to build the rail line. The 2019-2020 Coalition Reports concluded in the first-level screening that the route would ~~be~~ not be reasonable due to unavoidable impacts on Nine Mile Canyon and Green River Canyon. Nine Mile Canyon contains numerous significant cultural resources, including extensive rock art and archeological features created by the Fremont culture and the Ute people, while Green River Canyon contains significant natural resources, including the Green River, which supports numerous aquatic species, including federally and state listed protected species. OEA reviewed the available information and concluded that the Nine Mile Canyon—Upper Green River Canyon Route is not a reasonable alternative because it would result in disproportionately significant impacts on cultural and natural resources in Nine Mile Canyon and Green River Canyon.

2.2.2.10 Green River Canyon Route

The Green River Canyon Route would extend generally south approximately 159 miles from terminus points in the Basin to a connection with an existing UP rail line near the junction of U.S. Highway 6 (US 6) and Interstate 70 (I-70). From the Basin, the route would follow the Green River from Wild Horse Bench south toward the rail connection.

The 2014-2015 UDOT Studies concluded that the Green River Canyon Route would be impractical to construct due to the height of the canyon walls in the Green River Canyon, the high water flows that fill the canyon floor, and the lack of continuous bench or beach on which to build the rail line. The 2019–2020 Coalition Reports concluded in the first-level screening that the route would not be reasonable due to potential impacts on Green River Canyon. Green River Canyon contains significant natural resources, including the Green River, which supports numerous aquatic species, including federally and state listed protected species. OEA reviewed the available information and concluded that the Green River Canyon Route is not a reasonable alternative because it would result in disproportionately significant impacts on natural resources in Green River Canyon.

2.2.2.11 Thompson Canyon Route

The Thompson Canyon Route would extend generally south approximately 120 miles from terminus points in the Basin to a connection with an existing UP rail line east of Crescent Junction, Utah. From the Basin, it would generally follow Willow Creek to She Canyon and would then follow Bogart Canyon and Thompson Canyon south toward the rail connection.

The 2014-2015 UDOT Studies concluded that the Thompson Canyon Route would be logistically infeasible to construct due to a maximum grade of approximately 4.0 percent, which is in excess of the criterion of 2.4 percent set in those studies. The 2019-2020 Coalition Reports reevaluated the Thompson Canyon Route and concluded, in the second-level screening, that the route would not be logistically feasible to construct and operate while maintaining a maximum grade of 2.5 percent. OEA reviewed the available information and concluded that the Thompson Canyon Route is not a reasonable alternative because, in order to maintain a safe maximum grade, the route would require extensive tunneling, extensive embankment construction on steep slopes, and numerous stream crossings in narrow canyons, all of which would substantially increase the risk of derailment and accidents, the costs associated with construction and operation, and the potential for significant environmental impacts.

2.2.2.12 Sego Canyon Route

The Sego Canyon Route would be largely similar to the Thompson Canyon Route. It would extend generally south approximately 120 miles from terminus points in the Basin to a connection with an existing UP rail line east of Crescent Junction, Utah. From the Basin, it would generally follow Willow Creek to She Canyon and would then follow Bogart Canyon and Thompson Canyon south toward the rail connection.

The 2014-2015 UDOT Studies concluded that the Sego Canyon Route would be logistically infeasible to construct due to a maximum grade of approximately 3.8 percent, which is in excess of the criterion of 2.4 percent set in those studies. The 2019-2020 Coalition Reports reevaluated the Sego Canyon Route and concluded, in the second-level screening, that the route would not be logistically feasible to construct and operate while maintaining a maximum grade of 2.5 percent. OEA reviewed the available information and concluded that the Sego Canyon Route is not a reasonable alternative because, in order to maintain a safe maximum grade, the route would require extensive tunneling, extensive embankment construction on steep slopes, and numerous stream crossings in narrow canyons, all of which would substantially increase the risk of derailment and accidents, the costs associated with construction and operation, and the potential for significant environmental impacts.

2.2.2.13 Mack Route

As described in the 2014-2015 UDOT Studies, the Mack Route would extend approximately 145 miles generally southeast from terminus points in the Basin to a connection with an existing UP rail line near Mack, Colorado. Although the route passed first-, second-, and third-level screening in the 2014-2015 UDOT Studies, UDOT ultimately eliminated it after more detailed engineering analysis in the fourth-level screening. Specifically, UDOT concluded during field review that the steep slopes and loose material in the Baxter pass area would make construction and operation of a rail line impractical due to the susceptibility of the geology to rockslides. UDOT also concluded that the steep slopes in the area through which the route would pass would make the construction of the rail main line and associated siding logistically infeasible.

The 2019-2020 Coalition Reports revised the Mack Route to accommodate new terminus points in the Basin. The revised route would extend approximately 155 miles from two terminus points near Myton, Utah and Leland Bench, Utah to a connection with an existing UP rail line near Mack. From Leland Bench and Myton, the route would extend northeasterly, crossing the Uinta River south of Fort Duchesne, Utah, then south-southeast to cross the Green River. It would then turn south, crossing the White River, then follow Bitter Creek Canyon to a summit tunnel through the East Tavaputs Plateau.

From the summit tunnel, the route would follow Atchee Wash, exiting the Book Cliffs, then traverse Grand Valley to connect to the UP Green River Subdivision. Portions of the Mack Route would be identical to the Westwater Route, the East Rifle Route, the West Rifle Route, the Craig Route, and other conceptual routes.

Approximately 90.4 miles of the Mack Route would cross relatively open terrain. The remaining mileage, however, would cross rugged terrain characterized by mountains and deep valleys. Crossing that topography would require many areas of cut-and-fill, numerous bridges, and approximately 5.1 miles of tunnels to maintain a maximum grade of 2.5 percent. Due to the substantially longer length of the Mack Route relative to other conceptual routes and the significantly higher amounts of regrading that would be required, the Coalition concluded that the Mack Route would not be economically feasible to construct and operate. For the purpose of comparison, the Coalition estimated that the Mack Route would cost approximately 2.78 billion dollars to construct, which is well over twice the estimated construction cost of the least-cost route, the Indian Canyon Alternative. Desktop analysis conducted by the Coalition concluded that the Mack Route would also have greater potential for significant environmental impacts relative to other routes under consideration.

OEA reviewed the available information and concluded that the Mack Route is not a reasonable alternative because the construction and maintenance costs associated with the route's substantial length, as well as the extensive regrading, tunneling, and numerous bridges and other structures that would be required, would make the route impractical to construct and operate.

2.2.2.14 Mack-Evacuation Creek Route

The Mack-Evacuation Creek Route would extend generally southeast approximately 132 miles from terminus points in the Basin to a connection with an existing UP rail line near Mack, Colorado. From the Basin, it would travel east to follow the abandoned Uintah Railway route before following Baxter Pass Road south toward the UP rail connection.

The 2014-2015 UDOT Studies concluded that the route would be logistically infeasible to construct due to a maximum grade of approximately 4.8 percent, which is in excess of the criterion of 2.4 percent set in those studies. The 2019-2020 Coalition Reports reevaluated the Mack-Evacuation Creek Route and concluded, in the second-level screening, that the route would not be logistically feasible to construct and operate while maintaining a maximum grade of 2.5 percent. OEA reviewed the available information and concluded that the Mack-Evacuation Creek Route is not a reasonable alternative because, to maintain a safe maximum grade, the route would require extensive tunneling, extensive embankment construction on steep slopes, and numerous stream crossings in narrow canyons, all of which would substantially increase the risk of derailment and accidents, the costs associated with construction and operation, and the potential for significant environmental impacts.

2.2.2.15 Mack-Park Canyon Route

The Mack-Park Canyon Route would extend approximately 190 miles between terminus points in the Basin and a connection with an existing UP rail line near Mack, Colorado. From the Basin, it would travel east to the DPR and would follow the DPR toward Rangely, Colorado. It would then head southwest along Rio Blanco County 23 to Evacuation Creek and, then, to Baxter Pass. South of the pass, it would generally follow the abandoned narrow-gauge Uintah Railway route to the railroad connection near Mack.

The 2014-2015 UDOT Studies concluded that the Mack-Park Canyon Route would be logistically infeasible to construct due to a maximum grade of approximately 2.7 percent, which is in excess of the criterion of 2.4 percent set in those studies. The 2019-2020 Coalition Reports reevaluated the Mack-Park Canyon Route and concluded, in the second-level screening, that the route would not be logistically feasible to construct and operate while maintaining a maximum grade of 2.5 percent. OEA reviewed the available information and concluded that the Mack-Park Canyon Route is not a reasonable alternative because, to maintain a safe maximum grade, the route would require extensive tunneling, extensive embankment construction on steep slopes, and numerous stream crossings in narrow canyons, all of which would substantially increase the risk of derailment and accidents, the costs associated with construction and operation, and the potential for significant environmental impacts.

2.2.2.16 Douglas Pass Route

The Douglas Pass Route would extend approximately 178 miles between terminus points in the Basin and a connection with an existing UP rail line near Mack, Colorado. From the Basin, it would travel east to the DPR and would follow the DPR toward Rangely, Colorado. It would then head south along Blue Mountain Road and Colorado State Highway 139 (CO 139) toward Mack via Douglas Pass.

The 2014-2015 UDOT Studies concluded that the Douglas~~s~~ Pass Route would be logistically infeasible to construct due to a maximum grade of approximately 4.0 percent, which is in excess of the criterion of 2.4 percent set in those studies. The 2019-2020 Coalition Reports reevaluated the Douglas Pass Route and concluded, in the second-level screening, that the route would not be logistically feasible to construct and operate while maintaining a maximum grade of 2.5 percent. OEA reviewed the available information and concluded that the Douglas Pass Route is not a reasonable alternative because, to maintain a safe maximum grade, the route would require extensive tunneling, extensive embankment construction on steep slopes, and numerous stream crossings in narrow canyons, all of which would substantially increase the risk of derailment and accidents, the costs associated with construction and operation, and the potential for significant environmental impacts.

2.2.2.17 Wamsutter Route

The Wamsutter Route would extend generally northwest approximately 248 miles from terminus points in the Basin to a connection with an existing UP rail line near Wamsutter, Wyoming. From the

Basin, the route would head east toward and along the existing DPR into Colorado before following US 40 and County Road 143 north. It would follow the Little Snake River from its confluence with the Yampa River to Baggs, Wyoming. It would then head north along Wyoming State Highway 789 (WY 789) and Wamsutter Road to the rail connection near Wamsutter.

The 2014-2015 UDOT Studies concluded that the Wamsutter Route would not meet the purpose and need of the proposed rail line and did not consider the route further. The 2019-2020 Coalition Reports reevaluated the Wamsutter Route and concluded, in the second-level screening, that the route would not be logistically feasible to construct and operate while maintaining a maximum grade of 2.5 percent. OEA reviewed the available information and concluded that the Wamsutter Route is not a reasonable alternative because, to maintain a safe maximum grade, the route would require extensive tunneling, extensive embankment construction on steep slopes, and numerous stream crossings in narrow canyons, all of which would substantially increase the risk of derailment and accidents, the costs associated with construction and operation, and the potential for significant environmental impacts.

2.2.2.18 De Beque Route

The De Beque Route would extend approximately 200 miles from terminus points in the Basin to a connection with an existing UP rail line near De Beque, Colorado. From the Basin, the route would head east toward and along the existing DPR into Colorado before following Piceance Creek, Willow

Creek, and West Willow Creek south toward the Book Cliffs. It would then continue south along Tom Creek, Clear Creek Road, County Road 204, and Roan Creek toward the rail connection near De Beque.

The 2014-2015 UDOT Studies concluded that the De Beque Route met the basic engineering criteria in its first-level screening, but in its second-level screening found that the route would likely result in disproportionate impacts on the natural and built environments. The 2019-2020 Coalition Reports reevaluated the De Beque Route and concluded, in the second-level screening, that the route would not be logistically feasible to construct and operate while maintaining a maximum grade of 2.5 percent. OEA reviewed the available information and concluded that the De Beque Route is not a reasonable alternative because, to maintain a safe maximum grade, the route would require extensive tunneling, extensive embankment construction on steep slopes, and numerous stream crossings in narrow canyons, all of which would substantially increase the risk of derailment and accidents, the costs associated with construction and operation, and the potential for significant environmental impacts.

2.2.2.19 Parachute-Piceance Creek Route

The Parachute-Piceance Creek Route would extend approximately 194 miles from terminus points in the Basin to a connection with an existing UP rail line near Parachute, Colorado. From the Basin, the route would head east toward and along the existing DPR into Colorado before following CO 64 and Piceance Creek. It would then turn south and follow

County Road 215 and the existing American Soda Rail Spur toward Parachute.

The 2014-2015 UDOT Studies conducted by UDOT concluded that the Parachute-Piceance Creek Route would be logistically infeasible to construct due to a maximum grade of 2.5 percent, which is in excess of the criterion of 2.4 percent set in those studies. The 2019–2020 Coalition Reports reevaluated the Parachute-Piceance Creek Route and concluded, in the second-level screening, that the route would not be logistically feasible to construct and operate while maintaining a maximum grade of 2.5 percent. OEA reviewed the available information and concluded that the Parachute-Piceance Creek Route is not a reasonable alternative because, in order to maintain a safe maximum grade, the route would require extensive tunneling, extensive embankment construction on steep slopes, and numerous stream crossings in narrow canyons, all of which would substantially increase the risk of derailment and accidents, the costs associated with construction and operation, and the potential for significant environmental impacts.

2.2.2.20 West Rifle Route

As described in the 2014-2015 UDOT Studies, the West Rifle Route would extend east and southeast approximately 202 miles from terminus points in the Basin to a connection with an existing UP rail line near Rifle, Colorado. UDOT concluded that the West Rifle Route would be logistically infeasible to construct due to a ruling grade of 2.5 percent, which is in excess of the criterion of 2.4 percent set in the 2014-2015 UDOT Studies.

In the 2019-2020 Coalition Reports, the Coalition revised the West Rifle Route to include new terminus points within the Basin. The revised West Rifle Route would be approximately 201.6 miles long, of which approximately 136.9 miles would traverse open terrain. The remaining mileage would cross rugged terrain characterized by mountains and deep valleys. Due to the substantial length of the West Rifle Route and the difficult terrain that it would cross, the Coalition concluded that the West Rifle Route would not be economically feasible to construct and operate. For the purpose of comparison, the Coalition estimated that the West Rifle Route would cost approximately 2.67 billion dollars to construct, which is more than twice the estimated construction cost of the least-cost route. Desktop analysis conducted by the Coalition concluded that the West Rifle Route would also cross a greater number of water bodies and would affect a greater area of wetlands than other routes under consideration.

OEA reviewed the available information and concluded that the West Rifle Route is not a reasonable alternative because the construction and maintenance costs associated with the route's substantial length, as well as the extensive regrading, tunneling, and numerous bridges and other structures that would be required, would make the route impractical to construct and operate. OEA also concluded that, like the Craig Route, the West Rifle Route would result in disproportionately significant environmental impacts, including visual, noise, and air quality impacts on DNM and water quality impacts on the Green River related to the proposed crossing of that river.

2.2.2.21 Parachute-RioBlanco

Pass Route The Parachute-RioBlanco Pass Route would extend approximately 174 miles from terminus points in the Basin to a connection with an existing UP rail line near Parachute, Colorado. From the Basin, the route would head east toward and along the existing DPR into Colorado before following CO 64 to Meeker, Colorado. It would then turn south along CO 13 and would follow East Middle Fork Parachute Creek, County Road 215, and the existing American Soda Rail Spur toward the rail connection near Parachute.

The 2014–2015 UDOT Studies concluded that the Parachute-RioBlanco Pass Route would be logistically infeasible to construct due to a maximum grade of 2.5 percent, which is in excess of the criterion of 2.4 percent set in those studies. The 2019-2020 Coalition Reports reevaluated the Parachute-RioBlanco Pass Route and concluded, in the second-level screening, that the route would not be logistically feasible to construct and operate while maintaining a maximum grade of 2.5 percent. OEA reviewed the available information and concluded that the Parachute-RioBlanco Pass Route is not a reasonable alternative because, to maintain a safe maximum grade, the route would require extensive tunneling, extensive embankment construction on steep slopes, and numerous stream crossings in narrow canyons, all of which would substantially increase the risk of derailment and accidents, the costs associated with construction and operation, and the potential for significant environmental impacts.

2.2.2.22 East Rifle Route

As described in the 2014-2015 UDOT Studies, the East Rifle Route would extend generally east and south approximately 200 miles from terminus points in the Basin to a connection with an existing UP rail line near Rifle, Colorado. UDOT concluded that the East Rifle Route would be logistically infeasible to construct due to a maximum grade of 2.5 percent, which is in excess of the criterion of 2.4 percent set in the 2014-2015 UDOT Studies.

In the 2019-2020 Coalition Reports, the Coalition revised the East Rifle Route to accommodate new terminus points in the Basin. The revised East Rifle Route would be approximately 196.8 miles long, of which approximately 132.1 miles would traverse open terrain. The remaining mileage would cross rugged terrain characterized by mountains and deep valleys. Due to the substantial length of the East Rifle Route and the difficult terrain that it would cross, the Coalition concluded that the route would not be economically feasible to construct and operate. For the purpose of comparison, the Coalition estimated that the East Rifle Route would cost approximately 2.63 billion dollars to construct, which is more than twice the estimated construction cost of the least-cost route. Desktop analysis conducted by the Coalition concluded that the East Rifle Route would also have greater potential for significant environmental impacts relative to other routes under consideration.

OEA reviewed the available information and concluded that the East Rifle Route is not a reasonable alternative because the construction and maintenance costs associated with the route's substantial length, as well as the extensive regrading, tunneling, and numerous bridges and other structures that would be required, would make the route impractical to construct and operate. OEA also concluded that, like the Craig Route, the East Rifle Route would result in disproportionately significant environmental impacts, including visual, noise and air quality impacts on DNM and water quality impacts on the Green River related to the proposed crossing of that river.

2.2.2.23 Newcastle Route

The Newcastle Route would extend approximately 203 miles from terminus points in the Basin to a connection with an existing UP rail line near Newcastle, Colorado. From the Basin, the route would head east toward and along the existing DPR into Colorado before following CO 64 to Meeker, Colorado. It would then head south along Flag Creek and Piceance Creek and would follow West Rifle Creek and County Road 252 past Rifle Gap State Park. It would then head southeast along Elk Creek toward the rail connection near Newcastle.

The 2014-2015 UDOT Studies concluded that the Newcastle Route would be logistically infeasible to construct due to a ruling grade of 2.8 percent, which is in excess of the criterion of 2.4 percent set in those studies. The 2019-2020 Coalition Reports reevaluated the Newcastle Route and concluded, in the second-level screening, that the route would not be logistically feasible to construct and operate while maintaining a maximum grade of 2.5 percent. OEA reviewed the available information and concluded that the Newcastle Route is not a reasonable alternative because, to maintain a safe maximum grade, the route would require extensive tunneling, extensive embankment construction on steep slopes, and numerous stream crossings in narrow canyons, all of which would substantially increase the risk of derailment and accidents, the costs associated with construction and operation, and the potential for significant environmental impacts.

2.2.2.24 Westwater Route

As described in the 2014-2015 UDOT Studies, the Westwater Route would extend generally southward approximately 134 miles from terminus points in the Basin to a connection with an existing UP rail line east of Crescent Junction, Utah. UDOT concluded that the Westwater Route would meet the basic engineering criteria set for its second-level screening and would not result in disproportionate environmental impacts in its third-level screening. In its fourth-level screening, however, more detailed engineering review concluded that the Westwater Route would entail a maximum grade of 2.8 percent, which exceeds the criterion of 2.4 percent maximum grade in the 2014-2015 UDOT Studies.

In the 2019-2020 Coalition Reports, the Coalition revised the Westwater Route to accommodate new terminus points in the Basin. From the Basin, the revised route would follow Willow Creek, Kelly Canyon, and Rock Springs Canyon, then turn southeast and enter a tunnel to Preacher Canyon. It would then follow the Westwater Creek drainage along Book Cliffs Road toward the rail connection east of Crescent Junction. The revised route would extend approximately 159.7 miles, of which 94.9 miles would cross open terrain and the remainder of which would cross rugged terrain characterized by mountains and deep valleys. Due to the substantial length of the Westwater Route and the difficult terrain that it would cross, the Coalition concluded that the Westwater Route would not be economically feasible to construct and operate. For the purpose of comparison, the Coalition estimated that the Westwater Route would cost approximately 2.84 billion dollars to construct, which is well over twice the estimated construction cost of the least-cost route.

OEA reviewed the available information and concluded that the Westwater Route is not a reasonable alternative because the construction and maintenance costs associated with the route's substantial length, as well as the extensive regrading, tunneling, and numerous bridges and other structures that would be required, would make the route impractical to construct and operate.

2.2.2.25 Westwater-Seep Ridge Route

The Westwater-Seep Ridge Route would extend generally south approximately 129 miles from terminus points in the Basin to a connection with an existing UP rail line east of Crescent Junction, Utah. From the Basin, it would follow Bitter Creek Road and Middle Bitter Creek Road toward Sweetwater Canyon. From Sweetwater Canyon, it would follow East Canyon southwest to the Westwater Creek drainage and would then follow Book Cliffs Road toward the rail connection.

The 2014-2015 UDOT Studies concluded that the Westwater-Seep Ridge Route would be logistically infeasible to construct due to a maximum grade of approximately 4.8 percent, which is in excess of the criterion of 2.4 percent set in those studies. The 2019-2020 Coalition Reports reevaluated the Westwater-Seep Ridge Route and concluded, in the second-level screening, that the route would not be feasible to construct and operate while maintaining a maximum grade of 2.5 percent. OEA reviewed the available information and concluded that the Westwater-Seep Ridge Route is not a reasonable alternative because, to maintain a safe maximum grade, the route would require extensive tunneling, extensive embankment construction on steep slopes, and numerous stream crossings in narrow canyons, all of which would substantially increase the risk of derailment and accidents, the costs associated with construction and operation, and the potential for significant environmental impacts.

2.2.2.26 Cisco Route

The Cisco Route would extend generally southward approximately 141 miles from terminus points in the Basin to a connection with an existing rail line east of Crescent Junction, Utah. From the Basin, the Cisco Route would travel south and southwest through She Canyon and through a tunnel toward the junction of Cottonwood Canyon and Upper Cottonwood Canyon. It would follow Cottonwood Canyon to Cisco Springs Road and then head south toward the rail connection east of Crescent Junction.

The 2014-2015 UDOT Studies concluded that the Cisco Route would be logistically infeasible to construct due to a maximum grade of 4.0 percent, which is in excess of the criterion of 2.4 percent set in those studies. The 2019-2020 Coalition Reports reevaluated the Cisco Route and concluded, in the second-level screening, that the route would not be logistically feasible to construct and operate while maintaining a maximum grade of 2.5 percent. OEA reviewed the available information and concluded that the Cisco Route is not a reasonable alternative because, to maintain a safe maximum grade, the route would require extensive tunneling, extensive embankment construction on steep slopes, and numerous stream crossings in narrow canyons, all of which would substantially increase the risk of derailment and accidents, the costs associated with construction and operation, and the potential for significant environmental impacts.

2.2.2.27 Avintaquin Canyon Route

The Avintaquin Canyon Route would extend approximately 97 miles from terminus points in the Basin to a connect with an existing UP rail line near Soldier Summit, Utah. From the Basin, it would proceed generally westward along Strawberry River toward Avintaquin Canyon. It would then turn southwesterly and follow Avintaquin Canyon upstream to a summit tunnel through the West Tavaputs Plateau. It would then descend the Roan Cliffs toward the rail connection near Soldier Summit. The Avintaquin Canyon Route was not considered in the 2014–2015 UDOT Studies. The route was first identified in the 2019–2020 Coalition Reports, which concluded that it would not be economically feasible to construct and operate because a significant proportion of the route would traverse rugged terrain characterized by mountains and deep canyons. Construction in such terrain would require many large cut and fills, retaining walls, numerous bridges, multiple large bridges, and tunnels through mountains that are not practical to cross in the open.

Although the Avintaquin Canyon Route would cross extremely challenging terrain, its shorter length relative to some of the other conceptual routes that were assessed initially led OEA to believe that the route could be feasible to construct and operate. Therefore, OEA requested that the Coalition provide more detailed information regarding that route than what was presented in its 2019-2020 Coalition Reports. In its response to OEA's request, the Coalition clarified that the Avintaquin Canyon Route would entail unique engineering and operational challenges that would make the route logistically infeasible.[6] First, the high altitude of the route would expose the rail line to heavy snowfall that would likely make it inoperable during winter months. Reducing the altitude of the Avintaquin Canyon Route summit to a feasible altitude would require an approximate 11-mile tunnel, a feature that has never before been constructed for a modern, heavy-haul rail line. Additionally, the Avintaquin Canyon Route would require embankments constructed on steep mountain slopes that would be at extreme risk for frequent rockslides, slope failures, and embankment slips. The steep tunnels needed along the Avintaquin Canyon Route would also create the risk of track creep, which occurs when track slides downhill due to the force of uphill-moving trains. According to the Coalition, overcoming track creep on the Avintaquin Canyon Route would be particularly difficult due to the

[6] See *Coalition's Response to Information Request #4* (Coalition 2019b)

confined space of the tunnels and the relatively thin ballast section, which would have poor adhesion to the solid rock floor of the tunnel beneath the track structure.

OEA has reviewed the available information and concluded that the Avintaquin Canyon Route is not a reasonable alternative because, as described above, it would require impractically extensive regrading and tunneling, as well as requiring logistically impractical engineering features that might not be possible to construct and that, if constructed, would create unacceptable safety risks and maintenance issues during operations.

2.2.3 Alternatives Analyzed in the EIS

This section describes the route details and any anticipated permits or amendments needed from other agencies for the three Action Alternatives and No-Action Alternative. The Coalition's voluntary mitigation, found in Chapter 4, *Mitigation*, includes route location and design revisions to minimize or avoid potential impacts. All Action Alternatives would connect two terminus points near Myton, Utah and Leland Bench, Utah to an existing rail line near Kyune, Utah. The following subsections include additional details concerning project features and an overview map for each alternative showing those features. Appendix A, *Action Alternatives Supporting Information*, includes detailed map sets for each alternative illustrating project features and tables showing the same information in tabular form. Chapter 3, *Affected Environment and Environmental Consequences*, discusses specific features relevant to certain resources.

2.2.3.1 Indian Canyon Alternative

The Indian Canyon Alternative would extend approximately 81 miles from two terminus points in the Basin near Myton and Leland Bench to a connection with an existing UP rail line near Kyune (Figure 2-1). Starting at Leland Bench, approximately 9.5 miles south of Fort Duchesne, Utah, the route would proceed westward, past the South Myton Bench area, until intersecting Indian Canyon approximately 2 miles south of Duchesne, Utah. After entering Indian Canyon, the route would turn southwest and follow Indian Creek upstream toward its headwaters below Indian Creek Pass, paralleling U.S. Highway 191 (US 191) for approximately 21 miles. The Indian Canyon Alternative would use a summit tunnel to pass through the West Tavaputs Plateau near Indian Creek Pass on US 191. After emerging from the tunnel, it would descend the Roan Cliffs to reach Emma Park, an open grassy area at the base of the Roan Cliffs. The route would then run westward through Emma Park where it would split into a westbound and eastbound wye[7] configuration that would connect to the UP Provo Subdivision near the railroad timetable station at Kyune. In addition to the summit tunnel, the Indian Canyon Alternative would include two additional tunnels.

The 2014-2015 UDOT Studies concluded that this route would meet the project's purpose and need, would be feasible to construct in terms of engineering and economics, and would result in fewer significant

[7] The term *wye* refers to the Y-like formation that is created at the point where train tracks branch off the mainline to continue in different directions.

impacts on the natural and built environment than other conceptual routes. The 2019-2020 Coalition Reports also concluded that the route would be feasible to construct and operate and would not result in disproportionate environmental impacts relative to other routes. Among all of the conceptual routes that have been considered for the proposed rail line, the Indian Canyon Alternative would be the shortest in length at approximately 81 miles and would entail the lowest estimated construction cost at approximately 1.29 billion dollars. Because it would be logistically and economically feasible to construct and operate and because it would not present unreasonable challenges related to engineering, economics, or disproportionately significant environmental impacts, OEA concluded that the Indian Canyon Alternative is a reasonable alternative and has analyzed it in detail in this ~~Draft~~ EIS.

The Indian Canyon Alternative would cross 12 miles of National Forest System land within Ashley National Forest. If the Board were to authorize this alternative, the Coalition would have to seek U.S. Forest Service (Forest Service) approval for permitting the rail line right-of-way, which could include amending the Ashley Forest Plan with a project-specific amendment in the areas of visual quality and scenery management, pursuant to the requirements of the 2012 Planning Rule (36 C.F.R. Part 219). With the exception of the project-specific amendment for visual quality and scenery management, the Indian Canyon Alternative would be consistent with the Ashley Forest Plan. The project-specific amendment would include the following language:

> The plan amendment adds the following to the Forest Plan Standard and Guideline for Objective 9 for Recreation under IV. Forest Management Direction, C. Goals, Objectives, Standards and Guidelines by Management Area (Forest Plan, page IV-19): This standard and guideline does not apply to the Uinta Basin Railway Project (ROD, [date]).

Because the Indian Canyon Alternative would cross through inventoried roadless areas in Ashley National Forest, review and approval by the Regional Forester would have to be completed to ensure consistency with the 2001 Roadless Area Conservation Rule (36 C.F.R., Part 294, Subparts A and B).

The Indian Canyon Alternative would also cross 2.5 miles of BLM land administered by the BLM Vernal Field Office, Price Field Office, and Salt Lake Field Office. Therefore, if the Board were to authorize this alternative, the Coalition would have to seek and obtain a right-of-way permit across BLM-administered public lands, pursuant to 43 C.F.R. Part 2800, before beginning construction. The issuance of a right-of-way would also be subject to the requirements of applicable BLM RMPs, including the Vernal Field Office RMP, Price Field Office RMP, and Pony Express RMP. As proposed, the Indian Canyon Alternative would not be in compliance with greater sage-grouse noise thresholds in the Price Field Office RMP and Pony Express RMP, as amended by the Utah Greater Sage-Grouse Approved RMP Amendment/Record of Decision (2015). In addition, the Indian Canyon Alternative would exceed the ground disturbance cap for greater sage-grouse in the Price Field Office RMP and Pony Express RMP. BLM would need to amend these plans to issue a right-of-way grant for the Indian Canyon Alternative.

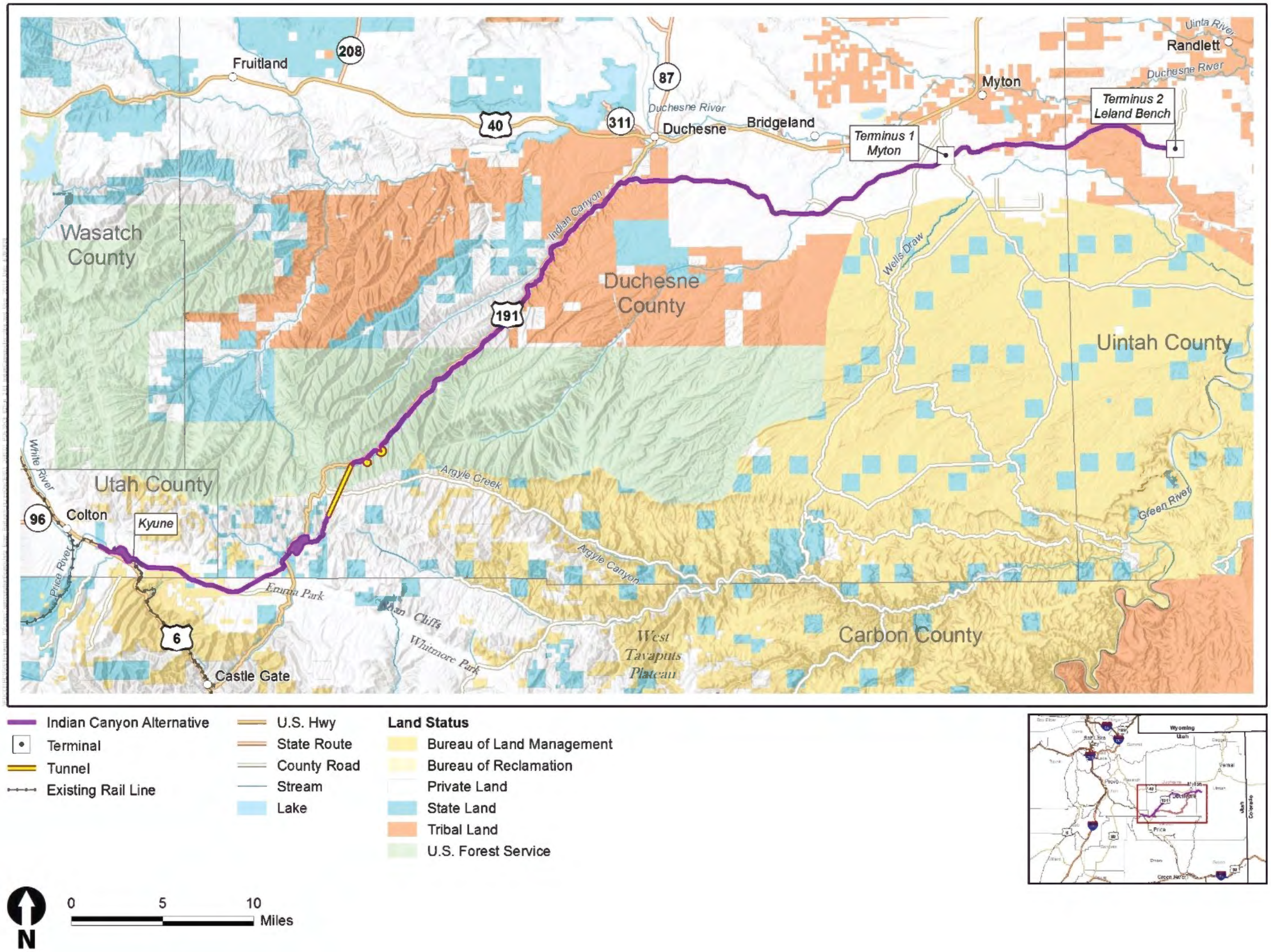
The Indian Canyon Alternative would also cross 8.1 miles of Tribal trust lands in the Uintah and Ouray Reservation. If the Board were to authorize this alternative, the Coalition would have to seek and obtain a consent resolution from the Ute Indian Tribe and a grant of easement for right-of-way or leases, if necessary, from the Bureau of Indian Affairs (BIA) before beginning construction.

In addition to Forest Service, BLM-administered, and Tribal trust lands, the Indian Canyon Alternative would also cross lands managed by the state of Utah and private land. If the Board were to authorize this alternative, the Coalition would be responsible for obtaining the necessary rights to construct and operate a new rail line on those lands.

Figure 2-1. Indian Canyon Alternative

(see foldout on next page)

Figure 2-1. Indian Canyon Alternative



2.2.3.2 Wells Draw Alternative

The Wells Draw Alternative would extend approximately 103 miles from two terminus points in the Basin near Myton and Leland Bench to an existing UP rail line near Kyune (Figure 2-2). The lines from the two terminus points would meet at a junction approximately 6.5 miles south of South Myton Bench. From the junction, the Wells Draw Alternative would run southward, generally following Wells Draw toward its headwaters. After reaching the headwaters of Wells Draw, the alternative would turn westward and enter Argyle Canyon. It would remain on the north wall of Argyle Canyon for approximately 25 miles, eventually reaching the floor of the canyon near the headwaters of Argyle Creek. The Wells Draw Alternative would then enter a summit tunnel through the West Tavaputs Plateau. The location of the summit tunnel's west portal would be similar to the Indian Canyon's summit tunnel west portal, but its east portal would be located in the upper reaches of Argyle Canyon instead of the upper reaches of Indian Canyon. After emerging from the tunnel, the Wells Draw Alternative would descend the Roan Cliffs to reach Emma Park. It would then run westward through Emma Park where it would split into a westbound and eastbound wye configuration that would connect to the UP Provo Subdivision near Kyune. In addition to the summit tunnel, the Wells Draw Alternative would include 12 additional tunnels.

The Wells Draw Alternative was not considered in the 2014–2015 UDOT Studies. The Coalition first identified the route prior to issuing the 2019–2020 Coalition Reports, which concluded that the Wells

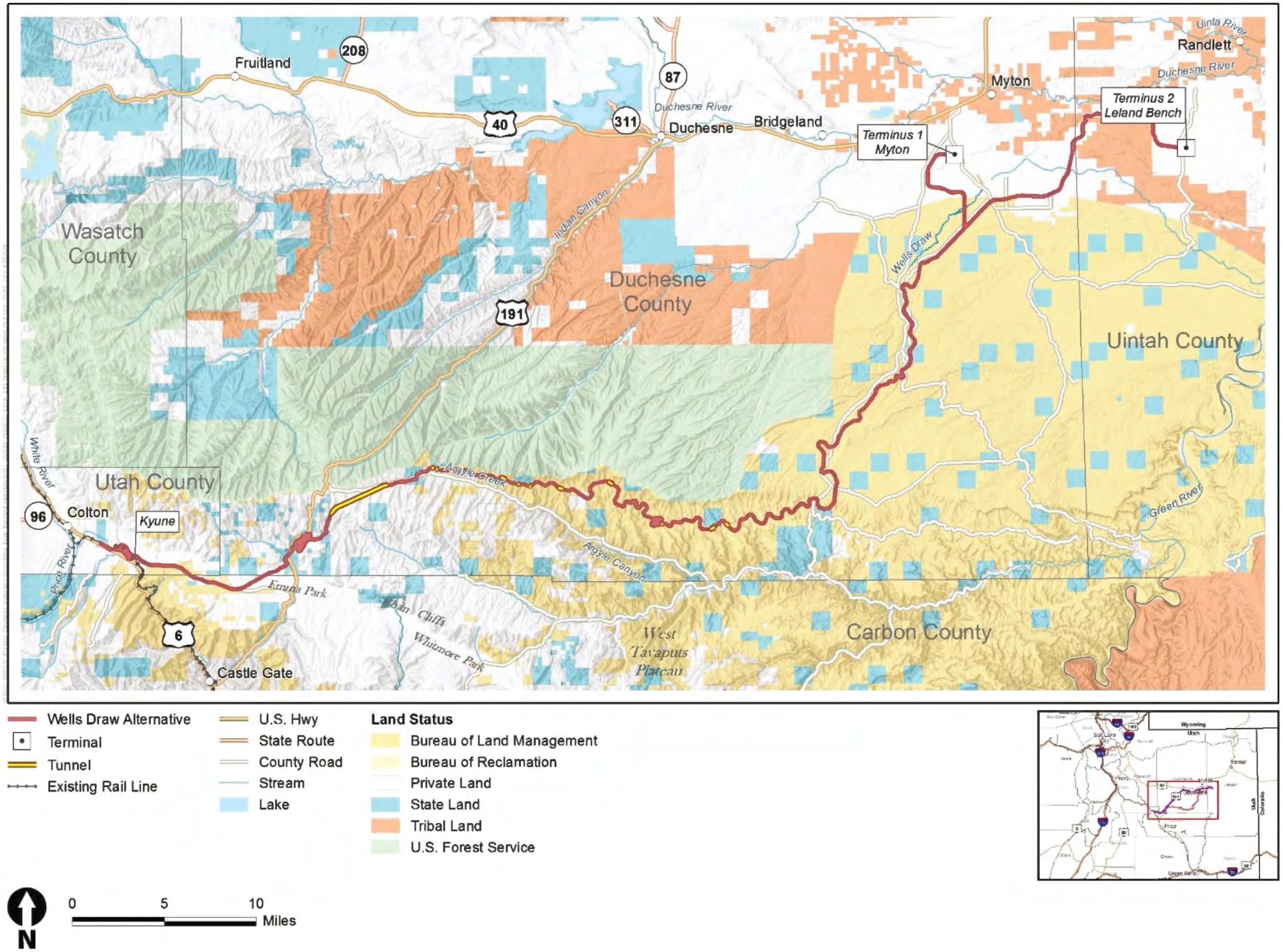
Draw Alternative would be technically and economically feasible to construct and operate. The Wells Draw Alternative would traverse primarily moderate terrain, characterized by foothills and incised river valleys, as well as some rugged terrain comprising mountains and deep valleys. Construction of this alternative would require numerous bridges, many large areas of cut-and-fill, and 13 tunnels of varying length. The Wells Draw Alternative would, therefore, have a much higher construction cost than the Indian Canyon Alternative at 2.14 billion dollars. However, the available information indicates that the alternative would not require features that would present unreasonable engineering challenges or significant safety or operational risks. Because it would be logistically and economically feasible to construct and operate and because it would not present unreasonable challenges related to engineering, economics, or disproportionately significant environmental impacts, OEA concluded that the Wells Draw Alternative is a reasonable alternative and has analyzed it in detail in this ~~Draft~~ EIS.

The Wells Draw Alternative would cross 57.2 miles of land managed by the BLM Vernal Field Office, Price Field Office, and Salt Lake Field Office. If the Board were to authorize this alternative, the Coalition would have to seek and obtain a right-of-way permit across BLM-administered lands, pursuant to 43 C.F.R. Part 2800, before beginning construction. The issuance of a right-of-way would be subject to the requirements of the BLM Vernal Field Office RMP, Price Field Office RMP, and Pony Express RMP. As proposed, the Wells Draw Alternative would not be in compliance with greater sage-grouse noise thresholds in the Price Field Office RMP and Pony Express RMP, as amended by the Utah Greater Sage-Grouse Approved RMP Amendment/Record of Decision (2015). In addition, the Wells Draw Alternative would exceed the ground disturbance cap for greater sage-grouse in the Price Field Office RMP and Pony Express RMP. BLM may also need to amend the Vernal Field Office RMP based on where the Wells Draw Alternative crosses BLM Visual Resource Management Class II land and the Lears Canyon Area of Critical Environmental Concern.

Figure 2-2. Wells Draw Alternative

(see foldout on next page)

Figure 2-2. Wells Draw Alternative



In addition to BLM-administered land, the Wells Draw Alternative would also cross lands managed by the state of Utah and private land. If the Board were to authorize this alternative, the Coalition would be responsible for obtaining the necessary rights to construct and operate a new rail line on those lands. The Wells Draw Alternative would not cross Forest Service land or Tribal trust lands. Although the Wells Draw Alternative would not cross Tribal trust lands, the Wells Draw Alternative would affect lands and resources under the regulatory jurisdiction of the Ute Indian Tribe and likely cross Indian country lands within tribal jurisdiction as defined in Ute Indian Tribe v. Utah, 773 F.2d 1087 (10th Cir. 1985) and Ute Indian Tribe of the Uintah and Ouray Reservation v. State of Utah, 114 F.3d 1513 (10th Cir. 1997).

2.2.3.3 Whitmore Park Alternative (Coalition's Preferred Alternative)

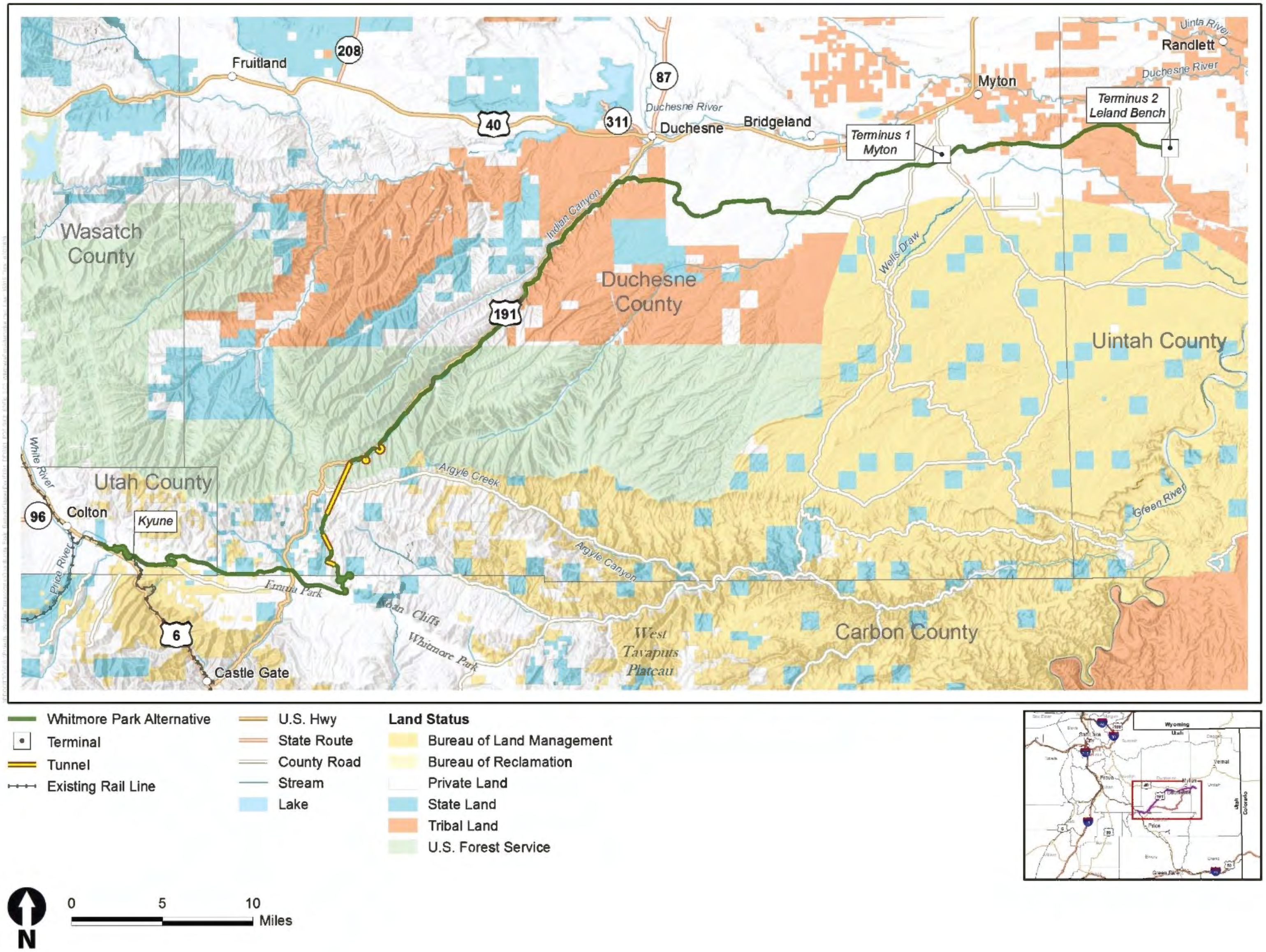
The Whitmore Park Alternative would extend approximately 88 miles from terminus points in the Basin near Myton and Leland Bench to an existing UP rail line near Kyune (Figure 2-3). This alternative would overlap for much of its length with the Indian Canyon Alternative. Approximately 23 miles west of the terminus point near Leland Bench, the Whitmore Park Alternative would diverge from the Indian Canyon Alternative, heading south to avoid the residential Mini Ranches area near Duchesne, Utah. It would then continue west to Indian Canyon and turn southwest to follow Indian Creek, paralleling US 191. Like the Indian Canyon Alternative, the Whitmore Park Alternative would use a summit tunnel to pass through the West Tavaputs Plateau near Indian Creek Pass on US 191. After emerging from the tunnel, the Whitmore Park Alternative would again diverge from the Indian Canyon Alternative to head south and southeast on its descent from the Roan Cliffs. After reaching Emma Park, it would follow Whitmore Park Road westward, cross US 191, and continue west along Quarry Road and Emma Park Road where it would split into a westbound and eastbound wye configuration that would connect to the UP Provo Subdivision near Kyune. In addition to the summit tunnel, the Whitmore Park Alternative would include four additional tunnels.

The Whitmore Park Alternative was not considered in the 2014-2015 UDOT Studies or in the 2019-2020 Coalition Reports. The Coalition developed the alternative during the scoping process in response to comments that OEA received from federal, state, and local agencies; tribes; other affected stakeholders; and the public, as well as additional outreach and consultation that the Coalition conducted. According to the Coalition, the Whitmore Park Alternative was developed specifically to avoid or minimize impacts on the natural and built environments, including residences in the Mini Ranches area near Duchesne and known greater sage-grouse leks in the Carbon Sage-Grouse Management Area. Although it would entail a construction cost of approximately 1.35 billion dollars, which is approximately 60 million dollars higher than the Indian Canyon Alternative, the Coalition has identified the Whitmore Park Alternative as its preferred alternative.

Figure 2-3. Whitmore Park Alternative

(see foldout on next page)

Figure 2-3. Whitmore Park Alternative



The Whitmore Park Alternative would cross 12 miles of Forest Service land within Ashley National Forest. If the Board were to authorize this alternative, the Coalition would have to seek Forest Service approval for permitting the rail line right-of-way, which could include amending the Ashley ~~National~~ Forest Plan with a project-specific amendment in the areas of visual quality and scenery management, pursuant to the requirements of the 2012 Planning Rule. With the exception of the project-specific amendment for visual quality and scenery management, the Whitmore Park Alternative would be consistent with the Ashley Forest Plan. The project-specific amendment would include the following language:

> The plan amendment adds the following to the Forest Plan Standard and Guideline for Objective 9 for Recreation under IV. Forest Management Direction, C. Goals, Objectives, Standards and Guidelines by Management Area (Forest Plan, page IV-19): This standard and guideline does not apply to the Uinta Basin Railway Project (ROD, [date]).

Because the Whitmore Park Alternative would cross through inventoried roadless areas in Ashley National Forest, review and approval by the Regional Forester would have to be completed to ensure consistency with the 2001 Roadless Area Conservation Rule.

The Whitmore Park Alternative would also cross 8.1 miles of Tribal trust lands in the Uintah and Ouray Reservation. If the Board were to authorize this alternative, the Coalition would have to seek and obtain a consent resolution from the Ute Indian Tribe and a grant of easement for right-of-way or leases, if necessary, from BIA before beginning construction.

In addition to Forest Service and Tribal trust lands, the Whitmore Park Alternative would also cross lands managed by the state of Utah and private land. If the Board were to authorize this alternative, the Coalition would be responsible for obtaining the necessary rights to construct and operate a new rail line on those lands. The Whitmore Park Alternative would not cross BLM-administered lands.

2.2.3.4 No-Action Alternative

Under the No-Action Alternative the Board would not license the Coalition to construct and operate the proposed rail line. The Coalition would not construct the proposed rail line and the quality of the human environment would not change from current conditions.

*   *   *

Section 3.2 Excerpts, *Unita Basin Railway, Final Environmental Impact Statement*, STB Docket No. FD 36284 (Aug. 2021)

3.2.1.3 Analysis Methods

OEA used the following methods to analyze potential impacts related to rail operations safety. This subsection describes the methods OEA used to determine the potential likelihood of rail accidents, including collisions, derailments, and spills and fires resulting from accidents during rail operations. As discussed in Chapter 2, *Proposed Action and Alternatives*, operations at the terminus points in the Basin are not part of the proposed action and are covered in the cumulative impacts analysis (Section 3.15, *Cumulative Impacts*).

OEA identified potential accidents that could occur during rail operations and estimated both the likelihood of occurrence (the frequency) and the potential impacts of potential accidents, including spills of crude oil or other bulk liquids. OEA conducted a separate analysis for each of the Action Alternatives to develop representative frequencies and potential impacts associated with a set of representative release scenarios in the study area and the selected downline areas. The resulting estimates are most meaningful when compared to each other, as opposed to considering them as predicting absolute frequencies or potential impacts.

Estimating the chance of a release from a rail accident is a two-part process. The first part is to estimate the chance that a train will be involved in an accident, particularly a derailment or collision. The second part is to estimate the chance of a release given the occurrence of the accident, including both the probability that one or more tank cars will be damaged or derailed and that those cars will release some or all of their cargo. The number of cars derailing and releasing product determines the ultimate spill size. The purpose of the analysis was to estimate the relative likelihood of different types of potential accidents, not to make predictions of the potential for various impacts occurring in specific locations.

OEA's specific analysis process included the following. Appendix E, Rail Accident Rates, provides additional information regarding the analysis process.

- **OEA considered the railroad operations safety context.** The context includes applicable FRA track safety standards (49 C.F.R. Part 213) and the types of railroad cars that could be used on the proposed rail line, particularly for crude oil. OEA also considered specific design features, such as sidings, which would allow loaded and empty trains to effectively pass each other and could create conditions for collisions if safety systems were to fall.
- **OEA estimated the potential for project-related rail accidents.** OEA used available FRA data on accidents by track type, as well as other estimates of accident rates by track class, to assess the potential for collisions and derailments on the proposed rail line. For the proposed rail line, OEA used a predicted accident rate of 2 per million train miles; for the downline study area, OEA used a predicted accident rate ranging from 0.5 to 2 per million train miles depending on track class (Appendix E, *Rail Accident Rates*). The number of

accidents on the proposed rail line would depend on the number of trains that would move on the line. 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. OEA estimated accident frequencies separately for the high rail traffic scenario and the low rail traffic scenario. OEA also estimated accident frequencies separately for trains carrying loaded and unloaded rail cars under each of the Action Alternatives.

- **OEA estimated the likelihood and volume of possible crude oil spills.** Because the proposed rail line is anticipated to primarily transport crude oil, OEA focused on this commodity in its analysis of potential spills. OEA estimated the probability of crude oil releases (spills) and the amount of crude oil that could be released based on the anticipated rail car types and numbers of cars per train, as well as previous studies and models of spill probabilities for other rail projects in a number of industries. OEA did not assess the possibility of releases of other commodities in detail because OEA anticipates that the volumes of commodities other than crude oil would be low. As described in Chapter 2, *Proposed Action and Alternatives*, other commodities would be transported in manifest rail cars added to the oil trains and would not require dedicated trains.

3.2.2 Affected Environment

This subsection identifies the existing environmental conditions related to rail operations safety in the study areas. In 2019, there were 1,869 train accidents across all track types and across all railroads; 607 of these were on main lines or sidings (FRA 2020). There are no rail operations at present within the project study area, so there is no baseline for rail operations safety in that study area. For the downline study area, there are existing main line operations that provide a baseline for rail safety impacts.

Table 3.2-1 provides the rail traffic and predicted accidents per year for the downline segments that OEA included in its analysis. OEA analyzed the baseline traffic using the same accident rates as for the traffic that would originate or terminate on the proposed rail line.

Table 3.2-1. Downline Segment Rail Traffic and Predicted Accidents per Year

Downline Segment[a]	Miles[a]	Distance from Kyune	Trains per Day[a]	Predicted Accidents per Year[b]
Kyune to Denver				
Kyune to Grand Junction	189.4	0–189.4	8	1.1
Grand Junction to Denver	268	189.4–457.4	11	0.54
Denver Eastbound	**59**	**460.6–519.6**	**3**	**0.032**
Denver Southbound				
Southbound-a	12.4	268–280.4	38	0.086
Southbound-b	4.2	280.4–284.6	20	0.015
Denver Northbound				
Northbound-a	27.2	460.6–487.8	14	0.069
Northbound-b	42	487.8–529.8	10	0.077
Denver East/North	**3.2**	**457.4–460.6**	**25**	**0.015**

Notes:
[a] Miles and train counts derived from the downline analysis.
[b] Accidents were calculated as part of this analysis.

3.2.3 Environmental Consequences

This subsection discusses potential impacts on rail operations safety that would be the same across the three Action Alternatives.

Project Study Area

Predicted Accidents

Based on accident rates on existing rail lines that are similar to the proposed rail line, OEA predicts that rail accidents would be uncommon under any of the Action Alternatives. Depending on the rail traffic volume and which Action Alternative was constructed, OEA predicts that an accident involving a loaded oil train would occur approximately once every 3 to 10 years. These accidents would not all be serious—some might involve derailments of a few rail cars and no release of crude oil, while others could involve more derailed cars and could release crude oil into the environment. Accidents involving trains carrying unloaded oil tanker cars would involve limited, if any, crude oil releases regardless of the number of cars that derailed. To minimize the likelihood and consequences of accidents during rail operations, the Coalition is volunteering mitigation (VM-1, VM-15) to ensure that train operators using the rail line would comply with the requirements of the Hazardous Materials Transportation Act, as implemented by the U.S. Department of Transportation, and with FRA safety requirements, including any applicable speed limits and train-lighting requirements. In addition, OEA is recommending a mitigation measure (ROS-MM-2) that would require the Coalition to inspect, as part of their routine rail inspections or at least twice annually, both track geometry and local terrain conditions. Implementation of this measure would minimize the potential for problems with the track or track bed that could potentially lead to accidents.

Accident Consequences

If an accident were to occur along the proposed rail line, there could be a variety of possible outcomes. A minor accident might involve the derailment of a single rail car and no release of crude oil, while a major accident might involve multiple cars or trains and could cause injuries or fatalities to workers or passengers on the train or the trains involved. On existing rail lines, major accidents that result in spills, injuries, or fatalities are much less likely than minor accidents, and OEA expects that the same would be true for the proposed rail line. Because OEA predicts that accidents would be equally likely to occur for loaded trains leaving the Basin and empty trains entering the Basin, only half of the predicted accidents would involve loaded trains with the potential to release any quantity of crude oil. For those derailment accidents involving loaded trains, most would result in the derailment of only a few cars, and only one in four of those accidents would be expected to have a release of crude oil (Appendix E, *Rail Accident Rates*, provides additional information on the typical sizes of derailments).

Accidents involving a loaded oil train could result in several different outcomes and associated consequences, depending on the force of the collision or derailment, the location of the accident, and the number of train cars involved. If an accident were to release crude oil near a waterway, crude oil could enter the waterway, which would affect water quality.

If the force of the accident were sufficient to ignite the crude oil, a fire could result that could remain confined to a single car or could surround other cars and cause them to rupture if the thermal protection[1] on the other cars were breached or damaged. A fire that surrounds other cars could, in turn, cause a larger fire. In general, the greater the potential damage of an accident, the lower the likelihood that such an accident would occur because more concurrent factors (such as the spill being larger, ignition occurring, and the accident occurring in a sensitive area) would have to be involved.

For a smaller release (e.g., minor collision or derailment with spills equivalent to one to three rail cars), there is a chance of ignition; however, OEA expects that most spills of this size would not cause a fire because the force of the accident would not be strong enough to cause ignition (Appendix E, *Rail Accident Rates*). Of those smaller releases that could result in a fire, the fire could engulf or affect other rail cars. As the material in adjacent rail cars heats up, the pressure would build and could eventually cause other rail cars to fail. The likelihood of this occurring would depend on the exact configuration of the release and the fire compared to the location of the other rail cars after the derailment, any fire suppression capabilities, and the timing and nature of response actions. Thus, there is a chance of a small spill

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[1] Thermal protection increases the chance of rail cars staying intact in the event of exposure to a fire, whether a nearby pool fire if a spill on the ground is ignited or a jet fire from a smaller hole in an adjacent car. Jacketed thermal protection adds both strength to the car and protection of the insulating material.

escalating into a larger spill due to a fire. For larger spills (e.g., spills involving five or more loaded rail cars), the likelihood of an accident having sufficient energy to yield an ignition would be greater, i.e., closer to 50 percent or more (Appendix E, *Rail Accident Rates*). The additional number of cars that would be derailed in the accident and the additional amount of material that would be released would increase the likelihood that ignited cars would affect other rail cars and cause a larger fire.

To ensure that the consequences of a potential accident would be minimized, the Coalition is committing to developing an internal Emergency Response Plan for operations on the proposed rail line. The plan would include a roster of agencies and people to be contacted for specific types of emergencies during rail operations and maintenance activities, procedures to be followed by particular rail employees in the event of a collision or derailment, emergency routes for vehicles, and the location of emergency equipment (VM-8). In addition, the Coalition's voluntary mitigation measure (VM-14) and OEA's recommended measure (ROS-MM-1) would require the Coalition to would immediately notify state and local authorities in the event of a release of crude oil and to immediately commence cleanup actions in compliance with federal, state, and local requirements (VM-8, VM-9). If these recommended mitigation measures are implemented, OEA concludes that impacts related to rail operations safety would not be significant.[2]

[2] These requirements are similar to those for unit trains of more flammable crude oil (http://dothazmat.vividlms.com/docs/

Downline Study Area

Impacts on the downline segments would depend on the length of the downline segment and the number of trains that would use the segment. Increased rail traffic would have the greatest impacts on the segment of the existing UP rail line between Kyune and Denver because this segment is the longest existing rail line segment in the downline study area and would receive the most new rail traffic if the proposed rail line were constructed. Under the high rail traffic scenario, the Kyune to Denver segment would experience more than two times the risk of an accident than under baseline (existing) conditions, and the low rail traffic scenario would increase the predicted accident risk by about 40 percent from the baseline risk. This is because the Kyune to Denver segment currently has a low volume of rail traffic relative to the predicted traffic on the proposed rail line.

Table 3.2-2 presents the predicted frequencies of accidents on the downline segments. Any potential increase in rail traffic on existing rail lines in the downline study area would depend on the volume of rail traffic originating or terminating on the proposed rail line. The volume of rail traffic on the proposed rail line would depend, in turn, on future market conditions, such as future demand for crude oil produced in the Basin. Because the volume of rail traffic on the proposed rail line would not depend on which Action Alternative is constructed, the predicted

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Emergency-Response/TRIPR%20HHFT%20ER%20Supplement %20(Rev%209.3).pdf).

impacts on downline segments are the same for all of the Action Alternatives. The table shows predicted accidents for loaded and unloaded trains separately, along with those for baseline (existing) traffic.

Table 3.2-2. Predicted Annual Train Accidents by Downline Segment

Table 3.2-2. Predicted Annual Train Accidents by Downline Segment

Downline Segment	Length (miles)	Predicted Accidents per Year: Baseline	High Rail Traffic-loaded	High Rail Traffic-unloaded	Low Rail Traffic-loaded	Low Rail Traffic-unloaded
Kyune to Denver	457.4	1.6	0.89	0.89	0.31	0.31
Denver Eastbound	59	0.032	0.0059	0.0059	0.0022	0.0022
Denver Southbound	16.6	0.10	0.0017	0.0017	0.00061	0.00061

Downline Segment	Length (miles)	Predicted Accidents per Year: Baseline	High Rail Traffic-loaded	High Rail Traffic-unloaded	Low Rail Traffic-loaded	Low Rail Traffic-unloaded
Denver Northbound	69.2	0.15	0.046	0.046	0.016	0.016
Denver East/North	3.2	0.015	0.0025	0.0025	0.00085	0.00085

Table 3.2-2 shows that the predicted accident risk involving trains coming from or heading to the proposed rail line would be lower than the baseline accident risk on all downline segments except for the Kyune to Denver segment. Aside from that segment, the chance of an accident involving a loaded crude oil train would be low on an annual basis. On the Kyune to Denver segment, OEA predicts that accidents involving a loaded crude oil train would occur slightly less than once per year under the high rail traffic scenario. Because downline impacts would occur on existing rail lines that are not owned or operated by the Coalition, and railroads have the right to determine how to operate and route their traffic, any potential increase in the risk of accidents in the downline study area would be beyond the Board's control in this proceeding; therefore, OEA is not

recommending mitigation to address this potential impact.

3.2.3.2 Impact Comparison between Action Alternatives

This subsection compares the potential environmental impacts related to rail operations safety across the three Action Alternatives.

If the proposed rail line were authorized and constructed, OEA estimates that rail operations would result in 0.2 to 0.72 predicted train accidents per year (primarily collisions and derailments) in the project study area, depending on the Action Alternative and the volume of rail traffic. OEA predicts that approximately half of the accidents would involve loaded trains and approximately a quarter of accidents involving loaded oil trains would result in a release of crude oil (Appendix E, *Rail Accident Rates*). The chance of a major spill with or without a fire would be lower, as described in Appendix E. Table 3.2-3 shows the predicted annual number of accidents by Action Alternative and rail traffic scenario.

Table 3.2.3 Predicted Annual Train Accidents by Action Alternative

	Low Rail Traffic Scenario			High Rail Traffic Scenario		
Action Alternative	**Loaded**	**Unloaded**	**Combined**	**Loaded**	**Unloaded**	**Combined**
Indian Canyon	0.10	0.10	0.20	0.28	0.28	0.56
Wells Draw	0.12	0.12	0.24	0.36	0.36	0.72
Whitmore Park	0.11	0.11	0.22	0.30	0.30	0.60

Because the Wells Draw Alternative is the longest of the Action Alternatives, OEA predicts that it would have the highest chance of accidents (0.24 to 0.72 accident per year), followed by the Whitmore Park Alternative (0.22 to 0.60 accident per year) and the Indian Canyon Alternative (0.20 to 0.56 accident per year). Given that approximately one in four accidents involving loaded trains would result in a release of crude oil of any size, OEA predicts that rail operations under the Wells Draw Alternative would result in a spill approximately once every 11 years (under the high rail traffic scenario) to approximately once every 33 years (under the low rail traffic scenario). Under the Indian Canyon Alternative, a spill would be expected approximately once every 14 to 40 years, while OEA predicts that the Whitmore Park Alternative would experience a spill approximately once every 13 to 36 years, depending on the volume of rail traffic.

The chance of a large spill or a spill into sensitive areas such as waterways would be smaller. For example, both the Indian Canyon Alternative and the Whitmore Park Alternative would parallel Indian Canyon Creek for approximately 22 miles. Using the same per-mile accident rate, a spill of any size along Indian Canyon Creek would be expected to occur approximately once every 55 to 154 years, depending on the volume of rail traffic, under either the Indian Canyon Alternative or the Whitmore Park Alternative.

3.2.3.3 No-Action Alternative

Under the No-Action Alternative, the Coalition would not construct and operate the proposed rail line. Therefore, there would be no risk of a rail-related accident in the project study area, and the probability of a rail-related accident on existing rail lines in the downline study area would not change from current conditions.

If the proposed rail line were not constructed, crude oil produced in the Basin would continue to be transported by truck. On a per-mile basis, rail transportation is significantly safer than truck transportation. Therefore, diversion of truck transportation of freight such as crude oil to rail transportation would be a potential safety benefit of the proposed rail line. As discussed in Section 3.1, *Vehicle Safety and Delay*, OEA does not expect that the proposed rail line would divert truck transportation of crude oil to rail transportation for the purpose of serving existing oil refineries in Salt Lake City in the short term because those refineries currently do not have rail access. However, OEA anticipates that the proposed rail line would eliminate the existing tanker truck traffic transporting crude oil from production areas in the Basin to the Price River Terminal in Wellington, Utah. Under the No-Action Alternative, crude oil that currently moves to the Price River Terminal from the Basin by truck would continue to move by truck and the benefits of the proposed rail line in terms of prevented vehicular accidents would not be realized.

If oil production in the Basin were to increase in the future in response to market conditions, truck traffic on local roadways could increase under the No-Action Alternative because there would be no alternative transportation option available. This potential future increase in truck traffic would result in a greater number of vehicular accidents and decreased transportation safety under the No-Action Alternative relative to any of the Action Alternatives.

3.2.4 Mitigation and Unavoidable Environmental Effects

Operation of any of the Action Alternatives would involve a risk of potential rail-related accidents. The likelihood of an accident along the proposed rail line would depend on the volume of rail traffic, which would depend on future market conditions, including future demand for crude oil produced in the Basin. Across the three Action Alternatives, the Wells Draw Alternative would have the highest probability of experiencing accidents because of its longer length relative to the other Action Alternatives. Because the operation of rail lines inherently involves the potential for accidents, some impacts related to rail operations safety in the project study area would be unavoidable. OEA concludes, however, that these impacts would be minimized and would not be significant if the Coalition's voluntary mitigation measures, OEA's recommended mitigation measures, and all applicable federal requirements are implemented (Chapter 4, *Mitigation*)

Section 3.3 Excerpts, *Unita Basin Railway, Final Environmental Impact Statement*, STB Docket No. FD 36284 (Aug. 2021)

3.3.3 Environmental Consequences

Construction and operation of the proposed rail line could result in impacts on water resources, including surface waters, floodplains, wetlands, and groundwater. This subsection first presents the potential impacts that would be the same for all three Action Alternatives and then compares the potential impacts that would be different for each Action Alternative. For comparison purposes, this subsection also describes water resources under the No-Action Alternative. Section 3.4, *Biological Resources*, addresses impacts on fish species associated with water resources in the study area.

3.3.3.1 Impacts Common to All Action Alternatives

Surface Waters

Surface water impacts could result from construction and operation of the proposed rail line through vegetation removal, excavation, fill placement, use of equipment, and installation of surface water crossing structures (i.e., culverts and bridges). Construction and operation could result in both physical and chemical alteration of surface waters crossed by or adjacent to the proposed rail line. Potential physical alterations could include changes in sediment transport and deposition, modification of channel configuration and shape, and streamflow characteristics (e.g., volume/velocity). Potential chemical alterations from the release of pollutants into surface waters could affect water quality. The extent of physical and chemical impacts would depend on specific construction activities and their proximity to surface water, which would be determined in the final design stage of project planning. The intensity of impacts on surface water would vary between the Action Alternatives depending on the number of surface water crossings, number of bridges and culverts, number of stream realignments, presence of easily erodible soils, and presence of impaired surface waters. While the impact types and mechanisms described in this section apply to all surface water types, the potential impacts on surface waters with little or no annual flow may not be as immediate or to the same extent compared to surface waters with perennial or more frequent flows. For example, ephemeral streams are typically dry most of the year (i.e., no flow), and any construction that would occur during those dry periods would not affect flow or water quality at the time of construction, although potential impacts may occur at a later time if a precipitation event initiates temporary stream flow. The ecological and hydrological significance of ephemeral streams or streams with intermittent flows in a watershed context is well documented (e.g., USEPA 2008), but the extent of potential construction and operation impacts of the proposed rail line on these surface waters may be different than perennial streams or streams with more frequent flows.

OEA understands that the Coalition would design the proposed rail line to meet or exceed local, state, federal, and railway standards for the design of surface water crossings. The Coalition would design all culverts and bridges to clear the predicted 50-year flood event water elevation without causing a backwater increase and the predicted 100-year flood event with no more than a 1-foot backwater increase. The Coalition intends to design the proposed rail line so that existing stormwater drainage patterns would not be impeded significantly and to avoid risk of damage to the proposed rail line infrastructure (e.g., drainage impediments that would cause washouts along the rail line). The Coalition also intends to obtain a CWA Section 404 permit for any proposed filling of jurisdictional surface waters. CWA Section 404 requires that all appropriate and practicable steps be taken first to avoid and minimize impacts on aquatic resources; for unavoidable impacts, compensatory mitigation is required to replace the loss of surface waters. In assessing the potential impacts on surface waters, OEA assumed that the Coalition would implement these design and regulatory standards.

Construction

Surface Water Hydrology

Clearing, excavation, and fill-placement activities would expose soil and construction materials (e.g., subballast) to the erosive forces of wind, rain, and surface runoff. This exposure would increase sediment, erosion, and the potential for material to be transported to surface waters during rainstorms or snowmelt. Introduction of increased sediment loads to a stream system could change the sediment deposition and transport characteristics of that system, resulting in potential changes in downstream channel morphology, including a reduction in channel sinuosity,[8] increased channel gradient, and reduced pool depth (USEPA 2007).

Depending on the time of year and the level of water flow, culvert and bridge installation could require surface water alterations during construction, including temporary channel blockage or stream rerouting to isolate in-water worksites, channel straightening to achieve the proper culvert or bridge approach alignment, channel and streambank excavation and fill placement for culvert installation and bridge abutment construction, placement of bridge pilings, and placement of engineered streambank structures for erosion protection. Such activities could temporarily alter stream configuration and hydraulics, resulting in higher discharge velocities. This could cause increased streambed erosion and sediment loads, changes to stream structure, and increased transport of nutrients and other pollutants (USEPA 2007). These potential impacts would be temporary (lasting for the duration of construction) and would occur locally around the culvert and bridge installation sites.

To minimize impacts on surface water hydrology, OEA is recommending mitigation requiring the Coalition design culverts and bridges so as to maintain existing surface water drainage patterns, flow conditions, and long-term hydrologic stability and design project-related supporting structures, such as bridge piers, to minimize scour (sediment removal) and avoid increased flow velocity, to the extent

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[8] Sinuosity refers to how much a stream or river meanders across the landscape.

practicable (WAT-MM-1, WAT-MM-2, WAT-MM-4). In addition, to minimize effects on surface water flow, the Coalition has proposed voluntary mitigation that would commit the Coalition to constructing stream crossings during low-flow periods, when practical (VM-30). These mitigation measures would minimize the impact of construction activities on surface water hydrology, but some impacts would be unavoidable.

Stream Channel Realignment

Construction of any of the Action Alternatives would involve realigning stream channels. These stream realignments would occur in areas where the proposed rail line would parallel a stream and topography, existing infrastructure (e.g., highways), or rail line design standards (e.g., curvature ratio) would make it impossible to avoid the stream. Stream realignments would involve filling and abandoning segments of the stream and moving the stream channel to maintain hydrologic connectivity and stream flow. The stream realignment process typically involves designing and constructing the new stream channel prior to placement of permanent fill in the existing stream. Once construction of the new channel is completed, flow is diverted into the new channel by blocking flow into the existing stream channel. After flow is established in the new channel, the original stream is permanently filled and any stream segment outside of the rail line footprint would likely be abandoned up to the point where the new stream channel was created. If improperly designed, realigned stream channels can present a set of physical and ecological issues. Primary changes to the channel dimensions (including length/sinuosity) and materials, alongside changes to flow velocity or channel capacity, can lead to various problems, such as heightened erosion or deposition, changes in geomorphology and sediment transport dynamics downstream, hanging tributaries, vegetation loss, water quality issues, and associated ecological impacts (Flatley et. al. 2018). OEA is recommending mitigation requiring the Coalition design all stream realignments in consultation with the Corps as part of the CWA Section 404 permit compensatory mitigation plan development to ensure that affected stream functions are adequately mitigated (WAT-MM-3). In addition, the Coalition has proposed voluntary mitigation that would commit the Coalition to relocating streams using bioengineering methods and obtaining stream alteration permits (VM-29, VM-31). These mitigation measures would offset the impact of stream realignments, but some impacts would be unavoidable.

Water Quality Degradation

Clearing, excavation, and fill placement to construct the proposed rail line could degrade water quality through the erosion and transport of sediment to surface waters. Surface waters that would be crossed by the proposed rail line as well as downstream receiving surface waters would be the most directly affected. Sediment deposition into surface waters can affect water quality by increasing turbidity, which can then directly affect aquatic species and habitats, and limit the beneficial use of surface waters (e.g., recreation). Turbidity can decrease light penetration and lead to higher water temperatures because darker sediment particles absorb more heat from solar radiation, and higher water temperatures can decrease dissolved oxygen levels (USEPA 2007). Sediment deposition into surface waters can also increase pollutant and nutrient levels (e.g., phosphorous), which can alter water quality conditions. For example, excess nutrients in surface water could enhance the growth of algae, which can affect the availability of oxygen in water.

Construction would require the use of construction equipment and common construction materials (e.g., paint, concrete) that may affect water quality. The use of construction equipment could result in accidental spills or leaks of petrochemicals (e.g., gasoline, hydraulic fluids) directly into surface waters or onto the ground surface, which could reach surface waters if not contained and cleaned up. Although the risk of a major spill and contamination of surface waters is low, accidental spills of petrochemicals and construction materials could degrade surface water quality, which could adversely affect aquatic habitat or limit the beneficial use of waters (e.g., recreation). Because there are no municipal drinking water facilities in the vicinity of the project footprint, construction activities would not affect these facilities or the water used by these facilities.

Although the degradation of water quality in surface waters could occur during construction, this impact would be temporary. Any turbid surface waters caused by construction activities would return to baseline conditions once the fine sediment material settled. To minimize construction-related impacts, the

Coalition has proposed voluntary mitigation that would commit the Coalition to obtaining a Section 401 water quality certification and a National Pollutant Discharge Elimination System (NPDES) permit[9] from prior to beginning construction (VM-19, VM-21, VM-26). These permits would involve developing and implementing a stormwater pollution prevention plan (SWPPP) to prevent sediment and other contaminants from entering surface waters. The 401 water quality certification, SWPPP, and NPDES permit conditions would contain site-specific measures to avoid and minimize erosion and sedimentation and petrochemical spills that could cause water quality impacts. In addition, to minimize impacts on water quality, OEA is recommending mitigation requiring the Coalition minimize soil compaction, implement erosion prevention and sediment control best management practices, implement runoff control and conveyance best management practices, and remove construction debris in surface waters (WAT-MM-5, WAT-MM-6, WAT-MM-8). Therefore, with the permit protections and OEA-recommended mitigation, OEA does not expect long-term impacts on water quality from construction activities. Because mitigation would minimize impacts on water quality during

[9] NPDES is the permit system mandated by Clean Water Act Section 402 to control pollutants in waters of the United States. With the exception of Tribal trust lands, the U.S. Environmental Protection Agency (EPA) has delegated authority to issue NPDES permits to the state of Utah, referred to as Utah Pollutant Discharge Elimination System (UPDES) permits. On Tribal trust lands, EPA retains authority to issue NPDES permits. NPDES refers to both UPDES and NPDES permits in this section.

construction and because those impacts would occur in surface waters immediately adjacent to the proposed rail line, impacts on water quality downstream of the proposed rail line or in surface waters outside of the immediate vicinity of the proposed rail line would not be significant.

Water Quality in Section 303(d)-Listed Impaired Assessment Units

Any of the Action Alternatives would cross Section 303(d) impaired assessment units (Figure 3.3-3). Two of the assessment units—Duchesne River (2)[10] and Pariette Draw Creek—have TMDLs developed for the identified surface water impairments (Table 3.3-5). A TMDL is the maximum amount of a pollutant a surface water can receive without violating water quality standards. The remaining Section 303(d) impaired assessment units do not have TMDLs developed for the impairments identified. Impacts on impaired surface waters from construction would be the same as those described previously for all surface waters and would include impacts related to erosion and sedimentation and contaminant spills. However, as described in Water Quality Degradation, the Coalition would develop a SWPPP and obtain an NPDES permit to ensure water quality standards for all surface waters, including Section 303(d) impaired waters (with or without TMDLs), are not exceeded. The Coalition would also obtain a Section 401 water quality certification from UDWQ before issuance of a Section 404 permit and an NPDES permit. The

[10] The Duchesne River basin is split into four assessment basins. Duchesne River Assessment Basin 2 is from the confluence with Uinta River to Myton.

SWPPP, NPDES permit conditions, and Section 401 water quality certification conditions would contain site-specific measures to avoid and minimize water quality impacts, including impacts on Section 303(d)-listed impaired waters. If those conditions are implemented, OEA does not expect construction to result in long-term impacts on Section 303(d)-listed impaired waters.

Operations

Surface Water Flows

During rail operations, culverts and bridges would continue to alter channel hydraulics because both types of crossing structures would confine the flow, which could increase flow velocity (USEPA 2007). This could result in increased channel scour and erosion processes, which could lead to increased sediment loads and downstream sedimentation. Impacts caused by increased flow velocity from culverts and bridges would most likely continue until dynamic equilibrium in the stream channel is reestablished. Dynamic equilibrium refers to the natural balance that a stream maintains in terms of such characteristics as sediment size and volume, stream slope, and discharge. The installation of a culvert or bridge can disrupt the equilibrium of a stream, which triggers a process of stream adjustments and self-correcting mechanisms in order to reestablish the balance (Vermont Department of Environmental Conservation 2011). During operations, deposits of soils and debris could obstruct culverts and bridges and block flows. Such obstructions would reduce the capacity of the culvert or bridge to convey water and could lead to increased flooding near the culvert or bridge crossing.

During operations, realigned streams would continue to alter flow velocity or channel capacity, potentially leading to continued heightened erosion or deposition, and changes in geomorphology and sediment transport dynamics downstream. This would likely continue until dynamic equilibrium in the stream channel is established. OEA is recommending mitigation requiring the Coalition design all stream realignments in consultation with the Corps as part of the CWA Section 404 permit compensatory mitigation plan development to ensure that affected stream functions are adequately mitigated (WAT-MM-3). In addition, the Coalition has proposed voluntary mitigation that would commit the Coalition to relocating streams using bioengineering methods and obtaining stream alteration permits (VM-29, VM-31). These mitigation measures would offset the impact of stream realignments, but some impacts would be unavoidable.

OEA is recommending mitigation requiring the Coalition design culverts and bridges to maintain existing surface water drainage patterns, to the extent practicable, and to regularly inspect all project-related stream crossings during rail operations to ensure that those crossings are clear of debris that could cause flow blockages, flow alteration, or increased flooding (WAT-MM-1, WATMM-10). These mitigation measures would minimize the impact of culverts and bridges on surface water hydrology, but some impacts would be unavoidable.

Water Quality Degradation

Operation and maintenance activities could result in water quality impacts on surface waters. Stormwater runoff from the railbed and access road surface could transport fine-grained sediments and other pollutants from trains and maintenance vehicles into surface waters where they could alter water chemistry. Fugitive dust generated by rail operation and maintenance vehicles could also affect water quality by depositing fine sediments into surface waters. Maintenance associated with tracks, access roads, ditches, bridges, culverts, and other rail infrastructure could disturb the ground surface, require the use of chemicals (such as herbicides), or result in petroleum leaks and spills from maintenance vehicles and equipment. Such impacts typically would be limited to those portions of the proposed rail line that are near surface waters.

Rail operation could also deposit pollutants into surface waters. One of the most common types of pollutants connected with railway transport are polycyclic aromatic hydrocarbons (PAHs) (Wilkomirski et al. 2011). PAHs have middling to high toxicity impacts on aquatic life and tend to bioaccumulate in the aquatic food chain (Igwe and Ukaogo 2015). PAHs occur naturally throughout the environment in the air, water, and soil but can also be manufactured. PAHs are found in substances such as asphalt, oil, coal, and creosote (U.S. Department of Health and Human Services 1995), and can be found in the diesel fuel, oils, grease, and other fluids required for the operation and maintenance of railroad locomotives and rail cars. These fluids could drip or leak directly into surface waters through the openings on bridges and trestles, and could also be deposited onto the rail bed where they could be exposed to precipitation and storm flows that could carry them into adjacent surface waters. Most PAHs do not dissolve easily in water; they stick to solid particles and settle at the bottom of surface waters (U.S. Department of Health and Human Services 1995). Breakdown of PAHs in water generally takes weeks to months and is caused primarily by the actions of microorganisms (U.S. Department of Health and Human Services 1995). Any releases of PAHs associated with fluids for operating the proposed rail line could degrade surface water quality in the immediate vicinity of the rail line.

During operations there is a risk of rail-induced wildfires and potential soil erosion and landslides from burned areas that could result in water quality impacts. Impacts related to wildfire risk are addressed in Section 3.4, *Biological Resources*, which shows that most areas along the Action Alternatives have low wildfire risk and that rail-induced fires make up a small percentage of wildfire causes. (Landslides are addressed in Section 3.5, *Geology, Soils, Seismic Hazards, and Hazardous Waste Sites*.) The impact of a wildfire would depend on the location, the size of the area burned, precipitation regime, and season. Because fires result in removal of vegetation cover, most precipitation that falls in the burned area is converted to surface flow and moves unimpeded downslope, which can produce large amounts of sediment, ashes, and other chemical contaminants that can affect water quality (Tecle and Neary 2015).

During consultation leading to the issuance of this ~~Draft~~ EIS, some stakeholders in the field survey study area expressed concern that ground-borne vibration from trains could result in loosening and erosion of soils that could deposit in surface waters. As described in Section 3.6, *Noise and Vibration*, train-generated ground vibration is relatively low, and the damage contour for buildings extend only 5 feet from the rail line. Therefore, while soil settlement could occur due to vibration, vibration impacts would be extremely localized and any potential water quality impacts would be negligible.

To address these potential impacts, OEA is recommending mitigation requiring the Coalition implement best management practices to convey, filter, and dissipate runoff from the proposed rail line, which could include vegetated swales, vegetated filter strips, streambank stabilization, and channelized flow dissipation (WAT-MM-9). In addition, OEA is recommending geotechnical investigation to identify potential areas of mass movement or slumping and to implement engineering controls to avoid mass movement or slumping (GEO-MM-2). If those measures are implemented, OEA expects that rail operations would not significantly affect surface water quality. Because mitigation would minimize impacts on water quality during rail operations and because those impacts would occur in surface waters immediately adjacent to the proposed rail line, impacts on water quality downstream of the proposed rail line or in surface waters outside of the immediate vicinity of the proposed rail line would not be significant.

Accidents and Spills of Hazardous Materials

The Coalition anticipates rail traffic on the proposed rail line would primarily consist of trains transporting crude oil and frac sand. Train accidents or derailments could cause train~~tanker~~ cars to rupture or overturn and spill crude oil or frac sand into the environment. The Coalition has also indicated that the other products could move on the rail line, though the volume of these products would be very low. Therefore, OEA is not analyzing accidents and spills of those products in detail. Section 3.2, Rail Operations Safety, discusses the probability of rail accidents. Factors in determining the potential impact from such an incident include the crude oil and frac sand properties and the probability of a train accident or derailment occurring.

Uinta Basin black and yellow crude oils are waxy crude oils that have a wax content higher than most North American crude oils. The oil does not flow at room temperature and must be heated at higher temperatures for it to flow. Because of this characteristic, the oil, if spilled onto land, tends to not disperse, and if spilled in water, tends to form globules of semisolid material that lock it in place. UDEQ documented an oil spill incident (July 12, 2018) and cleanup effort where a tanker truck spilled 1,000 gallons of crude oil that reached the Price River in Carbon County (UDEQ 2018, 2019c). Due to the oil's properties, as the crude oil spilled onto the road surface, it began to harden, so a smaller amount entered the river. Once the oil reached the river, instead of forming a giant slick on the water surface, the oil solidified and formed floating chunks that were easily removed by hand and with assistance from a boom that captured the oil chunks. Sampling of public drinking water supply intakes downstream of the spill showed no exceedances of drinking water standards. In the report for this spill (UDEQ 2019c), UDEQ stated that Uinta Basin crude oil has been described as "cleanup friendly" and that "thanks to the nature of the crude oil, most of these spills can be easily cleaned up afterward." A similar incident occurred in the Provo River in 2015 with similar results (CUWCD 2015, 2016; Orvis News 2015). As with most crude oils, Uinta Basin crude oil is toxic, and an accidental release would have negative effects on the environment. Waxy crude oil may persist in the environment for a longer time relative to other non-waxy crude oil (Boufadel et al. 2015). However, the oil's other properties would help reduce the potential impact and make cleanup easier than with most crude oils, which would help to avoid or minimize the long-term chronic effects from typical crude oils that would spread out over large areas as giant slicks in the event of a spill.

Rail traffic on the proposed rail line would also consist of trains transporting frac sand. Frac sand is a naturally occurring, highly pure silica sand, with rigorous physical specifications, that is used during hydraulic fracturing of oil and gas wells (USGS 2015). The physical properties of frac sand are quite specific and include high silica content, homogeneous grain size, high sphericity and roundness, high crush resistance, low solubility, and low turbidity (USGS 2015). If a train accident were to occur and result in a release of frac sand that were to reach a surface water, there would be little, if any, toxic effects because frac sands are naturally occurring and have low solubility. The other potential effects could include turbidity and smothering of aquatic habitats. Because low turbidity is a property of frac sand, due to the extensive washing away of sediments during processing, there would be little impact on water quality from turbidity. The physical presence of frac sand in a surface water could result in a complete loss of aquatic habitat until cleanup is completed. Frac sand deposited in a stream could also affect stream channel configuration and hydraulics, which could result in altered discharge velocities, thus, affecting streambed erosion, sediment loads, and stream structure.

The potential environmental impact of crude oil or frac sand being transported on the proposed line would depend on a train accident or derailment occurring and if the accident or derailment were severe enough to result in a rupture and release of crude oil or frac sand. Based on train accident and derailment modeling in Section 3.2, *Rail Operations Safety*, operation of any of the Action Alternatives would yield a small number of predicted accidents per year, with roughly one accident involving a loaded train every 3 to 10 years, depending on the alternative, and only a quarter of those would be expected to have any release. The Coalition has also proposed voluntary mitigation measures to minimize potential impacts related to spills of crude oil. These measures include a commitment to preparing a hazardous materials emergency response plan; complying with applicable regulations and tribal ordinances related to the safe and secure transportation of hazardous materials; and notifying appropriate federal, state, and tribal environmental agencies as required under federal, state, and tribal law in the event of a reportable spill (VM-11, VM-12, VM-13, VM-14, VM-15).

Floodplains

Impacts on floodplains and flood flows could result from construction and operation of the proposed rail line, potentially resulting in changes in floodplain capacity and diversion of flows, constriction of flows, and reduced floodwater retention. The extent of such impacts would depend on the specific activity and its proximity to floodplains, which would depend on the final design characteristics of the Action Alternative that is authorized and built. The intensity of impacts on floodplains would vary depending on the floodplain area affected by construction. The Coalition has indicated that the proposed rail line would be designed to meet the requirements of the local county floodplain ordinances and codes. The Coalition would build all culverts and bridges to clear the predicted 50-year flood event water elevation without causing a backwater increase and the predicted 100-year flood event with no more than a 1-foot backwater increase. Any part of the proposed rail line within FEMA-mapped 100-year floodplains would be designed to meet the required floodplain development regulations. The following potential floodplain impacts should be considered taking into account these regulatory requirements and design standards.

Construction

Storage Capacity and Flows with Fill Placement

Any of the Action Alternatives would cross FEMA-mapped 100-year floodplains and NRCS-mapped flood-prone soils, and construction would involve placing fill in these areas. The proposed rail line and road relocations would either cross a stream and floodplain perpendicularly or would run parallel to and encroach on a floodplain along a stream. Placement of fill in a floodplain can reduce the overall floodplain system storage capacity, resulting in an increase of flooding in areas that would normally not flood. Placement of fill material would also constrict flood-flow paths and increase floodwater elevation upstream of the constriction, resulting in a backup of floodwaters and potential upstream flooding. Placement of fill would redirect flood flows to existing channels, leading to channel erosion and the potential alteration of channel alignment. In the unlikely event that a construction staging area is needed in a floodplain, natural drainage patterns would be affected should a flood occur. This would block or divert flood flows, which would reduce flood capacity and increase flooding elevations.

The Coalition has proposed voluntary mitigation that would commit the Coalition to designing the proposed rail line in accordance with all FEMA or FEMA-approved local floodplain construction requirements and with a goal of not impeding floodwaters and not raising water surface elevations to levels that would change the regulated floodplain boundary (VM-32). This mitigation measure would minimize impacts of construction on floodplain storage capacity and flows, but some impacts would be unavoidable.

Flows with Bridge and Culvert Construction

Construction of bridges and culverts could affect floodplains and flood flows. Typically, bridge spans are supported by building up the edges of the streambank, installing bridge abutments, and setting the bridge on top. Similarly, placement of culverts requires building up to the edges of the streambank with fill as the proposed rail line approaches the culverts. Water flow during a flood is restricted at the culvert because of the artificially narrowed streambank. This restriction would result in two impacts: 1) water flow would back up behind the bridge or culvert and this ponded, slower moving water would lack the energy to move sediments, which would drop in the streambed, upstream of the structure, and 2) water flow would accelerate as it passes through the culvert in the narrow channel, which could increase the flow's erosive force downstream of the structure. These impacts could lead to changes in channel alignment, increased erosion, increased channel migration, and the potential for increased flooding upstream.

The diversion of stream flows during bridge and culvert construction could also affect floodplains and flood flows. Diversion would temporarily reduce channel capacity in the area of construction, leading to higher floodwaters in the surrounding areas. OEA's recommended mitigation measures (WAT-MM-1, WAT-MM-2, WAT-MM-4) regarding the design of bridges and culverts would minimize these potential impacts, but some impacts would be unavoidable.

Floodwater Retention

Clearing floodplain vegetation would impair a floodplain's ability to slow down, retain, and absorb floodwaters. Denser floodplain vegetation has a greater ability to retain floodwater flows. Vegetation removal could lead to increased downstream flood flows, sedimentation, channel erosion, and flooding.

The areas of floodplain that would be cleared and maintained along the proposed rail line would be a small part of the total floodplain area in the watersheds. OEA is recommending mitigation requiring the Coalition minimize the area of temporary disturbance during construction and to remediate affected areas by promoting vegetation regrowth after construction is complete (WAT-MM-5). In addition, the Coalition has proposed voluntary mitigation that would commit the Coalition to minimizing ground disturbance and to revegetating temporarily disturbed areas (VM-16, VM-22, BIO-MM-16). If these mitigation measures are implemented, construction impacts on floodwater retention would be minimal.

Operations

Flood Dynamics

While most potential floodplain impacts would occur during construction, specifically, during filling and clearing activities, potential impacts on flood flows could occur from the presence of rail infrastructure. If placed in floodplains, culverts, stream realignments, the rail line embankment, and other permanent project-related features could change floodplain hydraulics, which could alter channel alignment and channel erosion. Channel stabilization measures, such as riprap, designed to protect the proposed rail line from channel migration, could increase channel migration upstream and downstream by altering flow velocities and erosive forces. If OEA's recommended mitigation measures related to the design of water crossings are implemented (WAT-MM-1, WAT-MM-2, WATMM-4), OEA expects that impacts on the floodplain system in the watersheds would be minimal.

Deposition of soils and debris from overland runoff and stream flows could obstruct culverts and block flows. Such obstructions would reduce the conveyance capacity of the culvert and lead to increased flooding near the culvert crossing. Obstructions could be of particular concern in the rare event of a cloudburst flood where high-intensity rainfall in a small area and over a short period of time could result in movement of debris and other ground material that could reach the proposed rail line and impede or block flows at culverts and bridges. If OEA's recommended mitigation related to the inspection and clearing of debris at water crossings is implemented (WAT-MM-10), OEA does not expect that significant impedance or blockage of flood flows from culvert or bridge obstructions would occur.

Accidents and Spills of Hazardous Materials

As stated under *Surface Waters, Accidents and Spills of Hazardous Materials*, train accidents or derailments could cause train~~tanker~~ cars to rupture or overturn and spill crude oil or frac sand into the environment. Oil or frac sand could spill from a train~~tanker~~ car onto a floodplain should a train accident or derailment occur in or near a floodplain. Cleanup and oil and frac sand removal would likely commence immediately, which would avoid changes to floodplain capacity. However, some permanent and temporary floodplain vegetation impacts could occur during cleanup, which could affect floodwater retention functions. The Coalition has proposed voluntary mitigation measures to minimize potential impacts related to spills of crude oil. These measures include a commitment to preparing a hazardous materials emergency response plan; complying with applicable regulations and tribal ordinances related to the safe and secure transportation of hazardous materials; and notifying appropriate federal, state, and tribal environmental agencies as required under federal, state, and tribal law in the event of a reportable spill (VM-11, VM-12, VM-13, VM-14, VM-15).

Wetlands

Construction of the proposed rail line would require clearing, excavating, and filling in the project footprint, which could result in the loss or alteration of wetlands and affect wetland habitat, water quality, and flood and storage capacity functions. Construction of the rail line would not directly affect wetlands adjacent to the project footprint but could result in indirect impacts, such as edge effects on wetland habitat, interruption or alteration of shallow groundwater flow from compaction of soil, or loss of or alteration of hydrology in wetlands that would be located partially adjacent to the project footprint (i.e., fragmentation). The extent of wetland impacts in and adjacent to the project footprint would depend on specific construction activities and their proximity to wetlands, which would be determined during the final design stage. The intensity would vary depending on the acreage of wetland that would be affected for each Action Alternative (Subsection 3.3.3.2, *Impact Comparison between Action Alternatives*). The Coalition intends to obtain a CWA Section 404 permit from the Corps, which would require the Coalition to take all appropriate and practicable steps to avoid and minimize impacts on wetlands; for unavoidable impacts, compensatory mitigation would be required to replace the loss of wetland and associated functions. The following impacts should be considered taking into consideration these regulatory requirements.

Construction

Wetland Habitat

Fill material placed in wetlands during construction would result in the permanent loss of wetlands, associated vegetation, and any habitat that the wetland provides for fish and wildlife. If a wetland were completely filled, these habitat functions would be lost entirely. If a wetland were partially filled and fragmented or if wetland vegetation were trimmed or cleared, vegetation and habitat would be altered and degraded. Any fragmentation or interruption of wetland habitat and vegetation could affect wildlife use of the wetland. Wetland habitat and vegetation could also be affected if the hydrology of the wetland system is altered by construction of the proposed railbed, which could result in wetland draining or ponding on either side of the rail or access road embankments, including wetlands adjacent to the project footprint. For example, if the railbed were built through the middle of a wetland, the interruption and fragmentation of the wetland's hydrology could result in the draining or ponding of water in the remaining wetland fragments on either side of the rail embankment. In addition, impacts on shallow groundwater from rail embankment compaction and related interruption or redirection of groundwater flow could cut off a hydrology source to wetlands.

These hydrology alterations could affect vegetation and wetland habitat by changing plant species' composition (i.e., from wetland to upland plants if the wetland were to dry up over time).

To minimize wetland impacts, the Coalition has proposed voluntary mitigation that would commit the Coalition to obtaining a Section 404 permit prior to beginning construction and to minimizing wetland impacts to the extent practicable (VM-25, VM-27). As part of the Section 404 permitting process, the Coalition would need to demonstrate that impacts on water resources, including wetlands, have been avoided or minimized, to the extent practicable. For unavoidable impacts, the Section 404 permit would provide for compensatory mitigation to be developed in consultation with the Corps. In addition, to minimize impacts on wetlands, OEA is recommending the Coalition use temporary barricades, fencing, and/or flagging around wetlands to contain project-related impacts during construction (WAT-MM-7).

During rail construction, fugitive dust from loose soil could be generated by heavy equipment operation. Any accumulation of fugitive dust on wetland vegetation could affect plant growth by inhibiting photosynthesis, which could result in reduced vegetation density and plant diversity. This could also allow invasive plant species to take hold and colonize wetland areas, which could reduce plant species' richness. Impacts related to fugitive dust would be temporary and would cease once construction is complete. To minimize this temporary impact, the Coalition has proposed voluntary mitigation (VM-23) that would commit the Coalition to implement measures to reduce fugitive dust from project-related construction activities.

Wetland Water Quality

Fill material placed in a wetland during rail construction would result in a permanent reduction in the wetland's ability to improve water quality; on a watershed level, any permanent wetland loss could reduce the capacity of regional wetlands to improve water quality. Aside from filling wetlands, other alterations of wetland hydrology could also reduce a wetland's ability to improve water quality by changing the natural hydrologic flows; this could extend to wetlands adjacent to the project footprint. For example, if a wetland with a high ability to retain water were channelized to direct flow through a culvert under the railbed, the amount of time water remained in the wetland could be reduced, thereby affecting the ability of the wetland to retain and filter sediments and other contaminants. Conversely, railbeds could fragment the normal flow through wetlands, leading to the creation of surface water impoundments that would decrease water circulation and lead to water stagnation. In addition, impacts on shallow groundwater from rail embankment compaction and related interruption or redirection of groundwater flow could cut off or alter a hydrology source to wetlands, which could adversely affect water quality functions or result in complete wetland loss. Decreased water circulation can result in increased water temperature, lower dissolved oxygen levels, changes in salinity and pH, the prevention of nutrient outflow, and increased sedimentation (USEPA 1997). Wetland fragmentation impacts would be reduced by placement of bridges or culverts in the railbed in wetland areas to maintain hydrologic connection. If OEA's recommended mitigation measures related to the design of water crossings were implemented (WAT-MM-1, WAT-MM-2, WAT-MM-4), OEA expects that impacts on wetland functions would be localized to the wetlands that the proposed rail line would cross or wetlands adjacent to the project footprint, and that water quality would not be affected on a watershed level.

Ground disturbance in or near wetlands could degrade water quality of the wetland itself. The primary concerns would be potential impacts associated with sedimentation and petroleum products. Soil disturbance and exposure to rain and surface runoff during construction could increase sediment in nearby wetlands, potentially increasing surface water turbidity, smothering vegetation, reducing water oxygen levels, and reducing water storage capacity. Petroleum leaks and accidental spills from rail construction equipment are other potential sources of wetland water contamination. While many wetlands act to filter out sediment and contaminants, any significant increase in sediment or contaminant loading could exceed the capacity of a wetland to perform its normal water quality functions. Although the degradation of water quality in wetlands could occur during construction, this impact would be short-term and temporary. OEA expects that the Coalition's NPDES permit, Section 401 water quality certification, and SWPPP would include site-specific measures to avoid and minimize erosion, sedimentation, and spills that could cause wetland water quality impacts. If those measures were implemented, OEA does not expect that construction activities would result in long-term impacts on wetland water quality.

Wetland Stormwater and Floodwater Storage Capacity

Fill material placed in a wetland during rail construction would result in the permanent loss of the wetland's ability to impede and retain stormwater and floodwater. On a watershed level, any permanent wetland loss could reduce the capacity of regional wetlands to impede and retain these flows. Any alteration of wetland hydrology could also reduce a wetland's ability to retain water by changing the natural hydrologic flows; this could extend to wetlands adjacent to the project footprint. For example, if a wetland with a high ability to retain stormwater and floodwater were channelized to flow directly through a culvert under the railbed, the volume of water that the wetland would have otherwise been able to retain could be reduced. Clearing and trimming of wetland vegetation would also reduce the capacity of wetlands to impede and retain stormwater and floodwater. Densely vegetated wetlands have a greater ability to slow down and retain stormwater and floodwater; clearing or removing wetland vegetation for rail construction would reduce this functional capacity.

OEA is recommending mitigation measures requiring the Coalition design and install water crossings so as to maintain existing wetland hydrology, to the extent practicable (WAT-MM-1, WATMM-4). If these mitigation measures and the conditions of the Coalition's CWA Section 404 permit are implemented, OEA concludes that decreases in wetland stormwater and floodwater storage capacity from construction of the proposed rail line would be localized and minimal and would not significantly affect the capacity of regional wetlands to impede and retain stormwater and floodwater at the watershed level.

Operations

Maintenance Activities

Most wetland impacts would occur during construction of the proposed line. However, potential impacts on wetlands also could occur during rail operations because of maintenance activities and incidental pollutant discharges. Maintenance activities would include vegetation maintenance in the right-of-way and repairs and maintenance associated with tracks, access roads, ditches, bridges, culverts, and other associated rail infrastructure. These activities would be infrequent and brief. Vegetation would be periodically cleared or trimmed in the right-of-way to ensure safe rail operations. Clearing or trimming could alter wetland vegetation and structure (e.g., a scrub/shrub wetland that is continuously cleared for maintenance could convert an existing wetland to an emergent wetland). Any change in wetland vegetation structure could alter the habitat, water quality, and hydrology functions that the wetland provides, and could extend to wetlands adjacent to the project footprint. Maintenance associated with tracks, access roads, ditches, bridges, culverts, and other rail infrastructure could disturb the ground surface, require the use of chemicals (such as herbicides), or result in petroleum leaks and spills from maintenance vehicles and equipment. Any mobilized sediment, spilled chemicals, or petroleum products could reach wetlands, which could degrade vegetation communities, habitat, water quality, and overall wetland productivity.

OEA is recommending mitigation that would require the Coalition implement best management practices to convey, filter, and dissipate runoff from the new rail line, which could include but would not be limited to vegetated swales, vegetated filter strips, streambank stabilization, and channelized flow dissipation (WAT-MM-9). If OEA's recommended mitigation measures are implemented, OEA expects that wetland vegetation and wetland water quality impacts from maintenance activities would be infrequent, brief, localized, and minimal.

Accidents and Spills of Hazardous Materials

As stated under Surface Waters, Accidents and Spills of Hazardous Materials, train accidents or derailments could cause train~~tanker~~ cars to rupture or overturn and spill crude oil or frac sand into the environment. Oil or frac sand could spill from a train~~tanker~~ car onto a wetland should a train accident or derailment occur in or near a wetland. Some permanent and temporary wetland vegetation impacts could occur from the spill and during cleanup, which could affect wetland hydrology and habitat functions. The Coalition has proposed voluntary mitigation measures to minimize potential impacts related to spills of crude oil. These measures include a commitment to preparing a hazardous materials emergency response plan; complying with applicable regulations and tribal ordinances related to the safe and secure transportation of hazardous materials; and notifying appropriate federal, state, and tribal environmental agencies as required under federal, state, and tribal law in the event of a reportable spill (VM-11, VM-12, VM-13, VM-14, VM-15). ~~In the event of a spill, some permanent and temporary wetland vegetation impacts could occur during cleanup, which could affect wetland hydrology and habitat functions.~~

Groundwater

Impacts on groundwater could result from construction and operation of the proposed rail line through clearing, fill placement, tunnel construction, and use of equipment, potentially altering infiltration, degrading groundwater quality, and affecting groundwater wells and springs.

Construction

Infiltration and Recharge Characteristics, Shallow Groundwater Flow Interruption, and Water Quality

Construction of the proposed rail line would alter infiltration and recharge characteristics and permanently reduce or impede infiltration due to surface soil compaction. These impacts would be limited to the rail line footprint. The rail line footprint represents a small fraction of the total recharge area because of the extensive Uinta-Animas aquifer that makes up the groundwater study area. In addition, groundwater recharge to the Uinta-Animas aquifer generally occurs in areas of higher altitude along the margins of the Basin, the majority of which is in the northern half of the Basin outside the location of the Action Alternatives. Therefore, OEA does not expect that construction would significantly affect groundwater infiltration and recharge.

Construction of the proposed rail line could affect shallow groundwater in localized stream channel aquifers where rail embankment soil compaction could interrupt and redirect shallow groundwater flow away from wetlands and streams that are supported in whole or part by groundwater in these shallow aquifers. OEA's recommended mitigation measure regarding the design, construction, and operation of the rail line to maintain existing water patterns and flow conditions (including shallow aquifer subsurface flow) and providing long-term hydrologic stability would minimize these potential impacts (WAT-MM-4).

Any accidental contaminant (e.g., petrochemicals used for operating construction equipment) released to the ground during construction could infiltrate and temporarily degrade groundwater quality if the contaminant were to reach groundwater. However, recharge areas more susceptible to groundwater contamination from surface activities and these areas are generally outside of the location of the Action Alternatives. To minimize impacts on groundwater quality, the Coalition has proposed voluntary mitigation that would commit the Coalition to developing a SWPPP and obtaining an NPDES permit to minimize and contain spills during construction (VM-20, VM-21). If these voluntary measures are implemented, the likelihood of a large contaminant spill would be low making it unlikely that large amounts of contaminants would reach groundwater and impair quality. Therefore, OEA does not anticipate any long-term impacts related to groundwater quality.

Water Rights of Wells and Springs

Construction of the proposed rail line would affect a very small proportion of the groundwater wells and springs that OEA identified in the study area. Depending on the Action Alternative, up to three groundwater wells and two springs would be located in the rail line footprint. Groundwater wells in the rail line footprint would be closed and springs in the rail line footprint would no longer be available for water users. Groundwater would no longer be extracted from these wells, which could increase the amount of water in the aquifer and, thus, the water available for discharge to surface waters and available for withdrawal at other nearby wells. OEA is recommending mitigation concerning the loss of a landowner's groundwater well (WAT-MM-11).

There are no groundwater wells or springs directly above any of the proposed tunnels for the Action Alternatives (UDWRi 2020; USGS 2019); however. there are groundwater wells and springs in the vicinity of the tunnels (UDWRi 2020; USGS 2019). The water rights details of groundwater wells in the vicinity (within approximately 2,000 feet) of several of the tunnels proposed for the Action Alternatives indicate that groundwater depths typically range from 100 feet to 500 feet below the ground surface (UDWRi 2020). Near-surface construction activities associated with tunnel construction, such as blasting, boring, and excavation, could disrupt or modify the flow of groundwater that could be present around the construction activities. However, because tunnel construction activities would be limited to the near surface (upper 100 feet) and the occurrence of groundwater is generally deeper than 100 feet, the impacts of these activities on groundwater flow is not expected to be significant. The lateral extent of the water-bearing units, regardless of whether groundwater is shallow or deep, would generally be orders of magnitude more extensive than the relatively limited dimensions of a construction impact zone. Groundwater springs are smaller in scale and more localized; since no springs are known to occur above any of the proposed tunnels, it is unlikely that tunnel construction would affect springs.

Depending on the Action Alternative, up to six groundwater wells and up to nine springs would be located in the temporary footprint. Groundwater wells and springs in the temporary footprint would not be lost.

Operations

Groundwater Quality

Any accidental contaminant released to the ground during operations, such as gasoline or diesel fuel from maintenance vehicles, could infiltrate into the ground and could temporarily degrade groundwater quality if the contaminant were to reach groundwater. However, by implementing best management practices, the likelihood of a large contaminant spill would be low. In addition, because clean-up procedures would commence immediately after a spill, it would be unlikely that a large amount of a contaminant would reach groundwater and impair quality. No long-term impacts are anticipated.

As stated under *Surface Waters, Accidents and Spills of Hazardous Materials*, train accidents or derailments could cause train~~tanker~~ cars to rupture or overturn and spill crude oil or frac sand into the environment. Due to Uinta Basin crude oil properties, the oil would start to congeal and solidify upon contact with the ground and cooling down and, therefore, would be unlikely to physically seep into the ground. Similarly, frac sand is a solid substance that would not penetrate into the ground, and due to its non-toxic properties, it would have no effect on groundwater quality. The Coalition has also proposed voluntary mitigation measures to minimize potential impacts related to spills of crude oil and frac sand. These measures include a commitment to preparing a hazardous materials emergency response plan; complying with applicable regulations and tribal ordinances related to the safe and secure transportation of hazardous materials; and notifying appropriate federal, state, and tribal environmental agencies as required under federal, state, and tribal law in the event of a reportable spill (VM-11, VM-12, VM-13, VM-14, VM-15).

* * *

3.3.4 Mitigation and Unavoidable Environmental Impacts

Any of the Action Alternatives would result in impacts on water resources, including surface waters, wetlands, floodplains, and groundwater. In general, the Wells Draw Alternative would result in the most impacts on surface waters and wetlands. The Indian Canyon Alternative and the Whitmore Park Alternative would have largely similar impacts on perennial streams and intermittent streams, but the Whitmore Park Alternative would affect a larger area of ephemeral streams and the Indian Canyon Alternative would affect a larger area of wetlands.

The Coalition has proposed eight voluntary mitigation measures related to water resources (Chapter 4, *Mitigation*). Those mitigation measures include the requirement that the Coalition obtain a CWA Section 404 permit from the Corps prior to undertaking any construction-related activities. As part of the CWA Section 404 permitting process, the Coalition shall demonstrate, in consultation with the Corps, that all appropriate and practicable steps have been taken to avoid and minimize impacts on water resources under the jurisdiction of the Corps. For unavoidable impacts, the Coalition shall develop and implement compensatory mitigation in consultation with the Corps to replace the loss of surface waters. In addition to the Coalition's voluntary mitigation measures, OEA is also recommending that the Board impose additional measures to avoid, minimize, and mitigate impacts on water resources in any decision authorizing construction and operation of the proposed rail line.

Even if the Board were to impose the Coalition's voluntary mitigation measures and OEA's recommended mitigation measures, some adverse impacts on surface waters and wetlands would be unavoidable. Those unavoidable impacts would include changes to natural drainage around water crossings; changes to channel morphology and sinuosity; increased potential for debris jams and water backup; increased channel scour and erosion; increased turbidity, sediment loads, and concentration of pollutants during construction; degradation of wetland stormwater and floodwater storage capacity and wetland quality from alterations or filling of wetlands; decreased wetland quality from discharges of pollutants into wetlands; the loss of wetland habitat; and the loss of springs. Due to the large number of surface water crossings and the large area of potentially affected wetlands, OEA concludes that unavoidable impacts on surface waters and wetlands, including and in particular, the loss of wetland habitat and permanent changes to surface water hydrology from crossing structures and stream realignments, would be locally significant for any of the Action Alternatives. Construction and operation of the proposed rail line would not significantly affect water quality or ecological services associated with water resources on a watershed or regional level.

Construction and operation of any of the Action Alternatives would result in some minor adverse impacts on floodplains and groundwater, including decreased floodplain storage capacity, diversion of flood flows by fill placement, constriction of flood flows at bridge and culvert locations, decreased floodplain water retention, and altered flood dynamics from the presence of rail infrastructure; altered infiltration recharge characteristics and temporary degradation of groundwater quality. The Coalition's voluntary mitigation measures and OEA's recommended mitigation measures would minimize these impacts, and OEA does not anticipate that construction and operation of the proposed rail line would significantly affect floodplains or groundwater.

Section 3.4 Excerpts, *Unita Basin Railway, Final Environmental Impact Statement*, STB Docket No. FD 36284 (Aug. 2021)

Riparian Vegetation

Riparian vegetation occurs along water courses in areas transitioning from aquatic to upland environments. These transitional areas provide important habitat for many plant and animal species. Descriptions of riparian communities in the GAP forest/woodland land cover type are found in the Coalition's *Biological Resources Baseline Environment Technical Memorandum: Uinta Basin Railway* (Coalition 2020a:15, 18). To identify the extent of riparian areas more accurately, the Coalition mapped riparian vegetation (including woody and herbaceous) in the study areas for each Action Alternative based on field surveys and interpretation of aerial images. Riparian areas total about 205.7 acres in the study areas for the Indian Canyon Alternative, about 135.6 acres in the study areas for the Wells Draw Alternative, and about 178.5 acres in the study areas for the Whitmore Park Alternative.

Wildfire Ecology

Wildfires, which affect vegetation, are a common occurrence in Utah because of a primarily arid climate (Utah Division of Emergency Management 2019). Wildfires are part of the normal vegetative cycle for some vegetation communities and are an integral part of healthy forest and grassland growth and regeneration. However, recent climatic trends of hotter and drier weather and earlier snowmelt are resulting in wildfires in the West that start earlier in the spring, last later into the fall, and burn more acreage (Melillo et al. 2014).

According to the Forest Service, each year more than 73,000 wildfires burn about 7 million acres of federal, tribal, state, and private land and more than 2,600 structures in the United States (Forest Service 2020c~~b~~). The state of Utah estimates there are 800 to 1,000 wildfires every summer in Utah (Utah Division of Emergency Management 2019). Long periods of drought increase the length of fire seasons and create dangerous conditions that allow a fire to spread rapidly. In 2017, wildfires consumed over 200,000 acres in Utah (Utah Division of Emergency Management 2019). In Utah, firefighters suppress 95 percent of wildfires on initial attack, but adverse weather and topography, heavy fuel loads, and urban development all combine to create catastrophic wildfire conditions in the state (Utah Division of Emergency Management 2019) Some of the largest fires in Utah have occurred since 2018, including the Dollar Ridge Fire (July 2018) that burned 68,869 acres in western Duchesne County, and the East Fork Fire (August–October 2020) that burned 89,463 acres in northern Duchesne County (National Wildfire Coordinating Group 2020; Utah Division of Emergency Management 2019). ~~One of Utah~~’~~s largest wildfires, t~~The Neola North Fire (2007), ~~occurred in Duchesne County and~~ burned about 43,800 acres in Duchesne County~~2007~~ (Utah Division of Emergency Management 2019).

Wildfires are caused by natural and human factors, including railroads. The Forest Service~~USGS~~ has compiled wildfire occurrence data collected by federal, state, and local fire organizations~~ land management agencies~~ from 1992~~80~~ through 2015~~6~~ (~~USGS~~Forest Service 2017a~~9~~). The data include~~s~~ the approximate size of the wildfire and the cause of the wildfire, if known. ~~Of all the wildfires with a reported cause, a~~Over the 24 years of wildfire records, approximately 1.8~~0.5~~ percent of wildfires in the United States and 0.5~~2~~ percent of the wildfires ~~in the lower 48 states and~~ Utah~~, respectively,~~ were caused by railroads. Table 3.4-7~~5~~ presents the cause and number of wildfires and acres burned in Utah from 1992~~80~~ to 2015~~6 (for data that included a cause)~~. Acres burned as a result of wildfires started by railroads represent 1.9~~0.06~~ percent of all acres burned in Utah over 24~~36~~ years of wildfire records (Table 3.4-7~~5~~).

Table 3.4-7~~5~~. Wildfires in Utah (1992~~80~~-2015~~6~~)

~~Cause of Fire~~	~~Number of Fires~~	~~Percent of Fires~~	~~Acres Burned~~
~~Lightning~~	~~6,668~~	~~73.9~~	~~451,385~~
~~Equipment Use~~	~~105~~	~~1.2~~	~~37,910~~
~~Smoking~~	~~164~~	~~1.8~~	~~993~~
~~Campfire~~	~~1,280~~	~~14.2~~	~~62,250~~
~~Debris Lighting~~	~~65~~	~~0.7~~	~~8,544~~
~~Railroad~~	~~22~~	~~0.2~~	~~413~~
~~Arson~~	~~183~~	~~2.0~~	~~9,160~~
~~Children~~	~~84~~	~~0.9~~	~~1,269~~
~~Miscellaneous~~	~~451~~	~~5.0~~	~~110,975~~
~~Total~~	~~9,022~~	~~100~~	~~682,899~~

~~Notes:~~
~~Source: USGS 2019~~

Cause of Fire	Number of Fires	Percent of Fires	Acres Burned
Lightning	16,747	54.5	2,718,318
Missing/Unidentified	7,609	24.8	320,466
Miscellaneous	1,689	5.5	465,528
Campfire	1,515	4.9	117,062
Debris Burning	871	2.8	25,119
Equipment Use	855	2.8	121,634
Arson	467	1.5	178,232
Children	226	0.7	6,884
Smoking	225	0.7	7,424
Railroad	168	0.5	78,953
Fireworks	165	0.5	9,218
Powerline	148	0.5	65,923
Structure	40	0.1	165
Total	**30,725**	**100**	**4,114,926**

Notes:
Source: Forest Service 2017a

The Forest Service created a Wildfire Hazard Potential (WHP) map for the continental United States to help inform evaluations of wildfire risk or prioritization of fuel-management needs across very large landscapes (Forest Service 2020a~~18~~). The Forest Service's objective with the WHP map is to depict the relative potential for wildfire that would be difficult for suppression resources to contain. According to the Forest Service, the WHP map approximates relative wildfire risk to highly valued resources and assets (e.g., communities, structures, and powerlines).

The WHP map displays those areas within the continental United States that have different levels of fire potential, categorized by five WHP classes (very low, low, moderate, high, and very high) and two non-WHP classes (non-burnable and water). Appendix G, Biological Resources Figures, Figure G1, shows the fire potential within and near the study areas for the Action Alternatives.

Table 3.4-8~~6~~ shows the amount of the WHP classes in the study areas by Action Alternative. Of the total area assigned WHP class, approximately 90 percent of the study areas for the Indian Canyon Alternative and Whitmore Park Alternative and approximately 87~~4~~ percent of the study area for the Wells Draw Alternative, are associated with very low, low, or moderate wildfire hazard potential. The very high WHP class is not present in the study areas for any Action Alternative.

Table 3.4-8~~6~~. Wildfire Hazard Potential in the Study Areas (acres)

Wildfire Hazard Potential Class	Action Alternative		
	Indian Canyon	Wells Draw	Whitmore Park
Very low	2,330.1~~002.4~~	2,620.2~~589.7~~	2,252.2~~106.2~~
Low	4,549.7~~678.4~~	5,482.6~~173.7~~	5,080.1~~106.4~~
Moderate	634.6~~761.7~~	1,611.8~~43.0~~	731.2~~987.0~~
High	880.5~~786.0~~	1,446.3~~617.7~~	990.4~~675.8~~
Very high	--	--	--
Nonburnable	1,126.1~~292.5~~	1,521.6~~658.2~~	1,077.8~~256.3~~
Water	--	--~~0.3~~	0.1~~–~~

Notes:

Source: Forest Service 2020a~~18~~

Table 3.4-9 shows the area of WHP class for rail line segments downline of the proposed rail line that could experience an increase in rail traffic above OEA's thresholds at 49 C.F.R. § 1105.7(e)(5) if the proposed rail line were constructed (see Appendix C, *Downline Analysis Study Area and Train Characteristics*). For consistency with the description of WHP in the study areas of the Action Alternatives, the areas shown in Table 3.4-9 include a 1,000-foot buffer (500 feet on either side of the centerline) for each downline segment. Overall, approximately 88 percent of the combined downline segments' study areas are associated with very low, low, nonburnable, and water WHP classes; high and very high WHP classes make up only 5 percent, while the moderate WHP class makes up only 7 percent.

Table 3.4-9. Wildfire Hazard Potential along Downline Segments (acres)

Wildfire Hazard Potential Class	Downline Segment				
	Kyune to Denver	Denver Eastbound	Denver Southbound	Denver Northbound	Denver East/North
Very low	19,965	24	292	1,306	2,912
Low	12,523	5	1,675	1,336	881
Moderate	4,440	--	1,133	14	15
High	2,825	--	322	--	--
Very high	958	--	15	--	--
Nonburnable	10,380	322	3,162	5,670	3,348
Water	4,330	19	12	37	--

Notes:
Source: Forest Service 2020a

Invasive and Noxious Weeds

Invasive weeds are weeds that establish, persist, and spread widely in natural ecosystems outside the plant's native range. These weeds often lack natural controls to curtail their growth, enabling them to overrun native plants and ecosystems. Many invasive weeds are also classified as noxious weeds by government authorities.

A noxious weed is any plant designated by federal, state, or local government officials as injurious to public health, agriculture, recreation, wildlife, or property. Once a weed is classified as noxious, authorities can implement quarantines and take other actions to contain or destroy the weed and limit its spread. Under the authority of the Utah Noxious Weed Act (Utah Code § 4-17-101 et seq.), the Utah Department of Agriculture and Food maintains a list of noxious weeds (Utah Department of Agriculture and Food 2019).

Invasive and noxious weeds can grow in upland, wetland, and aquatic environments (e.g., streams)~~Invasive and noxious weeds~~; they are typically found in areas where the ground or soil has been disturbed and are commonly found along transportation corridors (e.g., roads, highways, rail lines); along utility corridors (e.g., transmission lines and pipelines); in residential, commercial, and industrial areas; around agricultural lands; and in other developed, disturbed, or human-influenced areas.

The following two land cover types present in the study areas include areas dominated by invasive or noxious species (Table 3.4-~~4~~6).

- The Invasive Southwest Riparian Woodland and Shrubland vegetation community consists of areas dominated by introduced riparian woody species, such as salt cedars (Tamarix spp.) and Russian olive (Elaeagnus angustifolia), both of which are state-designated noxious weeds. Based on GAP vegetation data (Table 3.4-~~4~~6), approximately 3.3 acres of this invasive vegetation community is in the study areas for the Wells Draw Alternative.

- The Invasive Annual Grassland vegetation community includes areas dominated by introduced annual grass species, such as Avena species, Bromus species, and Schismus species. Based on the vegetation data (Table 3.4-~~4~~6), this invasive vegetation community is present in the study areas for all the Action Alternatives (approximately 18.4, 26.7, and 18.3 acres in the study areas for …

* * *

Table 3.4-~~10~~13. BLM Greater Sage-Grouse Habitat in the Study Areas (acres)

Habitat Type[a]~~Species~~	Action Alternative		
	Indian Canyon	Wells Draw	Whitmore Park
Priority	~~1,667.5~~	~~1,667.5~~	~~2,283.2~~
BLM	346.4	346.6	83.6
SITLA	198.0	198.0	322.1
Tribal	0	0	0
UDOT	11.6	11.6	10.0
Forest Service	0	0	0
Private	1,111.4	1,111.2	1,867.4
Total	**1,667.4**	**1,667.4**	**2,283.1**
General	~~640~~	~~345.9~~	~~811.8~~
BLM	0	345.9	0
SITLA	0	0	0
Tribal	0	0	0
UDOT	0	0	0
Forest Service	0	0	0
Private	640.1	0	811.8
Total	**640.1~~2,307.5~~**	**345.9~~2,013.4~~**	**811.8~~3,095.0~~**

Notes:
Source: Coalition 2020a; BLM 2015b
[a] Acreages are of greater sage-grouse habitat type in the field survey study areas for each Action Alternative. Table 3.4-23 shows the BLM greater sage-grouse habitat that would be permanently and temporarily disturbed within the project footprint for each Action Alternative.
BLM = Bureau of Land Management; SITLA = Utah School and Institutional Trust Lands Administration; UDOT = Utah Department of Transportation

3.4.3 Environmental Consequences

Construction and operation of the proposed rail line would result in impacts on biological resources. This subsection first presents the potential impacts that would be the same for all three Action Alternatives and then compares the potential impacts that would be different across the Action Alternatives. For comparison purposes, this subsection also discusses the status of biological resources under the No-Action Alternative. Section 3.3, *Water Resources*, also addresses impacts that could be associated with biological resources.

3.4.3.1 Impacts Common to All Action Alternatives

This subsection discusses potential impacts on wildlife, fish, vegetation, and special status species that would be the same across the three Action Alternatives. Potential impacts caused by rail line construction are discussed first for each resource, followed by potential impacts caused by rail operations.

Wildlife

Construction

Construction-related activities, such as land clearing in the project footprint, earthmoving (cut and fill), constructing the railbed, laying rail line, relocating roads, and installing support facilities (e.g., fences, communications towers, and power distribution lines), would result in temporary and permanent impacts on wildlife. The intensity of these impacts would vary depending on the type of habitat and specific species affected.

Habitat Loss or Alteration and Wildlife Displacement

Construction of the proposed rail line would remove or alter habitat, resulting in permanent habitat loss or alteration in the rail line footprint. Table 3.4-~~4~~6 shows the types of habitats (vegetation communities) that construction would affect. Habitat removal could affect many different species of wildlife, including birds, mammals, reptiles, amphibians, and invertebrates. In areas where construction would involve clearing habitat, the wildlife that currently occupies the habitat would be displaced, or forced to move to other habitat areas. Construction-related noise and the presence of humans in construction areas could also displace wildlife. Displacement could affect normal foraging, migratory, and breeding behaviors. Displacement could also reduce survival and productivity because animals might need to expend more energy to locate suitable replacement habitat. In addition, wildlife that is less familiar with new habitat areas might be more susceptible to predation, which can affect survival.

The effects of habitat clearing on wildlife would be permanent in areas where permanent rail components (e.g., railbed) would be placed and would be temporary in areas where habitat would be restored (e.g., construction staging areas). Some affected habitats in the temporary footprint, such as shrub and forest, would take many years to be completely restored to pre-construction conditions. In some areas of the project footprint, habitat would be permanently altered from forested habitat to herbaceous or low shrub habitats~~ as a result of temporary clearing~~. The abrupt change in habitat type could lead to a permanent change in the types of species present in the area because some species of wildlife avoid herbaceous and low shrub habitats while others seek out these habitats.

Construction of any of the Action Alternatives would require removal or alteration of riparian vegetation, which is an important habitat in the western United States, although the extent of these impacts would vary between the three Action Alternatives (Section 3.4.3.2, *Impact Comparison between Action Alternatives*). In the western United States, riparian ecosystems make up a small percentage of the landscape but provide essential ecological functions for both human and wildlife populations (Poff et al. 2012). They are unique because they have high species diversity and densities, as well as high productivity, and they allow for continuous interactions to occur between riparian, aquatic, and upland ecosystems through the exchange of energy, nutrients, and species (Poff et al. 2012). Therefore, the removal or alteration of riparian vegetation during construction would have negative impacts on wildlife.

The big game species in the study area (bighorn sheep, elk, moose, mule deer, and pronghorn antelope) all have year-long substantial and/or crucial habitat in the project footprint (Table 3.4-1). Construction of any of the Action Alternatives would temporarily and permanently remove or alter big game habitat, although the extent of these impacts would vary between the Action Alternatives (Section 3.4.3.2, *Impact Comparison between Action Alternatives*). Construction activities could also degrade forage quality for big game species because dust generated by construction equipment and vehicles could be deposited on vegetation near construction areas. This impact would be localized and temporary, lasting only the duration of construction. Big game species would be able to forage on undisturbed vegetation in the areas surrounding the construction footprint.

Large amounts of cleared vegetation and debris placed in piles along the proposed rail line during construction could attract bark beetles, which, if the conditions are right, could result in an increase in bark beetle populations and risk a potential bark beetle outbreak. While bark beetles are native to U.S. forests and play important ecological roles, they can cause extensive tree mortality, which can have indirect effects on wildlife that use forest habitats. This issue is of important concern in any forested area, particularly in and around Ashley National Forest.

Wildlife disturbed or displaced by temporary construction activities would likely move to suitable habitats near the project footprint and would likely return to temporarily affected areas after construction is completed and workers and equipment are no longer present. The magnitude of these impacts on wildlife would depend mostly on the timing of construction activities. However, the large areas of suitable habitat around the Action Alternatives would be sufficient to allow for wildlife movement and dispersal. To minimize impacts related to the clearing of habitat, the Coalition has proposed voluntary mitigation that would commit the Coalition to limit ground clearing to only the areas necessary for project-related construction and to restore and revegetate temporarily cleared areas using native vegetation (VM-16, VM-22, BIO-MM-16). In addition, OEA is recommending mitigation requiring the Coalition develop a detailed reclamation and mitigation plan for temporarily disturbed areas (BIO-MM-16). To address potential adverse impacts on potential bark beetle outbreaks, OEA is recommending mitigation requiring the Coalition remove all cleared vegetation and green debris from construction areas, including trees from woodland and timber clearing (BIO-MM-14).

Wildlife Injury or Mortality

Construction of the proposed rail line could result in wildlife mortality or injury from construction-related collisions or crushing. Collisions or crushing would be more likely to affect smaller, less mobile species (e.g., reptiles, insects) that are not able to move away quickly from construction equipment. Collisions would be less likely to occur with larger animals (e.g., big game animals) and birds because these animals could move more quickly and vacate a construction area. Because construction vehicles typically move at slow speeds, OEA expects that wildlife fatalities and injuries from operating construction equipment would be infrequent. While some species could be more susceptible to collisions or crushing, many species would likely vacate a construction area once land clearing activities start and noise and construction equipment become perceptible to wildlife. This temporary impact would only last for the duration of construction.

The installation of new infrastructure that would also be present during rail operations could disrupt predator-prey relationships in and near the project footprint. For example, new infrastructure or movement corridors associated with the proposed rail line could provide certain predators with greater hunting opportunities. This could result in increased mortality rates in the prey of those predators. As species adapt to disturbances associated with operations, predator-prey relationships would stabilize.

Accidents and Spills of Hazardous Materials

An accidental release of hazardous materials during construction (e.g., spill of gasoline, oil, or lubricants) could affect individual animals if they were exposed to the contaminant, which could cause injury, sickness, or death. Because construction activities would not involve using or storing large volumes of hazardous materials, OEA expects that any uncontained spills of hazardous materials during construction would be small and would affect a limited area. To minimize potential impacts related to accidents and spills of hazardous materials, the Coalition has proposed voluntary mitigation that would commit the Coalition to obtaining a Section 401 water quality certification and an NPDES permit,[7] and developing a SWPPP (VM-19, VM-21, VM-26). These measures would limit the chance of a spill occurring and would facilitate a rapid cleanup should a spill occur.

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[7] NPDES is the permit system mandated by Clean Water Act Section 402 to control pollutants in waters of the United States. With the exception of Tribal trust lands, the U.S. Environmental Protection Agency (EPA) has delegated authority to issue NPDES permits to the state of Utah, referred to as Utah Pollutant Discharge Elimination System (UPDES) permits. On Tribal trust lands, EPA retains authority to issue NPDES permits. NPDES refers to both UPDES and NPDES permits in this section.

Habitat Fragmentation and Barrier to Movement

During and following construction, the proposed rail line would split large areas of contiguous habitat into smaller areas. The presence of the rail line could create a barrier to wildlife, both physically and behaviorally. Physical barriers created by rail corridors mainly affect small animals, such as lizards and amphibians (Barrientos and Borda-de-Agua 2017). Smaller animals are less mobile and find it more difficult to cross rail corridors due to the physical and visual obstructions created by the railbed itself. Large animals (e.g., big game) would be physically able to cross the rail corridor, but their perception of a barrier (e.g., visual effects of rail infrastructure) could still prevent them from crossing the rail corridor. Fences along rail corridors can create partial barriers to movement for larger species, especially big game species. Disrupted migration could prevent herds from reaching high-quality forage, which could result in physiological stresses and the expenditure of greater amounts of energy to reach resources beyond the study area. However, the Coalition is not proposing fences unless a landowner agreement requests one. Barriers to movement could affect the ability of wildlife to disperse into other areas to feed, shelter, or breed, which could affect population-level genetics by restricting gene flow. On a landscape level, some of the habitat within and adjacent to the study areas is already fragmented by highways, small roads, and other development, and the addition of the proposed rail line would not greatly increase habitat fragmentation impacts relative to existing landscape conditions in most locations. Nevertheless, localized impacts from fragmentation would result in vegetation changes and changes in species composition along the corridor. However, even with habitat fragmentation, the large areas of suitable habitat around the Action Alternatives would be sufficient to allow for wildlife movement and dispersal. To minimize the potential impacts related to habitat fragmentation, the Coalition has committed to working with UDWR, the Ute Indian Tribe, and adjacent landowners to define areas of the right-of-way that can be left without fences to maintain big game movement~~migration~~ corridors and to installing wildlife-safe fences to confine livestock within grazing allotments where practical and necessary (VM-40, VM-41). In addition, OEA is recommending mitigation requiring the Coalition develop a big game movement corridor crossing plan in consultation with the Ute Indian Tribe, UDWR, OEA, and appropriate land management agencies (BIO-MM-18).

Operations

Rail operations could temporarily and permanently affect wildlife by introducing new sources of noise in the study area; changing the likelihood and spread of wildfires; introducing a source of potential spills and leaks of toxic substances; and altering vegetation in the rail corridor during maintenance. Total rail traffic on the proposed rail line could range from 3.68 to 10.52 trains per day, on average, depending on future market conditions. The number of trains per day would not change the types of operations impacts, but it could affect the frequency of the impact (e.g., more trains could result in increased maintenance activities) or increase the chance of the impact occurring (e.g., more trains could increase the risk of sparking a wildfire).

Wildlife Injury or Mortality

Operation of the proposed rail line could injure or kill individual wildlife due to collisions with trains and maintenance equipment. Higher mortality rates would likely occur where the density of wildlife is higher. For big game species, these higher density areas would be at the locations of the movement corridors that cross or parallel the Action Alternatives (see Appendix G, *Biological Resources Figures*, for figures displaying the movement corridors for each big game species along the Action Alternatives). Species that feed on carrion (flesh of dead animals), species that could use the rail corridor for moving around, and species that would use habitats adjacent to the rail line would have an increased chance of being killed by a collision.

Habitat Degradation and Wildlife Displacement

Rail operations could displace wildlife and render adjacent habitat unsuitable. There is evidence that disturbances (e.g., noise, vibration, and light) associated with operation of a rail line could cause some species to avoid habitat near the rail line, such as meadow/grassland birds (Waterman et al. 2002). In contrast, other studies suggest that some wildlife species (e.g., reptiles, woodland bird species, and small and large mammals) ignore or adapt to rail line disturbances (Ghosh et al. 2010; Wiacek et al. 2015; Mundahl et al. 2013). The severity of rail line disturbance depends on the species and on the degree of the disturbance (Rytwinski and Fahrig 2012).

Operation of the proposed rail line would degrade habitat because of increased noise, dust, and potential spills of contaminants. Increased noise levels could result in fright responses, such as flushing or escaping, or increased communications, such as louder or more extended periods of birdsong or begging vocalizations from young birds. These noise impacts could cause species to expend more energy near the rail line or avoid the area. Noise related to rail operations could cause birds, especially raptors, to abandon their nests with the subsequent demise of young. As discussed previously, displacement could result in reduced survival and productivity because it requires species to expend energy to locate replacement habitat, which may have fewer resources and be of a lower value. Wildlife would also be less familiar with new areas and at greater risk of predation, thus, limiting survival of offspring or adults.

OEA anticipates that most wildlife would become used to, or habituate to, the noise of an operating train and maintenance equipment and would likely avoid the area for the short period that a train or equipment is present. Research indicates that different species of animals habituate to noise differently; some animals habituate to noise after several repetitions of exposure, while other species do not become accustomed to high noise levels (Schulte-Werning et al. 2007). OEA expects that noise-related effects on wildlife would mostly occur within approximately 350 feet of the proposed rail line. This is the distance at which wayside noise levels would be at or above 100 dBA SEL, the noise level at which studies have shown animals (domestic and wild) exhibit a response to train noise (FRA 2005). For horn noise at grade crossings, noise-related effects could occur out to approximately 460 feet from the locomotive. Noise levels beyond this distance are not expected to adversely affect wildlife (FRA 2005).

Dust from train movement and maintenance activity would lower the quality of forage adjacent to the proposed rail line, potentially causing wildlife to expend more energy seeking higher quality forage in undisturbed areas further away from the proposed rail line. Spills of fuels, oils, lubricants, or other hazardous materials during maintenance activities could degrade habitats and prevent use for forage or refuge. However, the large areas of suitable habitats around the Action Alternatives would be sufficient to allow for wildlife movement and dispersal.

The proposed rail line could act as a fire source or a potential fire break (i.e., a gap in vegetation type that slows or stops a fire), which could change the natural fire regime of the ecosystem, thereby altering the composition of wildlife habitat over time. Potential wildfire impacts, including OEA's recommended mitigation related to wildlife, is discussed further under Vegetation.

Encounters with Project Infrastructure

Rail line infrastructure could affect species survival and reproductive success. Power distribution lines, communications towers, and fences associated with the proposed rail line would provide perches for predatory birds, facilitating predation on ground-nesting birds and other small wildlife. However, the Coalition is not proposing fences unless a landowner agreement requests one and OEA anticipates that installation of new power distribution lines would be limited. The Coalition would construct power lines primarily near road crossings where they could be connected to existing distribution lines. In more remote or inaccessible locations, OEA anticipates the Coalition would use solar-powered equipment, which would have fewer wildlife impacts. Communications towers, which would be approximately 120 feet tall, also could present a collision hazard, especially for larger migrating birds. Each Action Alternative would require the construction of four communications towers. At the same time, birds could use power lines, communications towers, or fences for nesting and perching (Daniel and Willard 1978), potentially providing a beneficial impact on many bird species (Table 3.4-~~2~~4), such as increasing individual reproductive success. To address potential adverse impacts on wildlife related to communications towers, OEA is recommending mitigation requiring the Coalition follow the USFWS *Recommended Best Practices for Communication Tower Design, Siting, Construction, Operation, Maintenance, and Decommissioning* (USFWS 2018) to avoid or minimize the risk of bird mortality at communications towers (BIO-MM-1).

Accidents and Spills of Hazardous Materials

The Coalition anticipates that rail traffic on the proposed rail line would consist primarily of trains transporting crude oil. Train accidents or derailments could cause tanker cars to rupture and spill crude oil into the environment. The potential impact of crude oil on the environment would first depend on a train accident or derailment occurring, and then on whether or not the accident or derailment was severe enough to result in a rupture and release of crude oil. Based on train accident and derailment modeling in Section 3.2, *Rail Operations Safety*, operation of any of the Action Alternatives would yield a small number of predicted accidents per year, with roughly one accident involving a loaded train every 3 to 10 years, depending on the Action Alternative. OEA expects that most accidents involving loaded trains would be small and that only approximately one-quarter of those accidents would result in a release of any size. Uinta Basin black and yellow crude oils are waxy crude oils that have a wax content higher than most North American crude oils. The oil does not flow at room temperature and must be heated at higher temperatures for it to flow. Because of this, the oil tends not to disperse if it is spilled onto land. If it is spilled in water, the oil tends to form globules of semisolid material that tend to stay in place. For example, UDEQ documented an oil spill incident (July 12, 2018) and cleanup effort where a tanker truck spilled 1,000 gallons of crude oil that reached the Price River in Carbon County (UDEQ 2018, 2019). Due to the oil's properties, as the crude oil spilled onto the road surface, it began to harden, so only a small amount actually made it to the river. Once the oil reached the river, instead of forming a large slick on the water surface, the oil solidified and formed floating chunks that were easily removed by hand and with assistance from a boom. Sampling of public drinking water supply intakes downstream of the spill showed no exceedances of drinking water standards. In the report for this spill (UDEQ 2019), UDEQ stated that Uinta Basin crude oil has been described as "cleanup friendly" and that "thanks to the nature of the crude oil, most of these spills can be easily cleaned up afterward." A similar incident occurred in the Provo River in 2015 with similar results (Central Utah Water Conservancy District 2015, 2016; Orvis News 2015).

As with most crude oils, Uinta Basin crude oil is toxic and an accidental release could have adverse effects on the environment, including permanent and temporary impacts on vegetated habitats and less mobile wildlife. However, the oil's properties would help reduce the potential impact and make cleanup easier than most crude oils, thereby helping to avoid or minimize the long-term chronic effects from spill of typical crude oils that would spread out over large areas as giant slicks. The Coalition has also proposed voluntary mitigation measures to minimize potential impacts related to spills of crude oil. These measures include a commitment to prepare a hazardous materials emergency response plan; comply with applicable regulations and tribal ordinances related to the safe and secure transportation of hazardous materials; and notify appropriate federal, state, and tribal environmental agencies as required under federal, state, and tribal law in the event of a reportable spill (VM-11, VM-12, VM-13, VM-14, VM-15).

An accidental release of other hazardous materials during operations (e.g., fuel leaks from locomotives or maintenance vehicles) could affect individual animals if they were exposed to the contaminant, which could cause injury, sickness, or death. OEA expects that any release of hazardous materials during operations would be small and would affect a limited area. To minimize impacts related to the accidental release of hazardous materials during operations, the Coalition has proposed voluntary mitigation that would commit the Coalition to promptly cleaning up the spill and notifying responsible agencies in accordance with federal, state, and tribal regulations (VM-10) This measure would help contain a release of hazardous materials and would facilitate rapid cleanup should a spill occur.

Fish

Construction

Construction of the proposed rail line would require installation of bridges and culverts at stream crossings and stream realignments (Section 3.3, *Water Resources*, Table 3.3-12, lists the bridges, ~~and~~ culverts, and stream realignments for each Action Alternative). Bridge and culvert construction could affect fish by injuring or killing fish from in-stream construction activities, increasing sedimentation and turbidity in streams, prohibiting fish movement, degrading water quality from release of hazardous materials into streams, and temporarily and permanently removing riparian vegetation. Stream realignments would permanently fill stream channels and replace them with a human-made channel. Potential direct impacts (e.g., fish injury or mortality) would be more likely to occur in those surface waters that support fish and have fish present at the time of construction (e.g., perennial and intermittent streams). Ephemeral streams, which can support fish during flows and provide important indirect support to downstream fish populations (e.g., delivering nutrients to perennial streams), could be dry during construction, which would preclude these potential direct impacts on fish at the time of construction.

Injury or Mortality

Construction could kill or injure fish if they are present at the construction site. Use of construction equipment in active stream channels could injure or crush eggs, larvae, and juvenile fish. Construction equipment could compact soils and substrate in the streambed, resulting in the death of larvae and eggs in or on substrate material. Where there is a soft sediment bottom, equipment movement could redirect streamflow. Portions of the streambed could become dry and isolated, resulting in mortality of fish. If water diversions and temporary dewatering are needed, developing eggs and pre-emergent larvae could dry out and die. Eggs, larvae, and juvenile fish would be more susceptible to harm than adult fish from in-stream construction because they are immobile or less mobile. Adult and larger juvenile fish are generally more capable of moving away from disturbance and would likely avoid exposure where possible. Potential fish mortality impacts from construction activities would be localized and temporary, lasting only for the duration of the in-stream construction.

Bridge construction could also injure fish from underwater noise associated with vessel movement and installation of bridge supports. OEA expects that the Coalition would install bridge foundations by either pile driving or inserting steel piles into drilled shafts, depending on site-specific geological conditions. Sound generated by pile driving has the potential to affect fish in several ways, ranging from alteration of behavior to physical injury or mortality, depending on the intensity and characteristics of the sound, the distance and location of the fish in the water column relative to the sound source, the size and mass of the fish, and the fish's anatomical characteristics (Hastings and Popper 2005). Injuries can include change in hearing capability or actual damage to the inner ear, damage or destruction of the swim bladder, other cellular and molecular effects, and possible adverse effects on eggs and larvae (Hastings and Popper 2005). Behavioral effects, such as fish leaving or avoiding an area, have been observed (Swan 2012).

The effects of hearing loss in fish could increase their vulnerability to predators and/or result in a reduced ability to locate prey, inability to communicate, or inability to sense their physical environment (Hastings and Popper 2005). Popper et al. (2005) found that fish experiencing temporary shifts in sensitivity to sounds were able to recover in less than 18 hours post exposure. Therefore, OEA expects that potential noise impacts on fish would be temporary, lasting only the duration of in-stream construction.

To minimize the risk of killing or injuring fish during in-stream construction work, OEA is recommending mitigation requiring the Coalition comply with any federal, state, or local in-water work windows and timing restrictions for the protection of fish species (BIO-MM-2). In addition, OEA is recommending mitigation requiring the Coalition implement appropriate noise-attenuating methods, such as bubble curtains or wood or nylon pile caps when installing or proofing pilings below the ordinary high water line of fish-bearing streams to minimize underwater sound impacts on fish (BIO-MM-3).

Sedimentation and Turbidity

Construction activities could increase sedimentation and turbidity (cloudiness) in streams that the proposed rail line would cross. High turbidity levels can directly affect the physical health of fish and alter fish behavior, but the severity of these impacts would vary depending on species susceptibility. High turbidity affects gill function, blood sugar levels, and osmoregulatory[8] function in fish. Increased turbidity can also affect fish behavior by changing responses to predation risk and predator avoidance, changing foraging ability, and reducing territoriality. Species that can tolerate high turbidity levels (e.g., carp) would be less susceptible to elevated turbidity compared to species that are less tolerable of turbidity (e.g., trout), particularly if the impacts were to be short term and did not cause permanent habitat degradation.

Increased sediment in streams would affect juvenile fish by changing their behavior and/or affecting their food sources. Many juvenile fish primarily eat macroinvertebrates that live on the streambed. Fill and sediment in the stream could be deposited on the substrates where the macroinvertebrates live, which would reduce the food available for juvenile fish. Excessive sediment in a stream could decrease the depth of the stream and

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[8] Osmoregulation is the process of maintaining salt and water balance across membranes.

reduce the number of pools and the physical space available for juvenile fish, which could decrease their survival rate.

Although construction would cause sedimentation and turbidity in surface waters, this impact would be temporary. To minimize impacts related to the sedimentation and turbidity in surface waters, the Coalition has proposed voluntary mitigation that would commit the Coalition to obtaining a Clean Water Act Section 401 water quality certification and an NPDES permit, and developing a SWPPP (VM-19, VM-21, VM-26). The Section 401 water quality certification, SWPPP, and NPDES permit conditions would contain site-specific measures to avoid and minimize erosion and sedimentation that could cause turbidity in surface waters and thereby minimize potential impacts on fish.

Fish Movement

Culvert and bridge installation in fish-bearing streams could involve installing temporary pipe and pump system streamflow diversions to bypass streamflow around the culvert and bridge work area, which would temporarily impede fish movement. In-stream work could involve installing a cofferdam to create a dry work area. This would temporarily prevent fish migration through the culvert and bridge installation area and would block access to upstream and downstream habitat. This impact would be temporary, lasting only for the duration of the culvert and bridge installation.

To minimize impacts on fish movement during construction, OEA is recommending mitigation requiring the Coalition use block-nets to remove and exclude fish from in-water work areas, to the extent practicable and comply with reasonable federal, state, or local in-water work windows and timing restrictions for the protection of fish species, and other reasonable requirements of the in-water work permits (BIO-MM-2, BIO-MM-4).

Water Quality

Construction would require the use of common construction materials (e.g., concrete, paint, and wood preservatives) and petroleum products (e.g., fuels, lubricants, and hydraulic fluids) that may be toxic to fish. These materials could be stored within the rail corridor and/or in staging areas

during construction. An accidental spill of hazardous materials in or near a water body could reach a stream or other surface water and degrade water quality, which would affect the health or survival of fish and fish habitat. The nature and extent of these impacts would depend on the type and amount of material that would reach the surface waters, the timing of the spill, and the ecological sensitivity of the affected habitat. Spills during the spawning season would be particularly detrimental for nest-spawning species or species with immobile (nondrifting) eggs, but the high-flow conditions that are typical during the spring spawning season would dilute spills and limit the duration and severity of their impacts. Spills in slow-moving water environments (e.g., pool and backwater habitats) could result in long-term impacts because there would not be regular water flows to flush toxic materials from these habitats.

Although construction could result in hazardous materials reaching surface waters, which could affect fish, the Coalition has proposed voluntary mitigation that would commit the Coalition to obtaining a Clean Water Act Section 401 water quality certification and an NPDES permit, and developing a SWPPP (VM-19, VM-21, VM-26) to reduce impacts on surface water quality.

In-stream and Riparian Habitats

Construction would require some removal or alteration of riparian vegetation, which would influence the quality of fish habitat by reducing streambank stability; food production; and instream cover, complexity, and temperature. The severity of these impacts would depend on the area of affected riparian habitat and the duration of construction activities, which would vary across the three Action Alternatives (Section 3.4.3.2, *Impact Comparison between Action Alternatives*). Woody debris from streamside trees provides cover and habitat complexity, which are essential components of fish habitat. Riparian zones are sources of terrestrial nutrients, such as insects and plant matter, that are transported to the aquatic system. Riparian vegetation also provides shade and an insulating canopy that moderates water temperatures and creates a natural filter that reduces the transport of fine sediment to the stream. The roots of riparian vegetation stabilize streambanks, providing foraging habitat and cover for rearing fish. The removal of riparian vegetation would eliminate these benefits for fish. It would also accelerate the natural processes of channel meandering and erosion, which could affect fish habitat. To minimize the impacts related to the removal or alteration of riparian vegetation, OEA is recommending mitigation requiring the Coalition avoid clearing riparian vegetation to the extent practicable, minimize the area and duration of construction-related disturbances in riparian areas and along streambanks, and immediately restore and revegetate temporarily disturbed riparian areas with native vegetation once construction is complete (BIO-MM-5).

Stream Channel Realignment

Construction of any of the Action Alternatives would involve realigning stream channels. These stream realignments would occur in areas where the proposed rail line would parallel a stream and topography, existing infrastructure (e.g., highways), or rail line design standards (e.g., curvature ratio) would make it impossible to avoid the stream. Stream realignments would involve filling segments of the stream and moving the stream channel to maintain hydrologic connectivity and stream flow, which would result in the permanent loss of the original aquatic habitat and stream functions. The stream realignment process typically involves designing and constructing the new stream channel prior to placement of permanent fill in the existing stream. Once construction of the new channel is completed, flow is diverted into the new channel by blocking flow into the existing stream channel. After flow is established in the new channel, the original stream is permanently filled. If improperly designed, realigned stream channels can result in physical and ecological impacts on aquatic habitat. Primary changes to the channel dimensions and materials, alongside changes to flow velocity or channel capacity, can lead to various problems, such as heightened erosion or deposition, changes in geomorphology and sediment transport dynamics downstream, hanging tributaries, vegetation loss, water quality issues, and associated ecological impacts (Flatley et al. 2018). Fundamentally, a realigned channel replaces a natural section of a stream with a human-made channel. The artificial channel is usually different from the natural channel in several ways, such as being shorter and steeper, having different bed and bank material, having no floodplain, and cutting across tributaries, all of which can lead to erosion, flooding, and fish passage issues (Flatley et al. 2018). OEA is recommending mitigation requiring the Coalition to design all stream realignments in consultation with USACE as part of the CWA Section 404 permitting process compensatory mitigation plan development to ensure that affected stream functions are adequately mitigated (WAT-MM-3). In addition, the Coalition has proposed voluntary mitigation that would commit the Coalition to relocating streams using bioengineering methods and obtaining stream alteration permits (VM-29, VM-31). These mitigation measures would offset the impact of stream realignments, but some impacts would be unavoidable.

Operations

Fish Movement

The main impact from rail operations on fish would be related to culverts. Culverts could impede fish movement if not designed properly. Common issues with culverts that restrict fish movement include increased water velocity, decreased water depth, and culvert outlet drop heights. The effects of culverts can alter instream habitats and fish assemblages (Huser 2009). Culverts have localized effects on instream habitat and fish assemblages. In addition, culverts can disrupt the normal, within-stream movements of some macroinvertebrates. Macroinvertebrates are key components of the aquatic ecosystem and are important food sources for fish. Disruption to the movement and dispersal of stream macroinvertebrates could reduce available habitat and lead to genetic isolation of some populations (Vaughan 2002). OEA is recommending mitigation requiring the Coalition implement culvert best management practices to ensure all culverts are sufficiently clear of debris to avoid flow blockages and design culverts to allow aquatic organisms to pass relatively unhindered, which would minimize impacts on fish movement (WAT-MM-10, BIO-MM-6).

Accidents and Spills of Hazardous Materials

As discussed previously, the characteristics of Uinta Basin crude oil would limit its spread if it were spilled into or near surface water as a result of a derailment or other accident. The Coalition has proposed voluntary mitigation measures to minimize potential impacts related to spills of crude oil. These measures include a commitment to preparing a hazardous materials emergency response plan; complying with applicable regulations and tribal ordinances related to the safe and secure transportation of hazardous materials; and notifying appropriate federal, state, and tribal environmental agencies as required under federal, state, and tribal law in the event of a reportable spill (VM-11, VM-12, VM-13, VM-14, VM-15). Some temporary impacts on aquatic habitat and fish would be unavoidable in the event of a spill, and could include impacts from disturbances caused by collecting globules of oil during cleanup.

An accidental release of other hazardous materials during operations (e.g., fuel leaks from locomotives or maintenance vehicles) could affect aquatic habitat and fish if the fuel were to reach the aquatic habitat. OEA expects that any release of hazardous materials during operations would be small and would affect a limited area. To minimize impacts related to the accidental release of hazardous materials during operations, the Coalition has proposed voluntary mitigation that would commit the Coalition to promptly cleaning up the spill and notifying responsible agencies in accordance with federal, state, and tribal regulations (VM-10). These measures would prevent large quantities of fuel (if any) reaching aquatic habitat.

Vegetation

Construction

Construction of the proposed rail line would involve clearing, excavating, and filling within the project footprint, which would result in the permanent or temporary loss or alteration of vegetation. Construction could also affect vegetation beyond the project footprint as a result of fugitive dust emissions, the introduction and/or spread of noxious weeds, and releases of hazardous materials. The extent of such impacts would vary based on the affected vegetation, relative abundance of vegetation, soil conditions, hydrology, topography, and the extent of earthmoving required for construction.

Clearing and Fill Placement

Within the rail line footprint, construction would involve the permanent removal of vegetation to allow for the placement of fill for regrading of the rail corridor, construction of the railbed, and installation of permanent project-related features, such as permanent access roads. Following construction, some natural vegetation regrowth could occur in areas within the rail line footprint that are not periodically maintained for vegetation control. However, regrowth would be sparse in areas that would be continually disturbed by railroad maintenance. In the temporary footprint, construction would involve temporarily clearing vegetation for construction staging areas, temporary access roads, and temporary facilities. Disturbed areas in the temporary footprint would be reclaimed and revegetated following construction. Some affected vegetations types in the temporary footprint, such as shrub and forest, would take many years to be completely restored to pre-construction conditions. Although vegetation would return to the ~~temporarily~~ disturbed areas in the rail line footprint beyond the rail bed, the clearing of shrub and forest vegetation would alter and likely permanently change the vegetation cover class to nonwoody herbaceous cover classes. The Coalition has proposed voluntary mitigation stating that it would limit ground disturbance to only the areas necessary for project-related construction activities and would revegetate disturbed areas when construction is completed (VM-

21, VM-26). In addition, OEA is recommending mitigation requiring the Coalition to develop a detailed reclamation and mitigation plan for temporarily disturbed areas (BIO-MM-16).

Even if the Coalition's voluntary mitigation measures are implemented, however, permanent impacts on vegetation in the project footprint would be unavoidable.

Plant Germination and Growth

The movement of heavy equipment and supplies during construction could compact the soil, which would affect vegetation germination and growth within the project footprint. Compaction is caused when soil particles are squeezed together, making soils denser, oxygen-deprived, and less able to absorb water (Alabama Cooperative Extension System 2013). This condition would prevent seeds from germinating and would make it difficult for roots to penetrate the soil surface. Vegetation removal and soil compaction would expose soil to erosion caused by rain and overland stormwater runoff, which could reduce soil quality and negatively affect vegetation within and beyond the rail corridor, especially in areas with steep terrain. To minimize these impacts, OEA is recommending mitigation requiring the Coalition minimize the duration and extent of activity at temporary construction facilities (e.g., staging areas), provide surface treatments to minimize soil compaction, and promote vegetation growth after the facilities are no longer needed to support construction (WAT-MM-5).

Noxious and Invasive Weeds

Rail construction could introduce and increase the spread of noxious and invasive weeds in the following ways.

- Construction equipment could carry weed seeds or plant parts from infested areas outside the project footprint into the project footprint.
- Construction equipment could disturb existing weed infestations in the project footprint and cause the spread of these infestations.
- Overburden and cut materials containing weeds could be transferred to offsite locations.
- Fill material could contain weeds.
- Seed mixtures containing weed seeds could be used for revegetation.

Noxious and invasive weeds introduced during construction activities would compete with native vegetation. Noxious and invasive weeds are often more aggressive than native vegetation, and the disturbed conditions of a construction site can create an environment (e.g., bare and compact soil, disturbed surfaces) where some noxious and invasive weeds thrive. Noxious and invasive weeds that encroach beyond the rail corridor could out-compete native vegetation and result in altered vegetation structure, a reduction in plant species richness, and overall disruption of the plant ecosystem. To minimize impacts related to noxious and invasive weeds, the Coalition has proposed voluntary mitigation that would commit the Coalition to preparing a noxious and invasive weed control plan, in consultation with the Ute Indian Tribe, that will include the policies and strategies in Utah's Strategic Plan for Managing Noxious and Invasive Weeds, where practical (VM-38, BIO-MM15). If implemented, this mitigation measure would minimize impacts related to noxious and invasive weeds during project-related construction.

Dust Deposition

The operation of construction equipment would generate fugitive dust from loose soil. Accumulation of fugitive dust on vegetation in or near the project footprint could affect plant growth by inhibiting photosynthesis and reducing vegetation density and plant diversity. More tolerant native plant species could benefit from decreased competition. Increased dust could cause some noxious weeds to colonize and disrupt the overall plant ecosystem. The magnitude and duration of dust exposure, tolerance of native vegetation, and aggressiveness of noxious weeds would determine vegetation response and the intensity of impacts. However, any dust accumulation on vegetation would be temporary and would last only for the duration of construction or until a precipitation event washes away the accumulated dust. To minimize impacts related to fugitive dust deposition, the Coalition has proposed voluntary mitigation that would commit the Coalition to implementing fugitive dust controls (VM-23). If this measure is implemented, OEA expects that the impact of construction-related fugitive dust on vegetation would be temporary and insignificant.

Accidental Spills of Hazardous Materials

Accidental release of hazardous materials during construction, such as an inadvertent spill of gasoline or oil when fueling or storing construction equipment, could damage vegetation and affect plant growth. The extent of the impact would depend on the type and volume of the material spilled, the location, and the vegetation affected. Because construction activities would not involve using or storing large volumes of hazardous materials, OEA expects that any uncontained spills of hazardous materials during construction would be small and would affect a limited area. To minimize impacts related to accidental spills of hazardous materials, the Coalition has proposed voluntary mitigation that would commit the Coalition to obtaining a Clean Water Act Section 401 water quality certification and an NPDES permit, and developing a SWPPP (VM-19, VM-21, VM-26).

Operations

The primary operation activities that could affect vegetation are maintenance, incidental pollutant discharges from train operation, and wildfires. Total rail traffic on the proposed rail line would range from 3.68 to 10.52 trains per day, on average. The number of trains per day would not change the types of operation impacts, but it could affect the frequency of the impact (e.g., more trains could result in increased maintenance activities) or increase the chance of the impact occurring (e.g., more trains could increase the risk of sparking a wildfire).

Maintenance Activities

Maintenance activities would include controlling vegetation and maintaining tracks and other features in the rail line footprint. These activities would be infrequent and brief. Vegetation would be periodically cleared or trimmed in the corridor, which could permanently alter vegetation. For example, shrub vegetation that would be continuously cleared for maintenance could convert to herbaceous vegetation. Maintenance activities could disturb the ground surface or result in leaks and spills of fuels, oils, or lubricants from maintenance vehicles and equipment. Any mobilized sediment, spilled chemicals, or petroleum products could reach adjacent vegetation, affecting plant density and diversity and degrading the plant ecosystem on a localized scale. However, the area of vegetation that could be affected would be small, and maintenance activities would be infrequent and brief. To minimize impacts related to the accidental release of hazardous materials during operations, the Coalition has proposed voluntary mitigation that would commit the Coalition to promptly clean up the spill and notify responsible agencies in accordance with federal, state, and tribal regulations (VM-10). However, some impacts related to vegetation control within the rail line footprint would still be unavoidable.

Pollutant Deposition

Rail operations would release pollutants that could affect vegetation. The two most important types of pollutants associated with rail transport are PAHs and heavy metals (Wilkomirski et al. 2011). PAHs occur naturally in air, water, and soil but can also be manufactured. They are found in substances such as asphalt, oil, coal, and creosote (Agency for Toxic Substances and Disease Registry 1995). The main sources of PAHs around rail lines are substances used for rolling stock use, such as machine grease, fuel oils, and transformer oils (Wilkomirski et al. 2011). Heavy metals in emissions and rail car materials can build up on plants and in soil near rail lines (Wilkomirski et al. 2011). Stormwater discharges from the railbed and access roads could convey low concentrations of these pollutants to vegetated areas. Some plant species accumulate and tolerate PAHs (Simonich and Hites 1994 in Liu et al. 2009). However, PAHs can also stunt plant growth and affect root physiology (Liu et al. 2009). Heavy metals may inhibit growth and damage plant physiology, but plants also have resistance mechanisms against toxic effects (Cheng 2003). Any releases of PAHs and heavy metals associated with rail operations would be localized and could result in the degradation of vegetation within the rail line footprint. OEA does not expect that these pollutants would affect vegetation outside of the rail line footprint.

Wildfire

Trains can contribute to wildfires by providing an ignition source. The two most common ignition sources associated with railroads are exhaust sparks (carbon particles, such as chunks or flakes) emitted from the locomotive engine and hot brake shoe fragments (California Department of Forestry and Fire Protection et al. 1999). With the advent of composition brake shoes, brake-shoe sparks and fragments are much less common, unless the shoe is worn out (California Department of Forestry and Fire Protection et al. 1999).

Several factors are important for assessing where exhaust sparks are most likely to occur. These include how long a locomotive has been idling, where it accelerates and decelerates, and where downgrades are located (California Department of Forestry and

Fire Protection et al. 1999). When a locomotive is idling or operating at minimum power, carbon particles can build up in the locomotive. When power is turned up after a period of idling or operating at minimum power, those carbon particles can be ejected out of the locomotive. Locomotives are most likely to idle or operate at minimum power in rail yards, on sidings, while negotiating downgrades and decelerating for a stop or for a restricted speed zone (California Department of Forestry and Fire Protection et al. 1999). Exhaust-spark fires are most likely to occur at yard exits and sidings, at locations where long downgrades change to level or upgrade track, and where the rail line grade changes from level to steep upgrade track (California Department of Forestry and Fire Protection et al. 1999).

Any of the Action Alternatives would require sidings (Chapter 2, *Proposed Action and Alternatives*, Table 2-7), which would increase the potential for locomotive carbon particle buildup and emissions. Locomotives would also be stopped or operating at minimum power when materials would be loaded into rail cars at the terminus points of the rail line. Many grade changes would occur along the Action Alternatives that could contribute to carbon particle buildup and emissions.

If rail operations were to start a fire, impacts on vegetation would vary, depending on the conditions at the time of the wildfire and on prevention and suppression efforts. Some wildfires alter vegetation structure in relatively subtle ways (reducing litter and dead herbs in small areas). Other wildfires change nearly every aspect of vegetation structure. Woody plants may be stripped of foliage and killed; litter and organic matter may be consumed, exposing mineral soil; and underground structures, such as roots and rhizomes, may be killed (e.g., in most coniferous trees) or rejuvenated (e.g., in many grass and shrub species, aspen, and oak) (Forest Service 2000). To the extent that conditions become drier due to climatic trends, there could be greater potential for wildfire starts earlier and later in the year, and more acreage burned.

The probability of a train-induced wildfire would be very low because of several reasons, including improvements in locomotive technology and the fact that trains make up a small percentage of fire starts (Table 3.4-~~5~~7). OEA is also recommending mitigation requiring the Coalition develop and implement a wildfire management plan in consultation with appropriate state and local agencies, including local fire departments (BIO-MM-7). The plan should incorporate specific information about operations, equipment, and personnel on the rail line that might be of use in case a fire occurs and should evaluate and include, as appropriate, site-specific techniques for fire prevention and suppression. If OEA's recommended mitigation is implemented, OEA concludes that the impacts of wildfire on vegetation would not be significant.

In response to comments received on the Draft EIS, OEA considered impacts from rail operations along existing rail line segments downline of the proposed rail line for some biological resources, including impacts related to wildfires. Trains originating or terminating on the proposed rail line could be an ignition source for wildfires along existing rail lines outside of the study area. However, because those existing rail lines are active rail lines that have been in operation for many years, construction and operation of the proposed rail line would not introduce a new ignition source for wildfires along the downline segments. For the reasons discussed above, the probability that a train would trigger a wildfire is very low, and nearly 90 percent of the area along the downline segments consists of very low, low, nonburnable, and water WHP classes (Table 3.4-9). Therefore, the downline wildfire impact of the proposed rail line would not be significant. Because the Coalition does not and would not operate any existing rail lines downline of the proposed rail line, the Board cannot impose mitigation on the Coalition that would address potential downline impacts from rail operations related to wildfire. However, any trains operating on downline segments would be subject to the same federal regulations as the proposed rail line for rail transportation, including regulations related to fire safety and the transportation of crude oil by rail, which would minimize potential wildfire impacts.

Accidental Spills of Hazardous Materials

Oil could spill from a tanker car onto vegetation should a train accident or derailment occur. Section 3.4.3.1, *Impacts Common to All Action Alternatives, Wildlife*, discusses the probability of an oil spill occurring during operations and the characteristics of Uinta Basin crude oil that limits its spread when spilled in the natural environment. If cleanup and oil removal were to commence immediately after a spill, impacts on vegetation would be minimized. However, some permanent and temporary vegetation impacts could occur during cleanup, which could result in the loss of vegetation and establishment and spread of noxious and invasive weeds. The Coalition has proposed voluntary mitigation measures to minimize potential impacts related to spills of crude oil. These measures include a commitment to preparing a hazardous materials emergency response plan; complying with applicable regulations and tribal ordinances related to the safe and secure transportation of hazardous materials; and notifying appropriate federal, state, and tribal environmental agencies as required under federal, state, and tribal law in the event of a reportable spill (VM-11, VM-12, VM-13, VM-14, VM-15).

Special Status Species

Construction

The types of construction-related impacts on special status species would be the same as those described previously for wildlife, fish, and vegetation in general. These potential impacts include individual injury or mortality, habitat loss or alteration, wildlife displacement, and barriers to movement.

Endangered Species Act-Listed Species

Construction of the proposed rail line could affect 10 federally listed species: Barneby ridge-cress, Pariette cactus, Uinta Basin hookless cactus, Ute ladies'-tresses, Canada lynx, Mexican spotted owl, bonytail, Colorado pikeminnow, humpback chub, and razorback sucker. OEA is currently conducting ESA Section 7 consultation with USFWS to assess the potential effects of the proposed rail line on ESA-listed species and has prepared a ~~Draft~~ Biological Assessment that discusses those potential effects

(Appendix I, ~~*Draft*~~ *Biological Assessment*). The ~~Draft~~ Biological Assessment concludes that construction and operation of any of the Action Alternatives would be likely to adversely affect Colorado pikeminnow, humpback chub, bonytail, razorback sucker, Pariette cactus, Uinta Basin hookless cactus, and Ute ladies-tresses. Depending on the Action Alternative, construction and operation of the proposed rail line would also be likely to adversely affect Barneby ridge-cress. The ~~Draft~~ Biological Assessment also concludes that construction and operation of any of the Action Alternatives would be not likely to adversely affect Canada lynx and Mexican spotted owl. To minimize impacts on federally listed threatened and endangered species, OEA is recommending mitigation requiring the Coalition implement all terms and conditions of USFWS' Biological Opinion (BIO-MM-9).

Bald and Golden Eagles

Eagles have been observed in the study areas for all Action Alternatives. During field surveys, the Coalition did not observe any eagle nests in the study areas. Suitable nesting, perching, and foraging habitat exists in the study areas and immediate vicinity. While golden eagles are common throughout Utah and habitat is found throughout the study area, bald eagles primarily winter in Utah for a few months out of the year. The Utah GAP Analysis (1999) modeled potential bald eagle habitat in Utah and very little breeding habitat was identified. In the event an eagle nest is observed in or near construction sites prior to or during construction, OEA is recommending mitigation requiring the Coalition comply with the Bald and Golden Eagle Protection Act and to follow the USFWS *National Bald Eagle Management Guidelines* (USFWS 2007), which may include contacting USFWS to coordinate efforts to avoid or minimize disturbance of eagle nests (BIO-MM-8). Such efforts might include the following.

- Maintaining a distance between the construction activity and the nest (distance buffers).
- Maintaining forested (or natural) areas between the construction activity and around nest trees (landscape buffers).
- Avoiding disruptive (loud) activities during the breeding season.

If take[9] of an eagle or eagle nest cannot be avoided, the Coalition would obtain a permit from USFWS. To minimize potential impacts on eagles, OEA is recommending mitigation requiring the Coalition abide by the reasonable requirements of all appropriate federal and state permits to possess, relocate, or disassemble a bald or golden eagle nest, and/or work within 0.5 mile of a bald eagle or golden eagle nest, regardless of whether the nest is active or inactive (BIO-MM-11). OEA is recommending the Coalition also follow the guidelines for avoiding and minimizing impacts set out in the *Utah Field Office*

[9] The Bald and Golden Eagle Protection Act defines take as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb." Disturb means "to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, 1) injury to an eagle, 2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or 3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior."

Guidelines for Raptor Protection from Human and Land Use Disturbances for the protection of bald and golden eagles, as applicable (BIO-MM-11). OEA expects that construction-related impacts on eagles would be insignificant if OEA's recommended mitigation measures are implemented.

Sensitive Species

The types of construction-related impacts on BLM- and Forest Service-sensitive species would be the same as those described previously for wildlife, fish, and vegetation in general, including potential injury or mortality, habitat loss or alteration, wildlife displacement, and barriers to movement. If individual sensitive plant species are located in the project footprint, they could be permanently removed or temporarily disturbed during construction. If sensitive fish or wildlife species are encountered during construction, they could be injured or killed. However, given the mobility of the sensitive wildlife species that might be present during construction, OEA expects injury or mortality of a sensitive wildlife species would be rare. Those species that depend on habitats that are permanently removed would be displaced and forced to use similar adjacent habitat. The large areas of suitable habitats around the Action Alternatives would be sufficient to allow for wildlife movement and dispersal. OEA consulted with the Forest Service and developed a Biological Evaluation (Appendix H, *Biological Evaluation*) to assess the potential effects on Forest Service-designated sensitive species. The Biological Evaluation concludes that operation of the proposed rail line would have little or no impact on Forest Service-designated sensitive species within Ashley National Forest. To address construction-related impacts on sensitive species, OEA is recommending mitigation requiring the Coalition implement the requirements of land management agencies that would issue rights-of-way across public lands, including BLM and the Forest Service, as appropriate (LUR-MM-3, LUR-MM-4). These requirements would include appropriate measures to minimize impacts on BLM- and Forest Service-designated sensitive species.

Greater Sage-Grouse

In general, development activities adversely affect greater sage-grouse populations due to habitat loss, presence of humans and infrastructure, and noise (Aldridge and Boyce 2007; Aldridge 2005; Doherty et al. 2008; Holloran 2005; Lyon and Anderson 2003; Walker et al. 2007). There is also evidence suggesting that greater sage-grouse avoid noise from human activities independent of disturbance, associated infrastructure, and habitat fragmentation and that intermittent noise, such as traffic noise, has a larger effect on greater sage-grouse than continuous noise (Blickley et al. 2012).

Any of the Action Alternatives would cross greater sage-grouse habitat, including breeding, nesting, brood-rearing, and wintering habitat, and would result in the permanent removal of and temporary disturbance to that habitat (Table 3.4-~~9~~12 and Table 3.4-~~10~~13). Disturbed areas in the temporary footprint would be reclaimed and revegetated following construction; however, affected sagebrush habitat in the temporary footprint would take many years to be restored to pre-construction conditions due to the difficulty in reestablishing this type of habitat (Meyer 1992).Greater sage-grouse could also be killed or injured by collisions with construction equipment, workers' vehicles, and project-related infrastructure (fences and communications towers). Noise from construction equipment and the presence of people in construction areas could displace greater sage-grouse and cause them to disperse into habitat areas further away from the rail line (Appendix J, *Bureau of Land Management Greater Sage-Grouse Resource Management Plan Compliance*). There are also several greater sage-grouse leks in the vicinity of all three Action Alternatives within the Carbon SGMA (Figure 3.4-1). The habitat removal and noise associated with construction of the proposed rail line could cause greater sage-grouse to avoid or abandon those leks, especially if construction were to take place during the breeding season.

Because the Indian Canyon Alternative and the Wells Draw Alternative would cross mapped greater sage-grouse PHMAs on BLM-administered lands, construction of the proposed rail line would need to comply with the BLM *Utah Greater Sage-Grouse Approved Resource Management Plan Amendment* (BLM 2015a) for BLM to be able permit either of these Action Alternatives. OEA is recommending mitigation requiring the Coalition abide by the requirements of that plan and BLM's other reasonable requirements related to construction impacts on greater sage-grouse if the Board were to authorize either the Indian Canyon Alternative or the Wells Draw Alternative (BIO-MM-13). Because the Whitmore Park Alternative would not cross BLM-administered lands, mitigation related to the BLM plan would not be necessary. OEA is also recommending mitigation requiring the Coalition follow the reasonable requirements of the *Utah Conservation Plan for Greater Sage Grouse* (State of Utah~~UDWR~~ 2019~~e~~) during project-related construction for any of the Action Alternatives (BIO-MM-13). Section 3.4.3.2, *Impact Comparison between Action Alternatives*, describes how these plans relate to each of the Action Alternatives. In addition, the Coalition's voluntary mitigation states that the Coalition will execute a Mitigation Agreement with UDWR (Appendix K, *Greater Sage-Grouse Mitigation Strategies Memorandum*) to address impacts within the Carbon SGMA. That agreement will specify the actions that the Coalition would take to avoid and minimize impacts on greater sage-grouse habitat during construction and operation of the proposed rail line, as well as strategies for compensatory mitigation (VM-35).

Operations

The types of operations-related impacts on special status species would be the same as those described previously for wildlife, fish, and vegetation in general. These potential impacts include individual injury or mortality, habitat fragmentation and degradation, wildlife displacement, barriers to movement, and affects from accidents and spills of hazardous materials.

Endangered Species Act-Listed Species

Operation of the proposed rail line could affect 10 federally listed species: Barneby ridge-cress, Pariette cactus, Uinta Basin hookless cactus, Ute ladies'-tresses, Canada lynx, Mexican spotted owl, bonytail, Colorado pikeminnow, humpback chub, and razorback sucker. OEA is currently conducting ESA Section 7 consultation with USFWS to assess the potential impacts of the proposed rail line on ESA-listed species and has prepared a ~~Draft~~ Biological Assessment discussing those potential impacts (Appendix I, ~~*Draft*~~ *Biological Assessment*). The ~~Draft~~ Biological Assessment concludes that construction and operation of any of the Action Alternatives would be likely to adversely affect Colorado pikeminnow, humpback chub, bonytail, razorback sucker, Pariette cactus, Uinta Basin hookless cactus, and Ute ladies'-tresses. Depending on the Action Alternative, construction and operation of the proposed rail line would also be likely to adversely affect Barneby ridge-cress. The ~~Draft~~ Biological Assessment also concludes that construction and operation of any of the Action Alternatives would be not likely to adversely affect Canada lynx and Mexican spotted owl. To minimize impacts on federally listed threatened and endangered species, OEA is recommending mitigation requiring the Coalition implement all terms and conditions of USFWS' Biological Opinion (BIO-MM-9).

In response to comments received on the Draft EIS, OEA considered impacts from rail operations along existing rail line segments downline of the proposed rail line for some biological resources, including impacts on ESA-listed species. OEA notes that the existing UP rail line between Kyune and Denver crosses critical habitat for the Colorado pikeminnow and razorback sucker in the Green River and closely parallels critical habitat for the Colorado pikeminnow, razorback sucker, humpback chub, and bonytail in the Colorado River. Because the existing

UP rail line is an active rail line that has been in operation for many years, impacts from rail operations on ESA-listed fish species and critical habitat along that rail line have occurred and would continue to occur, and the addition of up to 9.5 additional trains per day, on average, would not substantially change the severity of those impacts. Along any active rail line, including the existing UP rail line, minor leaks or drips of fuel or lubricants from locomotives, maintenance vehicles, or rail cars may occur during rail operations and, if those substances were to be deposited into waterways, impacts on aquatic organisms, including fish, would occur. However, the proposed rail line would not introduce a new potential source of pollution along the existing UP rail line because that rail line is already an active rail line that has been in operation for many years. OEA notes that, if a large release of crude oil were to occur on a downline segment that crosses or is immediately adjacent to critical habitat for ESA-listed fish species, adverse impacts on those fish would occur. However, as discussed in Section 3.1, *Rail Operations Safety*, the probability of a large spill of crude oil is very low and such an outcome is not reasonably foreseeable. Because the Coalition does not and would not operate any existing rail lines downline of the proposed rail line, the Board cannot impose mitigation on the Coalition that would address potential downline impacts from rail operations on the Colorado pikeminnow, razorback sucker, humpback chub, and bonytail. However, any trains operating on downline segments would be subject to the same federal regulations as the proposed rail line for rail transportation, including regulations for the transportation of crude oil by rail, which would minimize potential impacts on ESA-listed species and critical habitat.

Bald and Golden Eagles

As discussed previously, OEA expects that a noise level of 100 dBA SEL from rail operations would disturb wildlife. This level of noise could occur in areas up to 350 feet from the rail line for wayside noise and 460 feet from the rail line for horn noise. If eagles nested within these distances from the rail line, train operation and noise, as well as noise from maintenance activities, could disturb nesting eagles, potentially resulting in failed nesting attempts or mortality to young. While there is some evidence that eagle nests are more successful when located farther away from highways and rail lines, (Mundahl et al. 2013), eagles are known to successfully nest near disturbances that they do not directly associate with humans (Mundahl et al. 2013; Peterson 1986). Because wildlife-disturbing noise impacts from rail operations would primarily occur within 350 to 460 feet of the proposed rail line, OEA does not anticipate significant impacts on eagles if the Coalition's voluntary mitigation measures and OEA's additional recommended mitigation measures are implemented (BIO-MM-8, BIO-MM-11).

Train operation could injure or kill individual eagles due to collisions with trains. Eagles feed on carrion (flesh of dead animals), and dead animals along the rail line from train strikes could attract eagles where they would be susceptible to train strikes, which could result in eagle injury or death. The maximum speed for a loaded train would be 10 to

20 miles per hour, which would likely be slow enough for large and medium sized animals, including eagles, to see and hear the train in advance of a potential strike, allowing animals to flee the area. Unloaded trains may move faster, and the track is designed for a maximum speed of 40 miles per hour, which would increase the risk of animal strikes, including eagles feeding on carrion. OEA is recommending mitigation requiring the Coalition ensure that rail employees engaged in routine rail line inspections remove any carcasses observed along the rail line in order to minimize potential eagle strikes and record and submit data on carcass observations to UDWR (BIO-MM-12).

Sensitive Species

The types of operations-related impacts on BLM- and Forest Service-designated sensitive species would be the same as those described for common species, including potential injury or mortality, habitat fragmentation and degradation, wildlife displacement, and barriers to movement. Train operations would likely result in long-term avoidance of the area near the proposed rail line by greater sage-grouse. OEA consulted with the Forest Service and developed a Biological Evaluation (Appendix H, *Biological Evaluation*) to assess the potential effects to Forest Service-designated sensitive species. The Biological Evaluation concludes that operation of the proposed rail line would have little or no impact on Forest Service-designated sensitive species on Forest Service lands. To address operations-related impacts on sensitive species, OEA is recommending mitigation requiring the Coalition implement the requirements of land management agencies that would issue rights-of-way across public lands, including BLM and the Forest Service, as appropriate (LUR-MM-3, LURMM-4). These requirements would include appropriate measures to minimize impacts on BLM- and Forest Service-designated sensitive species.

Greater Sage-Grouse

During rail operations, any of the Action Alternatives would result in noise impacts on greater sage-grouse habitat and leks, but the severity of these impacts would vary between the three Action Alternatives (Section 3.4.3.1, *Impact Comparison between Action Alternatives*). As discussed previously, noise from human activities, and especially intermittent noise, can affect greater-sage grouse behavior. The introduction of new noise sources near leks during the breeding season could cause greater sage-grouse to avoid or abandon the leks. If the Board were to authorize the Indian Canyon Alternative or the Wells Draw Alternative (both of which would cross PHMA on BLM-administered lands), OEA is recommending mitigation requiring the Coalition ensure that rail operations would comply with the BLM *Utah Greater Sage-Grouse Approved Resource Management Plan Amendment* (BLM 2015a) (BIO-MM-13). OEA is also recommending mitigation requiring the Coalition ensure that rail operations would comply with the *Utah Conservation Plan for Greater Sage Grouse* (State of Utah~~UDWR~~ 2019~~e~~) for any of the Action Alternatives (BIO-MM-13). Section 3.4.3.2, Impact Comparison between Action Alternatives, describes how these plans relate to each of the Action Alternatives. In addition, the Coalition's voluntary mitigation states that the Coalition will execute a Mitigation Agreement with UDWR to address impacts within the Carbon SGMA. That agreement will specify the actions that the Coalition would take to avoid and minimize impacts on greater sage-grouse habitat during construction and operation of the proposed rail line, as well as strategies for compensatory mitigation (VM-35).

In response to comments received on the Draft EIS, OEA considered impacts from rail operations along existing rail line segments downline of the proposed rail line for some biological resources, including impacts on greater sage-grouse. OEA does not expect that increased rail traffic on existing rail lines would adversely affect greater sage-grouse because greater sage-grouse using habitat along those existing rail lines would have already become habituated to intermittent train noise due to exposure to such noise on a regular basis over the many years that the existing rail lines have been in operation. Because the Coalition does not and would not operate any existing rail lines downline of the proposed rail line, the Board cannot impose mitigation on the Coalition that would address potential downline impacts from rail operations on greater sage-grouse. However, any trains operating on downline segments would be subject to the same federal regulations as the proposed rail line for rail transportation, including regulations establishing speed and noise limits for rail operations, which would minimize potential impacts on greater sage-grouse.

3.4.3.2 Impact Comparison between Action Alternatives

This subsection compares the potential environmental impacts from construction and operation on wildlife, fish, vegetation, and special status species between the three Action Alternatives.

Wildlife

Construction and Operations

Construction and operation of any of the Action Alternatives would affect wildlife habitat. The most important factor for comparing impacts on wildlife between the Action Alternatives is the amount of habitat that would be permanently removed. In general, a greater amount of habitat removed would result in more severe impacts, such as impacts from displacement of wildlife, fragmentation of habitat, and blocking wildlife movement.

Table 3.4-~~11~~14 shows the area of big-game habitat (bighorn sheep, elk, moose, mule deer, and pronghorn antelope) that construction of each Action Alternative would permanently remove or temporarily disturb. The Wells Draw Alternative would permanently remove the greatest area of all big-game habitats, followed by the Whitmore Park Alternative and the Indian Canyon Alternative. However, the Whitmore Park Alternative would permanently remove the greatest area of big game crucial habitat (2,723.5 acres), followed by the Indian Canyon Alternative (2,406.3 acres) and Wells Draw Alternative (2,367.9 acres). Notably, there is significant overlap of big game habitats for the different big game species (see Appendix G *Biological Resources Figures* for big game habitats along the Action Alternatives), and the

permanent and temporary habitat impacts affect multiple big game species in those areas of habitat overlap. Of the big-game species with habitat in the study areas, the Action Alternatives would affect mostly elk and mule deer habitat. Table 3.4-15 shows the percent of crucial habitat that construction of each Action Alternative would disturb (combined permanent and temporary removal) within each big game species' UDWR management unit. The percent area of crucial big game habitat affected in each management unit compared to all crucial habitat available in the management unit is less than 1 percent for all big game species for all management units. In addition, the habitat in the temporarily disturbed areas would be restored, resulting in a lesser percent area of crucial habitat impact than what is shown in Table 3.4-15 once restoration is complete. This small percent area of crucial habitat impact across all Action Alternatives is anticipated to have minimal indirect effects on big game populations and is not anticipated to affect the management and sustainability of big game populations within the available big game habitats in the UDWR management units. Table 3.4-16 shows the number of big game movement corridor crossings for each Action Alternative. The total number of affected movement corridors is similar between the Action Alternatives, with the Wells Draw Alternative having the smallest number. However, the Wells Draw Alternative would affect the greatest number of high importance movement corridors compared to the Indian Canyon Alternative and Whitmore Park Alternative.

*   *   *

3.4.4 Mitigation and Unavoidable Environmental Effects

Any of the Action Alternatives would result in impacts on biological resources, including the temporary and permanent disturbance of habitat; impacts on wildlife and fish movement; the spread of noxious and invasive weeds; and impacts related to noise, wildfires, fugitive dust emissions, water and soil quality, and the interaction of wildlife and rail-related features. Among the three Action Alternatives, the Wells Draw Alternative would generally result in the most impacts on wildlife, fish, and vegetation because it would affect the largest total area of land. Because of its longer length and larger footprint, the Wells Draw Alternative would temporarily and permanently disturb more habitat than the other Action Alternatives for most land cover types (Table 3.4-~~12~~17). However, the Indian Canyon Alternative would disturb the greatest area of riparian vegetation, which is a particularly important habitat type in the study area for wildlife and fish.

The Wells Draw Alternative would disturb the largest area of big game habitat, but the Whitmore Park Alternative would disturb the largest area of big game crucial habitat. The Wells Draw Alternative would~~and would also~~ result in the most impacts on fish movement due to the greater number of water crossings associated with that alternative. The Wells Draw Alternative would disturb the largest area of ~~potentially~~ suitable habitat for the ESA-listed Pariette cactus and the Uinta Basin hookless cactus, but would disturb the smallest area of~~for~~ suitable habitat for the Barneby ridge-cress and Ute ladies'-tresses. The Wells

Draw Alternative would not disturb any Pariette cactus or Uinta Basin hookless cactus Core 2 Conservation Areas, but the Indian Canyon Alternative and Whitmore Park Alternative would each result in impacts on Core 2 Conservation Areas in the same amount. The Whitmore Park Alternative would affect the greatest area of mapped greater sage-grouse habitat but would minimize impacts on greater sage-grouse because it would be located further away from most leks and from summer brood-rearing habitat than the Wells Draw Alternative or the Indian Canyon Alternative.

Due to the large number of species, including ESA-listed and other special status species, as well as the largely undisturbed condition of the study area, OEA concludes that impacts on biological resources related to habitat disturbance and noise would be significant under any of the Action Alternatives. If implemented, the Coalition's voluntary mitigation measures and OEA's additional recommended mitigation measures related to biological resources would lessen impacts of construction and operation 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.

Section 3.6 Excerpts, *Unita Basin Railway, Final Environmental Impact Statement*, STB Docket No. FD 36284 (Aug. 2021)

3.6 Noise and Vibration

This section describes the noise and vibration impacts that could result from construction and operation of the proposed rail line. The subsections that follow describe the noise and vibration study areas; the methods used to analyze the impacts; the affected environment, including ambient noise measurement results; and potential noise and vibration impacts of the Action Alternatives and No-Action Alternative, including modeled noise contours and the estimated number of receptors (i.e., noise-sensitive locations) potentially affected.

3.6.1 Analysis Methods

This subsection identifies the study areas, data sources, and analysis methods OEA used to analyze noise and vibration associated with rail construction and operations.

3.6.1.1 Study Areas

OEA delineated two study areas for the analysis of potential noise and vibration impacts. The project study area refers to the area in the vicinity of the Action Alternatives, while the downline study area refers to areas near existing rail lines in Utah and Colorado where rail traffic could increase if the proposed rail line were constructed.

- **Project study area.** For the project study area, OEA considered areas within approximately 1 mile from the track centerline for each Action Alternative. OEA selected this distance prior to conducting the analysis because in OEA's experience, this distance is sufficient to identify potential noise and vibration impacts from the proposed rail construction and operations. Because the Action Alternatives would primarily traverse sparsely populated areas, there are many locations within 1 mile of the centerline that do not warrant a noise and vibration analysis. Therefore, OEA's analysis focused on areas with particularly sensitive wildlife habitat, areas known to contain important cultural resources, and areas with buildings where people live or congregate, such as residences, churches, and schools.

- **Downline study area.** For the downline analysis of noise and vibration, OEA defined a study area that includes existing rail lines extending from the proposed rail connection near Kyune, Utah, to the eastern and southern boundaries of the Denver Metro/North Front Range air quality nonattainment area, as described in Section 3.1, *Vehicle Safety and Delay*.

3.6.1.2 Data Sources

OEA reviewed the following data sources to determine the potential impacts due to noise and vibration that could result from construction and operation of the Action Alternatives and compared those impacts to the No-Action Alternative.

- Locations of proposed bridges and other structures provided by the Coalition, as well as the Coalition's construction plans and schedules, including plans for pile-driving and blasting.

- Anticipated train traffic volumes, train composition, and train speed obtained from the Coalition.

* * *

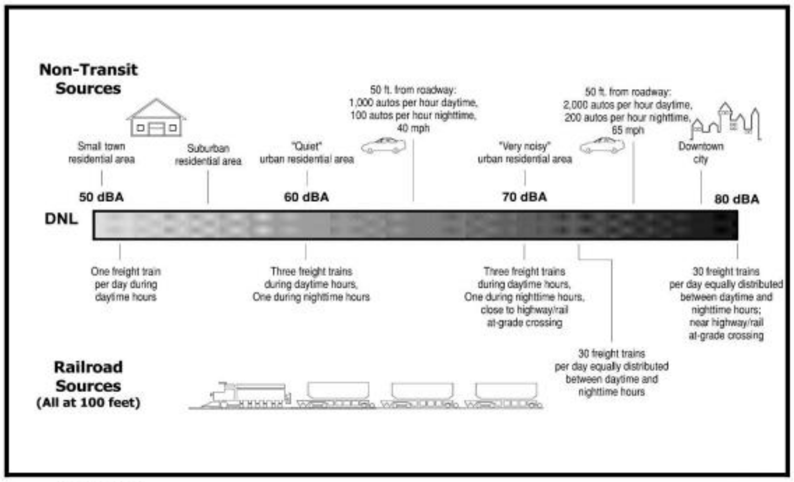
Table 3.6-1. Ambient Noise Monitoring Results

Location	DNL dBA
M5	56
M6	47
M7	52
M8	52
M9	33

Notes:
DNL = day-night average sound level; dBA = A-weighted decibel

Ambient sound levels ranged from DNL dBA 33 to 56. These sound levels range from quieter than the USEPA "small town residential" to "suburban residential" categories (Figure 3.6-2). This result is typical for an area like the project study area that contains both remote locations and more populated areas.

Table 3.6-2. Typical Day-Night Average Noise Levels



Source: USEPA 1974

3.6.2.2 Downline Study Area

Estimated noise levels for the downline study area are detailed in Appendix L, Noise and Vibration Analysis Methods, along with the estimated changes in noise levels.

* * *

of the track centerline). No buildings would be within 5 feet of any of the Action Alternatives; therefore, OEA does not expect any damage to buildings due to vibration from rail operations.

Using the FTA infrequent event (less than 30 trains per day) criterion of 80 VdB[10] (FTA 2006), the

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[10] FTA defines infrequent events as 30 or less vibration events per day, occasional events as between 30 and 70 events per day, and frequent events as more than 70 events per day. FTA's human annoyance criterion for residences is 80 root-mean square

vibration annoyance contour along the proposed rail line would extend 25 feet from the track centerline. Because no receptors would be within 25 feet of any of the Action Alternatives, vibration levels resulting from rail operations would be lower than FTA's infrequent event criterion of 80 VdB. Therefore, OEA concludes that operation of the proposed rail line would not result in any adverse vibration impacts.

Downline Study Area

OEA performed a noise analysis to estimate the potential project-related increase in noise levels along the rail segments in the downline study area (Appendix C, *Downline Analysis Study Area and Train Characteristics*) potentially affecting adjacent noise-sensitive receptors. Potential impacts in the downline study area would be the same for all Action Alternatives. OEA's analysis of downline noise impacts considered the volume, composition, routes, and speed of trains that would originate in the Basin, as well as the existing volumes, composition, and speed of passenger and freight trains on existing rail lines in the downline study area.

OEA found that downline train noise could increase by as little as 0.4 dB to as much as 6 dB, depending on the previously mentioned factors. Table displays the range in noise level increases along the five downline rail segments that OEA analyzed (Appendix C, *Downline Analysis Study Area and Train Characteristics*, Figure C-1). Noise levels would

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velocity (VdB) for infrequent events, 75 VdB for occasional events, and 72 VdB for frequent events.

increase by 3 dB or more along four of the five downline rail segments.

Table 3.6-5. Estimated Train Noise Level Increases by Downline Segment

		Noise Level Increase (dB)	
Downline Segment	**Length (miles)**	**Minimum**	**Maximum**
Kyune to Denver	457.4	3.4	6.0
Denver Eastbound	59.0	1.0	3.6
Denver Southbound	16.6	0.4	0.6
Denver Northbound	69.2	2.6	4.5
Denver East/North	3.2	3.2	3.2

Appendix L, *Noise and Vibration Analysis Methods*, shows the calculated noise level increase for each downline rail segment for the high rail traffic scenario. Ground-borne vibration from trains increases as a function of train speed. Downline project trains would be at the same speed as existing train traffic. Consequently, there would be no train speed-related changes in vibration levels.

Section 3.7 Excerpts, *Unita Basin Railway, Final Environmental Impact Statement*, STB Docket No. FD 36284 (Aug. 2021)

3.7 Air Quality and Greenhouse Gases

This section describes the impacts on air quality and greenhouse gas (GHG) emissions that could result from construction and operation of the proposed rail line. Air quality is a concern because of the demonstrated effects of air pollutant emissions on human health. GHG emissions are a concern because of their contributions to global climate change. The subsections that follow describe the study area, data sources, OEA's analysis methods, the affected environment, and the potential environmental impacts of the proposed rail line.

3.7.1 Analysis Methods

This subsection identifies the study area, data sources, and analysis methods that OEA used to analyze impacts on air quality and GHG emissions.

3.7.1.1 Study Area

The study area for the air quality analysis includes a local study area, regional study area, and a downline impacts study area. The study area for GHG emissions is the global atmosphere because climate change is a global phenomenon.

- **Local study area.** The study area for local air quality includes an area extending generally 1,000 feet on either side of the centerline of each Action Alternative. OEA increased the size of the study area in some locations, however, to account for localized differences in factors that could affect air quality, such as local topography and certain design features of the proposed rail line. ~~The local air quality study area also includes existing rail lines between the proposed rail connection near Kyune, Utah, and the boundaries of the Denver Metro/North Front Range air quality nonattainment area that could experience an increase in rail traffic if the proposed rail line were constructed, as described in Section 3.1,~~ ~~*Vehicle Safety and Delay*.~~

- **Regional study area.** The study area for regional air quality includes the area within 100 kilometers (62 miles) of the proposed rail line as shown in Figure 3.7-1. It is located in the Wasatch Front Air Quality Control Region and the Utah Intrastate Air Quality Control Region in Utah, as designated by the U.S. Environmental Protection Agency (USEPA). The eastern edge of the regional study area also extends about 18 miles into the Yampa Intrastate Air Quality Control Region in Colorado. Within the regional air quality study area, OEA considered air quality related values (AQRVs), which are resources that could be adversely affected by a change in air quality, such as visibility[1] and acidic deposition.[2]

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[1] Visibility impairment or haze is caused when sunlight encounters tiny pollution particles in the atmosphere and is either absorbed or scattered, which reduces the clarity and color of what can be seen. Deciviews or standard visual range are terms used to express visibility.

[2] Acidic deposition occurs when nitrates and sulfates formed in the atmosphere are deposited to soil, vegetation, and surface water. Acid deposition to lakes can impair water quality by reducing their acid-neutralizing capacity.

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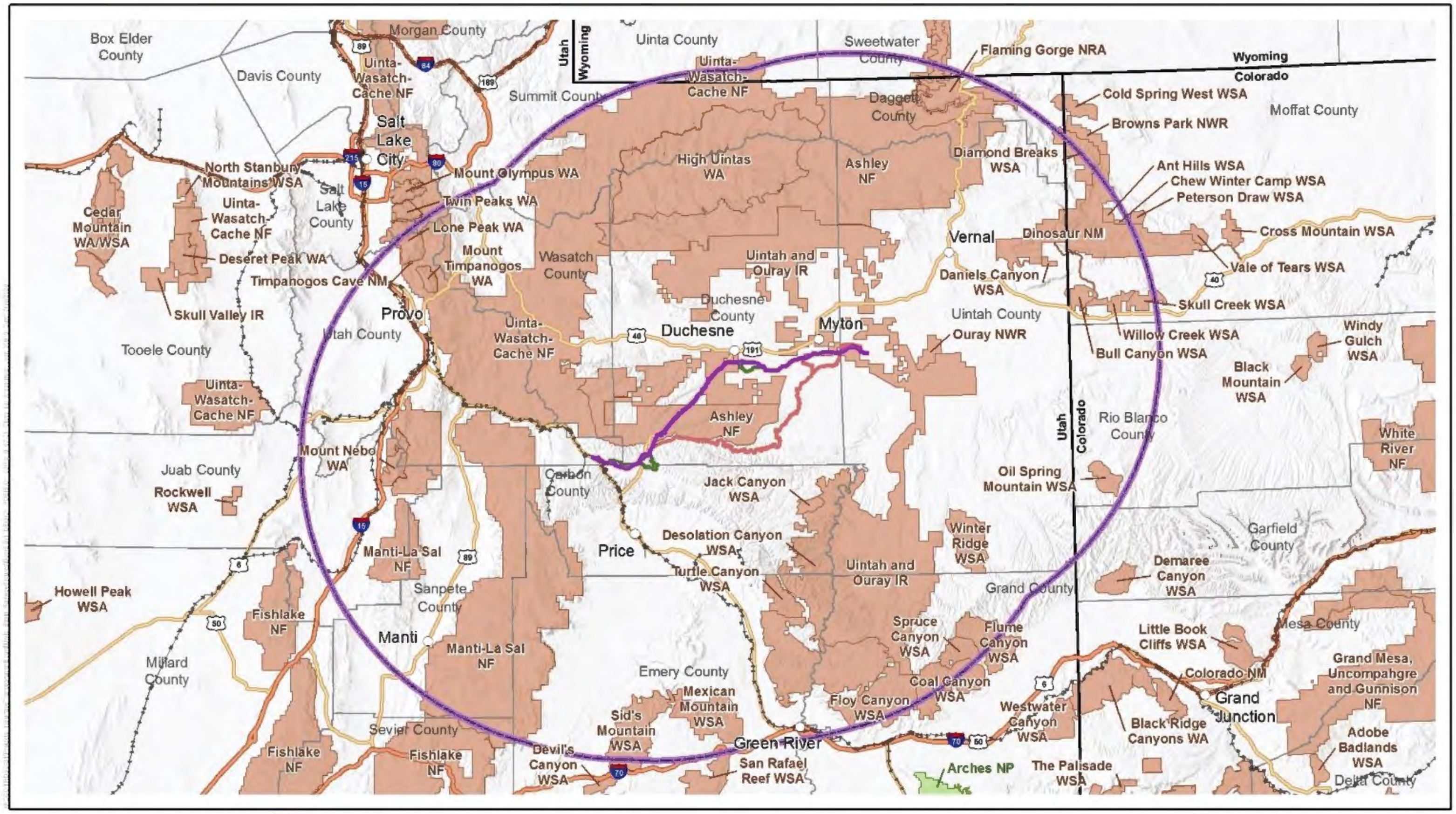
Figure 3.7-1. Air Quality Regional Study Area

(see foldout on next page)

Figure 3.7-1. Air Quality Regional Study Area



Indian Canyon Alternative
Wells Draw Alternative
Whitmore Park Alternative
Existing Rail Line
Air Quality Study Area
Class I Area
Class II Area

List of Abbreviations
IR - Indian Reservation
NF - National Forest
NM - National Monument
NP - National Park
NRA - National Recreation Area
NWR - National Wildlife Refuge
WA - Wilderness Area
WSA - Wilderness Study Area

Source: FLAG 2010.

N
0 10 20 Miles

- **Downline study area.** The study area for downline air quality includes segments of existing rail lines outside of the Basin that could experience an increase in rail traffic above OEA's thresholds at 49 C.F.R. § 1105.7(e)(5) if the proposed rail line were constructed. As described in Section 3.1, *Vehicle Safety and Delay*, the downline study area extends from the proposed connection near Kyune to the northern, eastern, and southern edges of the Denver Metro/North Front Range air quality nonattainment area (Appendix C, *Downline Analysis Study Area and Train Characteristics*, Figure C-1).

There are no federal Class I[3] air quality areas within 100 kilometers of the proposed rail line, although there are Class II air quality areas in the study area. The study area includes part of Dinosaur National Monument, the Colorado portion of which is designated by the Colorado Department of Public Health and Environment as a state-level Class I area for sulfur dioxide (SO_2).

3.7.1.2 Data Sources

OEA reviewed the following data sources to determine the potential impacts on air quality and

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[3] Class I air quality areas, as defined by the Clean Air Act, include national parks larger than 6,000 acres and wilderness areas larger than 5,000 acres that existed or were authorized as of August 7, 1977. Class I areas are areas of special national or regional natural, scenic, recreational, or historic value, and this category allows for very little degradation in air quality, whereas Class II areas allow for reasonable industrial/economic expansion.

GHGs that could result from construction and operation of the proposed rail line.

- Ambient air quality information as measured by Utah Department of Environmental Quality (Utah DEQ) and USEPA.
- Information on existing emissions sources in the region (from Utah DEQ and USEPA).
- Information on oil and gas development in the region obtained from public sources and agency consultation.
- Information on truck traffic in the region obtained from public sources and agency consultation.
- Data on meteorology and climate in the region.
- Information on anticipated construction and operation activities provided by the Coalition.
- Standard air pollutant emissions rates for anticipated project-related construction and operation activities, such as for operation of locomotives, from USEPA.

3.7.1.3 Analysis Methods

OEA used the following methods to evaluate the impacts of air pollutant emissions, including GHG emissions, related to construction and operation of the proposed rail line.

- OEA identified and characterized the emissions sources. OEA reviewed information provided by the Coalition about the Coalition's plans for rail construction and operation to identify sources of air pollutant and GHG emissions. The emissions sources included equipment and vehicles that construction contractors would use during rail construction, as well as the locomotives that would pull the trains on the proposed rail line during rail operations, among other sources.

* * *

3.7.2.5 Downline Study Area

The downline study area includes attainment areas as well as the Denver Metro/North Front Range air quality nonattainment area (Appendix C, *Downline Analysis Study Area and Train Characteristics*, Figure C-1), and maintenance areas for CO and PM10. The Colorado Department of Public Health and Environment has prepared plans to address air quality in the nonattainment and maintenance areas. These plans include the *Denver Metro 2008 8-hour Ozone NAAQS Moderate Nonattainment Area Plan* (2016), which will be superseded upon approval of the *Denver Metro 2008 8-hour Ozone NAAQS Serious Nonattainment Area Plan* (draft released in September 2020), the *Denver Metro Carbon Monoxide Maintenance Plan* (2005), and the *Denver Metro PM10 Maintenance Plan* (2005). Meteorological and climatic conditions in the downline study area vary widely because of its large geographic area, varied topography, and multiple airsheds.

3.7.2.6 Climate

There is broad scientific consensus that humans are changing the chemical composition of Earth's atmosphere. Activities such as fossil fuel combustion, deforestation, and other changes in land use are resulting in the accumulation of GHGs such as carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and several industrial gases in Earth's atmosphere. The International Panel on Climate Change (IPCC) estimates that the global average concentrations of CO_2, CH_4, and N_2O in the atmosphere have increased by around 40, 150, and 20 percent, respectively, from pre-industrial times until today (IPCC 2014). An increase in GHG emissions is thought to result in an increase in Earth's average surface temperature, primarily by trapping heat and, thus, decreasing the amount of heat energy radiated by Earth back into space. This phenomenon is commonly referred to as *global warming*. Global warming is expected, in turn, to affect land and sea surface temperatures, precipitation rates, weather patterns, average sea level, polar ice levels, ocean acidification, and other climatic variables, effects which collectively are referred to as *climate change*.

The IPCC Fifth Assessment Report (IPCC 2014) indicates that the climate system is warming. The report states that global mean surface temperature has increased since the late 19th century and that maximum and minimum temperatures over land have increased on a global scale since 1950. In addition, the globally averaged combined land and ocean surface temperature data show a warming of 0.85 degrees Celsius (°C) or 1.5 degrees Fahrenheit (°F) since 1950. The IPCC concludes that it is extremely likely that human influence has been the dominant cause of the observed warming. The IPCC (2014) has predicted that the average global temperature rise between 1986 and 2100 could be as great as 4.8°C (8.6°F), which could have massive deleterious impacts on the natural and human environments.

Observed data indicate that climate change is not uniform across the globe and varies by region. The

U.S. Global Change Research Program (GCRP) has reported significant trends in regional climate over the last few decades. Data collected during the last half century in the Mountain West show an approximate 1.5°F increase in average surface temperature (GCRP 2009), with the largest increase in average temperature occurring in the winter months. The research also notes a decrease in the number of relatively cold days, an increase in the number of relatively warm days, and an increase in precipitation. The most recent assessment for the GCRP Southwest Region (GCRP 2018), which includes Utah, predicts that temperatures and precipitation over the region will continue to increase. In addition, the assessment predicts that the frequency of extreme weather events such as heat waves, droughts, and heavy rainfall will also increase and may affect water resources, forests and wilderness areas, agricultural and ranching activities, and human health.

The U.S. Geological Survey (USGS 2021) notes that mountain ecosystems in the western United States are particularly sensitive to climate change, especially in the higher elevations, where much of the snowpack occurs, and which have experienced three times the global average temperature increase over the past century. Higher temperatures are causing more winter precipitation to fall as rain rather than snow, which contributes to earlier snowmelt. Additional declines in snowmelt associated with climate change are projected, which would reduce the amount of water available during summer (GCRP 2009). Rapid spring snowmelt due to sudden and unseasonal temperature increases can also lead to greater erosive events and unstable soil conditions. Increases in average summer temperatures and earlier spring snowmelt are expected to increase the risk of wildfires by increasing summer moisture deficits (GCRP 2009). Studies have shown that earlier snowmelts can lead to a longer dry season, which increases the incidence of catastrophic fire (Westerling et al. 2006). Together with historic changes in land use, climate change is anticipated to increase the occurrence of wildfire throughout the western United States (USGS 2021).

Predictions of climate change in Utah are similar to the more general predictions for the Mountain West and western United States and are summarized below (Salt Lake County Health Department 2017).

- Overall warming will continue, with longer and hotter heat waves in the summer, a longer freeze-free season, a higher average annual temperature, and fewer cold spells.
- Droughts will become hotter, more severe, and more frequent.
- Late- season snowpack will continue to decrease, as will levels of soil moisture and river flow.
- Precipitation extremes in winter will become more frequent and more intense.
- Seasonal flooding will become more frequent and intense.
- The distribution of plant and animal species in the region will change, as will the timing of species' regional life cycles.
- Occurrence of wildfires will increase.

3.7.3 Environmental Consequences

Construction and operation of the proposed rail line could result in impacts on air quality and GHG emissions. This subsection first presents the potential impacts that would be the same for all three Action Alternatives and then compares the potential impacts that would be different for each Action Alternative. For comparison purposes, this subsection also describes air quality and GHG emissions under the No-Action Alternative.

3.7.3.1 Impacts Common to All Action Alternatives

This subsection describes the potential impacts related to air quality and GHG emissions that would be the same across the three Action Alternatives. The analysis in this subsection quantifies the emissions of air pollutants and discusses the predicted dispersion of criteria air pollutants in the study area. Section 3.15, *Cumulative Impacts*, and Appendix M, *Air Quality Emissions and Modeling Data*, include additional assessments of impacts on AQRVs, including visibility and acid deposition, in a larger geographic context. With the elimination of lead in automotive gasoline, lead is no longer emitted from transportation sources in more than negligible quantities. Therefore, this analysis does not address lead.

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emissions. Because segment emissions represent small percentages of county-level emissions, OEA concludes that comparison to county-level emissions is sufficient to describe the potential impact of the proposed rail line in downline areas, and that further analysis is not necessary. Emissions as a percent of county-level emissions would range as follows (Table 3.7-7).

- **CO:** from less than 0.02 percent (Denver Eastbound segment) to 0.5 percent (Kyune to Denver segment).
- **NOx:** from 0.17 percent (Denver Eastbound segment) to 4.79 percent (Kyune to Denver segment).
- **PM10:** from less than 0.01 percent (Denver Eastbound segment) to 0.17 percent (Kyune to Denver segment).
- **PM2.5:** from less than 0.01 percent (Denver Eastbound segment) to 0.67 percent (Kyune to Denver segment).
- **VOC:** from less than 0.01 percent (Eastbound segment) to 0.06 percent (Kyune to Denver segment).

The emissions contributions would be spread out over the entire length of the rail segments and would be diluted and dispersed by wind and atmospheric turbulence. As a result, increases in concentrations measured at air quality monitoring sites, if any, are expected to be negligible. The increased downline rail traffic associated with the proposed rail line would not lead to a violation of the NAAQS for counties that are in attainment, and would not increase the severity of conditions in counties that are not in attainment.

- Downline impacts on ambient pollutant concentrations would be comparable to the impacts estimated for the study area. Total concentrations at any particular location would vary depending on total train traffic, local background concentrations, and local topographic and meteorological conditions.

- Emissions increases of GHGs from locomotives would be 712,828 metric tons per year (MT/yr) of ~~carbon dioxide (~~CO_2~~)~~, 56 MT/yr of ~~methane (~~CH_4~~)~~, and 18 MT/yr of ~~nitrous oxide (~~N_2O~~)~~, or 719,204 MT/yr of carbon dioxide equivalent (CO2e). Compared to the total existing CO_2e emissions of 24,459,223 MT/yr from all downline counties, the locomotive emissions increases would represent 2.9 percent of the county total CO_2e emissions.

Motor Vehicle Emissions

Operation of any of the Action Alternatives would contribute vehicle exhaust emissions from vehicles that are delayed at downline road-rail grade crossings. OEA estimated the increase in vehicle delays based on the estimated delays discussed in Section 3.1, Vehicle Safety and Delay. OEA concluded that the estimated increase in vehicle exhaust emissions from idling vehicles delayed at downline grade crossings under any of the Action Alternatives would be small and would not have a substantial impact on air quality.

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Table 3.7-10. Emissions during Rail Operations

	Low Rail Traffic Scenario			High Rail Traffic Scenario		
Pollutants and GHGs	**Indian Canyon Alternative**	**Wells Draw Alternative**	**Whitmore Park Alternative**	**Indian Canyon Alternative**	**Wells Draw Alternative**	**Whitmore Park Alternative**
Criteria Pollutants (U.S. tons/year)[a]						
Carbon monoxide	136	176	147	373	479	405
Nitrogen oxides	343	413	374	969	1,162	1,056
PM10	10	13	11	29	35	32
PM2.5	7	9	8	21	26	23
Sulfur dioxide	0.4	0.5	0.4	1	2	1
VOCs	13	18	14	36	48	40
Hazardous Air Pollutants (U.S. tons/year)[a]						
Acetaldehyde	0.2	0.3	0.2	0.6	0.8	0.7
Acrolein	<0.05	<0.05	<0.05	0.1	0.1	0.1
Benzene	0.3	0.4	0.3	0.8	1.0	0.9
1,3-Butadiene	<0.05	<0.05	<0.05	<0.05	0.1	<0.05
DPM	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Ethylbenzene	0.3	0.4	0.3	0.9	1.1	1.0
Formaldehyde	7	9	8	21	25	23
Napthalene	<0.05	<0.05	<0.05	0.1	0.1	0.1
POM	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Greenhouse Gases (metric tons/year)[a]						
Carbon dioxide	40,106	52,837	44,036	119,041	154,026	129,950
Methane	3	4	4	10	12	10
Nitrous oxide	1	2	1	3	4	3
CO_2e[b] (100-year GWP)~~CO_2e[b]~~	40,511	53,359	44,476	120,162	155,466	131,169
CO_2e[b] (20-year GWP)	40,685	53,584	44,666	120,656	156,101	131,708

Notes:

[a] Values greater than or equal to 1 are rounded to the nearest ton. Values less than 1and greater than or equal to 0.05 are rounded to the nearest 0.1 ton.

[b] CO_2e values were calculated using the 100-year ~~potential~~ global warming potential (GWP) values from the IPCC Fourth Assessment Report (IPCC 2007). ~~GWP values: carbon dioxide = 1; methane = 25; nitrous oxide = 298.~~ 100-year GWP values are: carbon dioxide = 1; methane = 25; nitrous oxide = 298; 20-year GWP values are: carbon dioxide = 1; methane = 72; nitrous oxide = 289.

PM10 = particulate matter 10 microns or less in diameter; PM2.5 = particulate matter 2.5 microns or less in diameter; VOCs = volatile organic compounds; DPM = diesel particulate matter; POM = polycyclic organic matter; CO_2e = carbon dioxide equivalent; < = less than

Regardless of the Action Alternative, the high rail traffic scenario would result in higher emissions than the low rail traffic scenario for all pollutants. Across the three Action Alternatives, the Wells Draw Alternative would result in the most emissions, primarily due to its greater length compared to the Indian Canyon Alternative and the Whitmore Park Alternative.

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As discussed previously, commenters during the scoping process expressed concerns regarding air quality impacts related to rail operations in tunnels. OEA expects that air quality impacts would be most likely to occur in areas immediately adjacent to tunnel entrances. For the Indian Canyon Alternative and Whitmore Park Alternative, there are no receptors immediately adjacent to the tunnel entrances. For those two Action Alternatives, the closest receptors to tunnel entrances would be more than 1,000 feet of the tunnel entrances, well outside the area that OEA expects could experience adverse air quality impacts. Due to the distance of receptors from tunnel entrances, OEA concludes that the NAAQS would not be exceeded due to locomotive exhaust from tunnels under the Indian Canyon Alternative or Whitmore Park Alternative. For the Wells Draw Alternative, there are three residences within 1,000 feet of the northeastern entrance of the approximate 3.53-mile summit tunnel in Bear Claw Valley, just south of Argyle Canyon Road. These receptors are located 442 feet, 689 feet, and 822 feet from the tunnel entrance. At these distances from the entrances and the track OEA expects that all pollutant concentrations would be less than the NAAQS under the high rail traffic scenario.

3.7.3.3 No-Action Alternative

Under the No-Action Alternative, the Coalition would not construct and operate the proposed rail line, and no construction-related air pollutant emissions would occur. Trucks would continue to transport crude oil from the Basin to the Price River Terminal in

Wellington and potentially to other intermodal facilities outside of the Basin. This truck traffic could increase depending on future market conditions, including the price of crude oil, which would result in increased truck exhaust emissions. However, there would be no new locomotive exhaust emissions in the study areas under the No-Action Alternative.

3.7.4 Mitigation and Unavoidable Environmental Effects

Construction of the proposed rail line would involve activities that would emit air pollutants and GHGs. Across the three Action Alternatives, the Wells Draw Alternative would result in the most construction-related air pollutant and GHG emissions, followed by the Whitmore Park Alternative and the Indian Canyon Alternative. Emissions from construction activities would be temporary and would move continually during the construction period. With implementation of the Coalition's voluntary mitigation measure and OEA's recommended mitigation measures, (Chapter 4, Mitigation), OEA concludes that impacts related to air quality and GHG emissions would not be significant if those mitigation measures were implemented.

During rail operations, the primary source of air emissions would be locomotives operating on the proposed rail line. Because it is the longest Action Alternative, the Wells Draw Alternative would result in the most total emissions of all pollutants, followed by the Whitmore Park Alternative and then Indian Canyon Alternative. Based on the revised air quality modeling, OEA concludes that operation of the proposed rail line would not cause air pollutant concentrations to exceed the NAAQS at any location. ~~OEA~~'~~s dispersion model suggests that the Wells Draw Alternative would not cause air pollutant concentrations to exceed the NAAQS under any rail traffic scenario or meteorological conditions. If the Indian Canyon Alternative or the Whitmore Park Alternative were constructed, the maximum 1-hour NO2 concentration could exceed the NAAQS under the high rail traffic scenario at a location south of Myton in the Basin. This exceedance would be unlikely because it would only occur under unusual operational and meteorological conditions and only if rail traffic on the proposed rail line were at the maximum projected level. Residences in the vicinity of the proposed rail line would not experience air quality that would exceed the NAAS even under those unlikely conditions.~~ Therefore, OEA concludes that operation of the proposed rail line would not result in significant air quality impacts. ~~The moderate air quality impacts that could result from locomotive emissions during rail operations would be unavoidable.~~ Because the Board does not regulate the volume or composition of train traffic on the interstate rail network or types of locomotives that can operate on rail lines, there is no mitigation that OEA can recommend or that the Board can impose to address air quality impacts related to locomotive emissions.

OEA is recommending mitigation measures (Chapter 4, *Mitigation*) related to GHG emissions, but operation of the proposed rail line would result in unavoidable GHG emissions even if these measures were implemented. GHG emissions from rail operations (Table 3.7-10) would represent a small percentage (ranging from 0.9 percent to 3.5 percent) of existing regional and statewide GHG emissions (Table 3.7-1), however, and would not contribute significantly to global climate change.

Section 3.13 Excerpts, *Unita Basin Railway, Final Environmental Impact Statement*, STB Docket No. FD 36284 (Aug. 2021)

Construction

Land Acquisition and Displacement

Under all of the Action Alternatives, the Coalition would acquire land and temporary construction easements from federal, state, tribal, and private landowners for construction of the proposed rail line. On federal land, the Coalition would seek a right-of-way grant from BLM and/or a Forest Service special use authorization, depending on the Action Alternative. The Coalition would also obtain easements from SITLA and UDOT for use of state land. On Tribal trust lands, the Coalition would seek a consent resolution for rail line construction from the Ute Indian Tribe and a grant of easement for rights-of-way or leases (if necessary) from BIA. Section 3.11, *Land Use and Recreation*, discusses impacts of the proposed rail line on public lands.

To construct any of the Action Alternatives, the Coalition would also acquire land from private landowners. The Coalition does not yet know the exact width of the rail right-of-way in all locations because defining the right-of-way would involve negotiations with private landowners and consultation with public agencies following the end of the Board's environmental review process. At a minimum, the Coalition would acquire the full extent of the rail line footprint. OEA expects that in most cases, the Coalition would negotiate a lease of a temporary construction easement for use of land outside of the rail line footprint but within the temporary footprint.

The Coalition would return this leased land to landowners at the end of the construction period. However, where the size of the project footprint is large relative to the size of a parcel of private property that it would cross, the Coalition and landowner could negotiate a full acquisition of the parcel rather than a partial acquisition or temporary construction easement. These decisions would be made on a case-by-case basis, subject to negotiations between the Coalition and the private landowners. The Board would not be involved in the land acquisition process, which would take place after the Board has issued a decision authorizing or denying the Coalition's proposal.

Existing residences and other structures located within the rail line footprint would be displaced for construction of the proposed rail line; existing residences and other structures located within the temporary footprint could be displaced, pending negotiations between the Coalition and the private landowner. For portions of the Action Alternatives that would be tunneled, the Coalition would obtain easements for constructing tunnels. OEA does not expect that subsurface tunneling would displace surface uses.

Displaced Economic Activity

Land and temporary construction easements acquired for construction of the proposed rail line would no longer be available for ranching, farming, or other economic activities. Economic activity within temporary construction easements would be displaced during construction only, while economic activity within acquired land would be permanently displaced.

The Action Alternatives could also disrupt economic activity outside of areas directly affected by the project footprint where construction and operation of the proposed rail line would sever parcels, limit access to irrigation systems, or restrict the movements of animals and equipment between different operating areas of a ranch or farm.

Construction Employment, Labor Income, and Value Added

Construction of the proposed rail line would create new employment opportunities and contribute to the regional economy. Construction of any of the Action Alternatives would involve directly employing construction labor during the construction period and local spending on materials and services. In addition, construction workers would spend a portion of their income locally. OEA estimated the direct and total employment, labor income, and total market value of all goods and services generated during the construction period under each of the Action Alternatives, as explained in detail in Appendix Q, *IMPLAN Analysis Methods and Results*. Direct and total employment, labor income, and total estimated economic output (or value added) generated by rail line construction would be specific to each Action Alternative, as discussed in Subsection 3.13.3.2, *Impact Comparison by Action Alternative*.

Workforce Demand for Housing and Public Services

Employment generated by construction would bring nonlocal construction workers to communities located within a commuting distance of construction sites. OEA assumed that temporary nonlocal construction workers would reside as close to the construction site as feasible with a shorter commuting distance. Based on commuting distance and availability of temporary accommodations such as hotels, motels, and RV spaces (Table 3.13-2), OEA expects that Helper, Price, Duchesne, Myton, Roosevelt, and Ballard would see the greatest influx of temporary construction workers from outside of the four-county study area. These same communities would also see the greatest demand for housing and public services.

State and Local Revenue

For any of the Action Alternatives, the Coalition would acquire easements for the proposed rail line on lands administered by SITLA. These easements would generate revenue for SITLA trust beneficiaries that would be distributed to institutional endowments for higher education, special education, and public institutions in the state of Utah (SITLA 2020). Construction of the proposed rail line would generate revenue for the state through state income tax on the direct, indirect, and induced labor income of Utah state residents. Construction would also generate state and local sales and use taxes on direct construction expenditures, as well as sales and use taxes on indirect and induced spending. Nonlocal construction workers who reside in temporary accommodations such as hotels and motels during the construction period would generate additional transient room tax revenue.

Socioeconomic Benefits for the Ute Indian Tribe

If constructed, the proposed rail line would provide a new transportation option for shippers in the

Basin, including producers of crude oil, which could result in lower transportation costs and access to new markets. The Ute Indian Tribe is a major producer of crude oil in the Basin and could, like other producers, benefit from potential lower transportation costs and access to new markets if the proposed rail line were available as an alternative transportation option. The Coalition has also indicated that the Ute Indian Tribe may become an equity partner in the proposed rail line. If this were to occur, then the tribe would receive additional revenue generated by the operation of the proposed rail line. These economic benefits for the Ute Indian Tribe would be the same for any of the Action Alternatives. As discussed in Subsection 3.13.3.2, *Impact Comparison between Action Alternatives*, the Ute Indian Tribe would also receive payments associated with the granting of a right-of-way across Tribal trust land if the Board were to authorize construction and operation of the Indian Canyon Alternative or the Whitmore Park Alternative.

Nonmarket Values and Quality of Life

Comments received during scoping identified the importance of scenic, recreational, environmental, and wilderness aspects of lands in the study area. Construction of the proposed rail line would change land use within the rail line footprint, which could affect these values. On private and public lands currently used for grazing, agriculture, and recreation, these uses would be displaced during construction within the temporary footprint. Within the rail line footprint, these uses would be permanently displaced. Proposed rail line construction activities would create visual distractions and generate noise that would be more noticeable in undeveloped areas. Noise and visual distractions could diminish the value of areas near construction sites for recreation, hunting, and wildlife viewing, and disrupt residents in rural settings that generally have lower levels of background noise, and a more natural landscape. Construction activities adjacent to scenic byways and backways would result in the introduction of construction equipment, fugitive dust, vegetation removal, large areas of cut and fill, and potentially new bridges and drainage culverts during the construction period. For more information on construction-related quality of life impacts, see Section 3.6, *Noise and Vibration*, Section 3.11, *Land Use and Recreation*, and Section 3.12, *Visual Resources*.

Operations

Employment, Labor Income, and Value Added

Operation of the proposed rail line would support regional employment, generate labor income, and contribute to the regional economy. The Coalition provided annual operations and maintenance (O&M) cost estimates for both a low and high rail traffic scenario. Under the low rail traffic scenario, approximately 3.68 trains would move on the proposed rail line per day, on average. Under the high rail traffic scenario, approximately 10.52 trains would move on the proposed rail line per day, on average. Direct and total employment and total estimated economic output during operations would be specific to each Action Alternative and each scenario, as discussed in Subsection 3.13.3.2, *Impact Comparison by Action Alternative*.

As discussed in Section 3.1, *Vehicle Safety and Delay*, OEA expects that the proposed rail line would displace truck traffic that transports crude oil to the Price River Terminal facility in Wellington, Utah. If the proposed rail line were constructed, the tanker trucks that currently transport crude oil to the Price River Terminal would likely go to the new rail line terminals in the Basin instead, because the new rail line terminals would be significantly closer to oil production areas in the Basin than the Price River Terminal. OEA expects that commercial drivers who are employed in short-haul trucking between production areas in the Basin and Price River Terminal would work instead in short-haul trucking between production areas in the Basin and the new rail terminals in the Basin (Section 3.15, *Cumulative Impacts*). OEA expects that trucks would continue to transport crude oil to refineries in Salt Lake City, so jobs associated with long-haul trucking of crude oil from the Basin to refineries in Salt Lake City would not be affected. In addition, because overall truck traffic would not be reduced—it is forecast to increase under the cumulative traffic scenario (Section 3.15, *Cumulative Impacts*)—OEA expects that operation of the proposed rail line would not lead to a reduction in jobs associated with maintenance of state and local roads.

As discussed in Chapter 2, *Proposed Action and Alternatives*, the Coalition anticipates that the proposed rail line would primarily transport crude oil produced in the Basin to markets outside of the Basin and would also be used to transport frac sand into the Basin for use in the oil and gas industry. Section 3.15, *Cumulative Impacts*, discusses potential impacts that could result from potential future increasing oil and gas production in the Basin, including potential socioeconomic impacts. The Coalition believes that shippers might also use the proposed rail line to transport other various heavy and bulk commodities found in the Basin, such as gilsonite, aggregate materials, and agricultural products. The Coalition does not suggest that the volume of other commodities would be large enough to warrant dedicated trains and expects that these products would be transported in cars added to crude oil trains or frac sand trains. OEA did not assess the environmental impacts associated with the transportation of commodities other than crude oil and frac sand because the volumes of those other commodities would be low and because there are currently no reasonably foreseeable plans for transporting those commodities. However, to the extent that the proposed rail line could be used to transport commodities other than crude oil and frac sand, the availability of a rail transportation option could support the diversification of local economies in the Basin, which could support regional employment, generate labor income, and contribute to the regional economy.

Workforce Demand for Housing and Public Services

Operation of the proposed rail line would create long-term O&M jobs. To the extent that O&M jobs could be filled by nonlocal workers, the influx of nonlocal O&M workers to the study area would increase demand for local housing and public services. Employment for O&M would be substantially lower than for construction and OEA expects that the impact on housing and public services would not be significant under any of the Action Alternatives. Depending on the Action Alternative, the proposed rail line would support between 170 and 220 jobs under the low rail traffic scenario or between 370 and 530 jobs under the high rail traffic scenario. OEA expects that many of the O&M jobs would be filled by local workers and that the influx of nonlocal workers and their families would represent an increase of less than one percent of the combined populations of Carbon County, Duchesne County, and Uintah County, which was 77,000 in 2017. As shown in Table 3.13-2, communities located within commuting distance of the Action Alternatives had over 1,000 vacant housing units available for rent and over 400 vacant housing units for sale in 2017, which is significantly higher than the number of units that would be needed to house new O&M workers moving into the area. Student-teacher ratios in the Carbon County School District (19:1), Duchesne County School District (20:1), and Uintah County School District (23:1) are comparable to the statewide average (22:1) (Utah Department of Education 2020). OEA does not expect that in-migration of nonlocal workers to fill a portion of the operations jobs generated by the proposed rail line would significantly affect public schools in the study area. Therefore, OEA concludes that the creation of new O&M jobs would not significantly affect long-term population trends in the study area, the availability of housing, housing prices, or the capacity of public services.

State and Local Revenue

Under any of the Action Alternatives, easements on lands administered by SITLA would generate revenue for trust beneficiaries. All of the Action Alternatives would generate state income tax on direct, indirect, and induced annual labor income for each year that the rail line is in operation. Revenue from state and local sales and use taxes on annual O&M expenditures, and indirect and induced spending generated by operation of the proposed rail line would also be generated on an annual basis.

* * *

Construction Employment, Labor Income, and Value Added

OEA estimated the direct and total employment, labor income, and total market value of all goods and services generated during the construction period under each of the Action Alternatives. Direct employment refers to workers hired directly for rail line construction. Total employment includes— in addition to direct employment—indirect and induced employment. Indirect employment refers to jobs supported through increased demand for construction materials and services. Induced employment refers to jobs supported at businesses where construction workers and rail line employees would spend their incomes. The Coalition developed the estimated construction and operation expenditures, material sources, and assumptions about the labor supply (local versus nonlocal, labor mix by job classification, and average wages and benefits) and reported the estimates to OEA in Response to Information Request No. 3 (Coalition 2019). These inputs informed the

IMPLAN analysis conducted for each of the Action Alternatives.

Because it is the longest and the costliest of the Action Alternatives, the Wells Draw Alternative would generate the most employment, the most labor income, and the most additional economic output (or economic value added), followed by the Whitmore Park Alternative and the Indian Canyon Alternative (Table 3.13-8).

Table 3.13-8. Annual Employment, Labor Income, and Value Added Impacts from Construction of the Action Alternatives

	Action Alternative[a,b]		
Impact Type	**Indian Canyon**	**Wells Draw**	**Whitmore Park**
Employment (jobs)			
Direct	1,550	1,850	1,630
Indirect	740	930	760
Induced	530	680	620
Total	**2,820**	**3,450**	**3,000**
Labor Income ($ million)			
Direct	$149.7	$195.5	$158.2
Indirect	$30.4	$38.6	$31.2
Induced	$16.7	$21.0	$20.3
Total	**$196.8**	**$255.1**	**$209.7**
Value Added ($ million)			
Direct	$188.5	$222.3	$201.1
Indirect	$62.4	$78.5	$63.7
Induced	$39.6	$50.6	$47.0
Total	**$290.6**	**$351.3**	**$311.8**

Notes:
[a] All dollar values are in 2020 dollars.
[b] Numbers may not sum due to rounding.
Source: Appendix Q, *IMPLAN Analysis Methods and Results*

Economic benefits related to direct, indirect, and induced employment and labor income would extend to tribal members that reside in the four-county study area and to Indian-owned businesses that would benefit from direct, indirect, and induced spending. Based on population size, skilled labor availability and unemployment rates, and distance of travel to the construction area, the Coalition estimated that 5 percent of the construction labor supply would be sourced from the Ute Indian Tribe. For the Indian Canyon Alternative and Whitmore Park Alternative that cross Tribal trust lands, the tribe would negotiate preferential hiring of qualified tribal members through the Ute Tribal Employment Rights Office, which would benefit tribal members seeking direct employment during construction.

As discussed in Subsection 3.13.3.1, *Impacts Common to All Action Alternatives*, the tribe as a producer of crude oil could also benefit from lower transportation costs for shipping crude oil and access to new markets if the proposed rail line is built, and could accrue revenue generated by the operation of the proposed rail line if the tribe becomes an equity partner.

Workforce Demand for Housing and Public Services

OEA estimates that direct employment for rail line construction would be 1,550 jobs for the Indian Canyon Alternative, 1,850 jobs for the Wells Draw Alternative and 1,630 jobs for the Whitmore Park Alternative (Table 3.13-8). The Coalition anticipates that approximately 60 percent of the labor supply would originate from outside the immediate area of Carbon, Duchesne, and Uintah Counties (Coalition 2019). This would be equivalent to 930 workers under the Indian Canyon Alternative, 1,110 workers under the Wells Draw Alternative, and 978 workers under the Whitmore Park Alternative. The Coalition would build dedicated construction camps to house up to 40 workers to support tunnel construction of the Indian Canyon Alternative and Whitmore Park Alternative, and up to 280 workers to support construction of tunnels, embankment, and bridges for the Wells Draw Alternative.

OEA estimated that up to 938 nonlocal construction workers could migrate into nearby communities that are within commuting distance to the Action Alternatives, including the communities of Helper, Price, Wellington, Myton, Roosevelt, Duchesne, Ballard, Vernal, and Naples. OEA expects that the majority of nonlocal construction workers would not bring their families to a remote job site and that the majority of construction workers would use dedicated construction camps or temporary accommodations such as hotels, motels, and RV parks for temporary housing rather than vacant rental properties that may require a lease agreement. Over 2,000 temporary accommodations and over 2,500 vacant housing units are available in these same communities (Table 3.13-2), so OEA anticipates that demand for workforce housing would not exceed available capacity. In addition, because OEA expects construction workers to preferentially reside in temporary accommodations such as hotels, motels, and RV parks, OEA does not expect that the influx of temporary construction workers would have a significant effect on housing prices. Other reasonably foreseeable future actions, including the construction of two interstate electric power transmission lines (Gateway South and TransWest), would also increase demand for public housing and services in the study area. Section 3.15, *Cumulative Impacts*, provides more information regarding these cumulative impacts.

OEA expects that the demand for public services, such as law enforcement and fire protection, would increase in proportion to the increase in population. In 2017, Carbon County, Duchesne County, and Uintah County had over 77,000 residents (Table 3.13-1). The addition of up to 932 nonlocal construction workers to communities in these three counties would represent an up to 1.2 percent increase in population due to construction of the proposed rail line. However, the increase in demand for public services may be considerably higher in some communities with small populations that are close to the Action Alternatives. The communities that could see the greatest change in demand for housing and public services are Helper, Price, Myton, Roosevelt, Duchesne, and Ballard. Increased demand for housing or public services in any of these communities would be temporary. OEA expects that the majority of temporary construction workers would not bring their families to a remote job site and that impacts on public schools from the in-migration of school-age children arriving with temporary construction workers would not be significant.

State and Local Revenues

Construction of the proposed rail line would require the acquisition of easements on lands administered by SITLA. The Wells Draw Alternative would require the acquisition of 881 acres of easement on state lands, followed by the Indian Canyon Alternative (444 acres), and the Whitmore Park Alternative (386 acres). These easements would generate revenue for SITLA trust beneficiaries that would be distributed to institutional endowments for higher education, special education, and public institutions in the state of Utah (SITLA 2020).

Construction would also generate revenue for the state from state income tax on direct, indirect, and induced labor income (Table 3.13-8). The Coalition estimates that up to 30 percent of the labor supply would originate from distant Utah counties or locations outside Utah. Assuming 70 percent of the annual labor income generated by construction of the Action Alternatives would be subject to state income tax, a state income tax rate of 4.95 percent would generate annual state revenues of up to $6.8 million under the Indian Canyon Alternative, $7.3 million under the Whitmore Park Alternative, and $8.8 million under the Wells Draw Alternative during each year of construction.

Construction would also generate state and local sales and use taxes on direct construction expenditures, as well as taxes on indirect and induced spending. Additional transient room taxes would be generated by nonlocal construction workers who reside in temporary accommodations such as hotels and motels during the construction period. The Coalition's construction cost estimate is $1.29 billion for the Indian Canyon Alternative, $1.35 billion for the Whitmore Park Alternative, and $2.14 billion for the Wells Draw Alternative. Table 3.13-9 summarizes the estimated portion of the total construction cost that would be subject to state sales and use tax, and the revenue that would be generated for the state under each Action Alternative at a tax rate of 4.85 percent.

Table 3.13-9. In-State Taxable Construction Expenditures and State Tax Revenue by Action Alternative

Action Alternative	In-State Taxable Expenditures	State Tax Revenue at 4.85% Tax Rate
Indian Canyon	$546,000,000	$26,481,000
Whitmore Park	$574,000,000	$27,839,000
Wells Draw	$921,000,000	$44,668,500

Local jurisdictions, including county and city governments and the Ute Indian Tribe, may also levy taxes on construction expenditures including local sales and use taxes, county option sales taxes, city or town option taxes, and taxes levied specifically to support transit and highways, or public facilities. The combined sales and use tax rate effective April 1, 2020 is 6.35 percent for Carbon and Duchesne Counties, 6.45 percent for Uintah County, and 7.15 percent for Utah County, while sales and use tax rates in some cities in the study area may be slightly higher (Utah State Tax Commission 2020). Based on the overall construction cost, and estimated direct, indirect, and induced labor income and gross regional product, OEA expects that the Wells Draw Alternative would generate the most state and local tax revenue followed by the Whitmore Park Alternative and the Indian Canyon Alternative.

Construction of the Indian Canyon Alternative or the Whitmore Park Alternative would generate revenue for the Ute Indian Tribe through payments for a right-of-way across Tribal trust lands. Other revenue streams that would directly benefit the tribe include taxes and business fees payable to the tribe. As discussed in Subsection 3.13.3.1, *Impacts Common to All Action Alternatives*, the tribe as a producer of crude oil could also benefit from lower transportation costs for shipping crude oil and access to new markets if the proposed rail line is built, and could accrue revenue generated by operation of the proposed rail line if the tribe becomes an equity partner.

Nonmarket Values and Quality of Life

The Wells Draw Alternative would cross several special designation areas on BLM-administered lands including the Lears Canyon and Nine Mile Canyon Areas of Critical Environmental Concern, the Big Wash and Currant Canyon Lands with Wilderness Characteristics, and the Nine Mile Special Recreation Management Area. In these areas, the Wells Draw Alternative would have unique land use and recreation impacts compared to other Action Alternatives that would also adversely affect nonmarket values and quality of life.

The Indian Canyon Alternative and Whitmore Park Alternative would cross Forest Service lands in Ashley National Forest and would result in disturbances to inventoried roadless areas and would adversely affect the nonmarket value of these areas. All of the Action Alternatives would share a corridor with a scenic byway for a portion of the alignment that could diminish the scenic quality of the byway. The Indian Canyon Alternative and Whitmore Park Alternative would be aligned in the same corridor as the Indian Canyon Scenic Byway, while the Wells Draw Alternative would be aligned adjacent to sections of the Nine Mile Canyon Backcountry Byway. For more information on construction-related quality of life impacts, see Section 3.6, *Noise and Vibration*, Section 3.11, *Land Use and Recreation*, and Section 3.12, *Visual Resources*.

Operations

Displaced Economic Activity

Land acquired for operation of the proposed rail line would no longer be available for ranching, farming, or other economic activities. Impacts during operations would be similar to those for construction, except that fewer acres of ranching and farmland would be permanently affected during operations than would be temporarily affected during construction. To reduce impacts to ranch and farm operations, OEA is recommending mitigation requiring the Coalition to install at-grade crossings and relocating roads to maintain adequate access to and movement within ranches and farms after rail operations begin (SOCIO-MM-2). The maps in Figure 3.13-4 through Figure 3.13-6 show the acreage of land that would no longer be available for ranching and farming on the specific ranches that OEA identified through review of parcel data and scoping comments. Other landowners that have ranching and farming operations that were not identified specifically through a search of the parcel data and scoping comments could also be affected. Temporary and permanent impacts on ranching and farming under each Action Alternative expressed as impacted acreage of irrigated cropland and prime farmland, or impacts on grazing values in terms of AUM loss are estimated in Section 3.11, *Land Use and Recreation*, Table 3.11-5. Grazing allotments crossed by the Indian Canyon Alternative and the Whitmore Park Alternative support an estimated 2,817 AUMs while grazing allotments crossed by the Wells Draw Alternative support an estimated 10,163 AUMs (Section 3.11, Table 3.11-2). Under each of the Action

Alternatives, permanent disturbance would result in a permanent loss of approximately 1 percent of the AUMs supported within grazing allotments crossed by the Action Alternatives.

Employment, Labor Income, and Value Added

Operation of the proposed rail line would support regional employment, generate labor income, and contribute to the regional economy. The contribution of rail operations to the regional economy would be much less than the contribution from construction. The Coalition provided annual O&M cost estimates for both a low- and high rail traffic scenario. Annual direct and total employment, labor income, and total estimated economic output during operations would be specific to each Action Alternative, with the Wells Draw Alternative generating the most employment, labor income, and economic value added, followed by the Whitmore Park Alternative and the Indian Canyon Alternative (Table 3.13-10).

Table 3.13-10. Annual Employment, Labor Income, and Value Added Impacts from Operation and Maintenance of the Action Alternatives

	Action Alternative[a,b]		
Impact Type	**Indian Canyon**	**Wells Draw**	**Whitmore Park**
Employment (jobs)			
Low Rail Traffic Scenario			
Direct	110	130	120
Indirect	50	60	50
Induced	20	30	30
Total	**170**	**220**	**190**
High Rail Traffic Scenario			
Direct	250	310	270
Indirect	120	140	120
Induced	60	80	80
Total	**420**	**530**	**470**
Labor Income ($ million)~~5~~			
Low Rail Traffic Scenario			
Direct	$5.8	$7.2	$6.4
Indirect	$1.8	$2.3	$2.0
Induced	$0.7	$0.8	$0.9
Total	**$8.3**	**$10.4**	**$9.3**
High Rail Traffic Scenario			
Direct	$16.5	$20.5	$18.0
Indirect	$2.2	$6.2	$5.3
Induced	$3.2	$2.3	$2.5
Total	**$23.3**	**$29.0**	**$25.8**
Value Added ($ million)			
Low Rail Traffic Scenario			
Direct	$9.6	$12.0	$10.6
Indirect	$3.9	$4.9	$4.2
Induced	$1.7	$2.0	$2.1
Total	**$15.2**	**$18.9**	**$16.8**
High Rail Traffic Scenario			
Direct	$31.4	$35.3	$30.9
Indirect	$4.3	$13.4	$11.5
Induced	$5.4	$5.6	$5.7
Total	**$43.6**	**$54.3**	**$48.1**

Notes:

[a] All output values are in 2020 dollars. Numbers may not sum due to rounding.

[b] Employment is converted from IMPLAN employment to FTE.

Source: Appendix Q, *IMPLAN Analysis Methods and Results*

State and Local Revenues

Under any of the Action Alternatives, easements on lands administered by SITLA would generate revenue for trust beneficiaries. Additionally, all of the Action Alternatives would generate direct, indirect, and induced annual labor income for each year that the proposed rail line is in operation, generating between $0.4 and $0.5 million in state revenue under the low rail traffic scenario and between $1.1 and $1.4 million in state revenue under the high rail traffic scenario. The Wells Draw Alternative would generate the highest level of revenue, followed by the Whitmore Park Alternative and the Indian Canyon Alternative. Revenue from state and local sales and use taxes on annual O&M expenditures, and indirect and induced spending generated by operation of the proposed rail line would also be generated on an annual basis.

3.13.3.3 No-Action Alternative

Under the No-Action Alternative, the Coalition would not construct and operate the proposed rail line, and there would be no impacts related to socioeconomics.

3.13.4 Mitigation and Unavoidable Environmental Effects

Potential socioeconomic impacts of the proposed rail line include property acquisitions and displacements, displaced economic activity, adverse effects on nonmarket values and quality of life, beneficial effects on the local economy, and increased local and state tax revenue. In general, the Indian Canyon Alternative would have the greatest adverse impact on smaller private property owners because it would cross the most smaller-subdivided properties in the Argyle Canyon and Duchesne Mini-Ranches areas of Duchesne County. The Whitmore Park Alternative would affect the largest area of private property across the three Action Alternatives and would primarily affect larger property owners and ranching and farming operations. The Wells Draw Alternative would affect the smallest area of private property, but would displace the largest number of residences within the project footprint. Because it would be the costliest Action Alternative to construct and operate, the Wells Draw Alternative would create the most jobs and would generate the most local economic benefits and local tax revenue, followed by the Whitmore Park Alternative and the Indian Canyon Alternative.