

UINTA BASIN RAILWAY FINAL ENVIRONMENTAL IMPACT STATEMENT

STB DOCKET No. FD 36284

PREPARED BY:

Surface Transportation Board, Office of Environmental Analysis

COOPERATING AGENCIES:

Department of the Army, U.S. Army Corps of Engineers
State of Utah Public Lands Policy Coordinating Office
U.S. Department of Agriculture, Forest Service
U.S. Department of the Interior, Bureau of Indian Affairs
U.S. Department of the Interior, Bureau of Land Management

August 2021

Surface Transportation Board, Office of Environmental Analysis. 2021. *Uinta Basin Railway Final Environmental Impact Statement*. August. Washington, DC.

Contents

| | |
|---|------------|
| List of Tables | viii |
| List of Figures..... | xv |
| List of Acronyms and Abbreviations | xviii |
| Summary | S-1 |
| S.1 Introduction | S-1 |
| S.1.1 Purpose and Need..... | S-1 |
| S.1.2 Proposed Action..... | S-2 |
| S.1.3 Cooperating Agency Actions | S-3 |
| S.2 Draft EIS and Final EIS Process..... | S-4 |
| S.2.1 Scoping and Consultation | S-4 |
| S.3 Alternatives..... | S-6 |
| S.4 Conclusions on Environmental Impacts..... | S-8 |
| S.4.1 Major Impacts | S-8 |
| S.4.2 Minor Impacts..... | S-10 |
| S.4.3 Downline Impacts | S-13 |
| S.4.4 Cumulative Impacts | S-13 |
| S.4.5 Environmentally Preferred Alternative..... | S-13 |
| S.5 Summary of Impacts | S-14 |
| S.6 Mitigation..... | S-25 |
| S.7 Public Involvement | S-25 |
| S.7.1 Online Public Meetings | S-25 |
| S.7.2 Public Comment Period for the Draft EIS | S-25 |
| Chapter 1 Purpose and Need..... | 1-1 |
| 1.1 Introduction | 1-1 |
| 1.2 Purpose and Need..... | 1-3 |
| 1.3 National Environmental Policy Act Process | 1-4 |
| 1.3.1 Lead Agency | 1-4 |
| 1.3.2 Cooperating Agencies | 1-4 |
| 1.3.3 Scoping Process | 1-6 |
| 1.3.4 Public Comment Period for the Draft EIS | 1-7 |
| 1.3.5 Public Meetings..... | 1-8 |
| Chapter 2 Proposed Action and Alternatives | 2-1 |
| 2.1 Proposed Action..... | 2-1 |
| 2.2 Alternatives..... | 2-2 |

2.2.1 Alternatives Development 2-2

2.2.2 Routes Considered but Not Analyzed in the EIS 2-5

2.2.3 Alternatives Analyzed in the EIS 2-20

2.3 Construction and Design Features 2-27

2.3.1 Rail Line, Temporary, and Project Footprints 2-28

2.3.2 Railbed and Track Construction 2-30

2.3.3 Rail Line Construction Equipment and Methods 2-30

2.3.4 Materials for Rail Line Construction 2-30

2.3.5 Construction Staging Areas 2-31

2.3.6 Staffing and Worker Housing 2-31

2.3.7 Bridges, Culverts, and Stream Realignment 2-31

2.3.8 Tunnels 2-32

2.3.9 Grade Crossings 2-32

2.3.10 Road Relocations 2-33

2.3.11 Associated Facilities 2-33

2.3.12 Construction Schedule 2-34

2.4 Operations 2-35

2.4.1 Rail Traffic 2-35

2.4.2 Maintenance 2-36

2.4.3 Staffing 2-36

2.5 Summary of Impacts 2-37

2.6 Environmentally Preferred Alternative 2-48

Chapter 3 Affected Environment and Environmental Consequences 3-1

3.1 Vehicle Safety and Delay 3.1-1

3.1.1 Analysis Methods 3.1-1

3.1.2 Affected Environment 3.1-4

3.1.3 Environmental Consequences 3.1-7

3.1.4 Mitigation and Unavoidable Environmental Effects 3.1-20

3.2 Rail Operations Safety 3.2-1

3.2.1 Analysis Methods 3.2-1

3.2.2 Affected Environment 3.2-3

3.2.3 Environmental Consequences 3.2-4

3.2.4 Mitigation and Unavoidable Environmental Effects 3.2-8

3.3 Water Resources 3.3-1

3.3.1 Analysis Methods 3.3-1

3.3.2 Affected Environment 3.3-10

3.3.3 Environmental Consequences 3.3-24

3.3.4 Mitigation and Unavoidable Environmental Impacts 3.3-47

- 3.4 Biological Resources 3.4-1
 - 3.4.1 Analysis Methods..... 3.4-1
 - 3.4.2 Affected Environment..... 3.4-4
 - 3.4.3 Environmental Consequences 3.4-28
 - 3.4.4 Mitigation and Unavoidable Environmental Effects..... 3.4-62
- 3.5 Geology, Soils, Seismic Hazards, and Hazardous Waste Sites 3.5-1
 - 3.5.1 Analysis Methods..... 3.5-1
 - 3.5.2 Affected Environment..... 3.5-4
 - 3.5.3 Environmental Consequences 3.5-20
 - 3.5.4 Mitigation and Unavoidable Environmental Effects..... 3.5-28
- 3.6 Noise and Vibration 3.6-1
 - 3.6.1 Analysis Methods..... 3.6-1
 - 3.6.2 Affected Environment..... 3.6-4
 - 3.6.3 Environmental Consequences 3.6-7
 - 3.6.4 Mitigation and Unavoidable Environmental Effects..... 3.6-16
- 3.7 Air Quality and Greenhouse Gases 3.7-1
 - 3.7.1 Analysis Methods..... 3.7-1
 - 3.7.2 Affected Environment..... 3.7-4
 - 3.7.3 Environmental Consequences 3.7-11
 - 3.7.4 Mitigation and Unavoidable Environmental Effects..... 3.7-38
- 3.8 Energy 3.8-1
 - 3.8.1 Analysis Methods..... 3.8-1
 - 3.8.2 Affected Environment..... 3.8-3
 - 3.8.3 Environmental Consequences 3.8-6
 - 3.8.4 Mitigation and Unavoidable Environmental Impacts 3.8-13
- 3.9 Cultural Resources 3.9-1
 - 3.9.1 Analysis Methods..... 3.9-1
 - 3.9.2 Affected Environment..... 3.9-7
 - 3.9.3 Environmental Consequences 3.9-11
 - 3.9.4 Mitigation and Unavoidable Environmental Effects..... 3.9-16
- 3.10 Paleontological Resources 3.10-1
 - 3.10.1 Analysis Methods 3.10-1
 - 3.10.2 Affected Environment 3.10-2
 - 3.10.3 Environmental Consequences..... 3.10-8
 - 3.10.5 Mitigation and Unavoidable Environmental Effects 3.10-13
- 3.11 Land Use and Recreation 3.11-1
 - 3.11.1 Analysis Methods 3.11-1
 - 3.11.2 Affected Environment 3.11-3

- 3.11.3 Environmental Consequences 3.11-12
- 3.11.4 Mitigation and Unavoidable Environmental Effects 3.11-28
- 3.12 Visual Resources 3.12-1
 - 3.12.1 Analysis Methods 3.12-1
 - 3.12.2 Affected Environment 3.12-5
 - 3.12.3 Environmental Consequences 3.12-6
 - 3.12.4 Mitigation and Unavoidable Environmental Effects 3.12-35
- 3.13 Socioeconomics 3.13-1
 - 3.13.1 Analysis Methods 3.13-1
 - 3.13.2 Affected Environment 3.13-2
 - 3.13.3 Environmental Consequences 3.13-9
 - 3.13.4 Mitigation and Unavoidable Environmental Effects 3.13-31
- 3.14 Environmental Justice 3.14-1
 - 3.14.1 Analysis Methods 3.14-1
 - 3.14.2 Affected Environment 3.14-2
 - 3.14.3 Environmental Consequences 3.14-11
 - 3.14.4 Mitigation and Unavoidable Environmental Effects 3.14-19
- 3.15 Cumulative Impacts 3.15-1
 - 3.15.1 Analysis Methods 3.15-1
 - 3.15.2 Cumulative Impacts Study Area 3.15-1
 - 3.15.3 Affected Environment 3.15-1
 - 3.15.4 Other Past, Present, and Reasonably Foreseeable Future Actions 3.15-3
 - 3.15.5 Cumulative Impacts by Resource 3.15-10
- Chapter 4 Mitigation 4-1**
 - 4.1 Introduction and Approach 4-1
 - 4.2 Limits of the Surface Transportation Board’s Conditioning Power 4-1
 - 4.2.1 Cooperating Agency Mitigation Matters 4-1
 - 4.2.2 Voluntary Mitigation and Negotiated Agreements 4-2
 - 4.2.3 The Mitigation Process 4-2
 - 4.3 The Coalition’s Voluntary Mitigation Measures 4-3
 - 4.3.1 Construction and Rail Operations Safety 4-3
 - 4.3.2 Grade Crossing Safety 4-3
 - 4.3.3 Hazardous Materials Handling and Spills during Construction 4-3
 - 4.3.4 Hazardous Materials Transport and Emergency Response 4-4
 - 4.3.5 Topography, Geology, and Soils 4-5
 - 4.3.6 Air Quality 4-5
 - 4.3.7 Water Resources 4-6
 - 4.3.8 Biological Resources 4-6

- 4.3.9 Cultural Resources 4-7
- 4.3.10 Land Use 4-8
- 4.3.11 Community Outreach 4-8
- 4.3.12 Noise and Vibration 4-8
- 4.3.13 Recreation 4-9
- 4.4 OEA’s Final Recommended Mitigation Measures 4-9
 - 4.4.1 Vehicle Safety and Delay 4-9
 - 4.4.2 Rail Operations Safety 4-10
 - 4.4.3 Water Resources 4-10
 - 4.4.4 Biological Resources 4-12
 - 4.4.5 Geology, Soils, Seismic Hazards, and Hazardous Waste Sites 4-14
 - 4.4.6 Noise and Vibration 4-15
 - 4.4.7 Air Quality 4-16
 - 4.4.8 Energy 4-17
 - 4.4.9 Paleontological Resources 4-18
 - 4.4.10 Land Use and Recreation 4-18
 - 4.4.11 Visual Resources 4-20
 - 4.4.12 Socioeconomics 4-21
 - 4.4.13 Environmental Justice 4-21
 - 4.4.14 Monitoring and Compliance 4-22
- Chapter 5 Consultation and Coordination 5-1**
 - 5.1 Public Involvement 5-1
 - 5.1.1 EIS Scoping 5-1
 - 5.1.2 Draft EIS Public Comment Period 5-2
 - 5.1.3 Project Website 5-5
 - 5.2 Agency Coordination and Consultation 5-5
 - 5.2.1 National Environmental Policy Act 5-5
 - 5.2.2 National Historic Preservation Act Section 106 5-6
 - 5.3 Tribal Coordination and Consultation 5-7
 - 5.3.1 Government-to-Government Consultation 5-8
 - 5.3.2 Tribal Consultation under NHPA Section 106 5-9
 - 5.4 Consultation with Other Stakeholders 5-10
 - 5.4.1 Consultation under NHPA Section 106 5-10
- Chapter 6 Additional Topics Required by NEPA 6-1**
 - 6.1 Short-Term Uses of the Environment and Maintenance and Enhancement of Long-Term Productivity 6-1
 - 6.1.1 Land Use Productivity 6-1
 - 6.1.2 Water Resources Productivity 6-2

- 6.1.3 Biological Resources Productivity 6-3
- 6.2 Irreversible or Irretrievable Commitments of Resources 6-3
 - 6.2.1 Water Resources 6-4
 - 6.2.2 Biological Resources 6-4
 - 6.2.3 Geology and Soils 6-4
 - 6.2.4 Energy Resources 6-5
 - 6.2.5 Cultural Resources 6-5
 - 6.2.6 Paleontological Resources 6-5
 - 6.2.7 Land Use 6-6
 - 6.2.8 Visual Resources 6-6
- Chapter 7 List of Preparers 7-1**
 - 7.1 Surface Transportation Board, Office of Environmental Analysis 7-1
 - 7.2 Department of the Army, U.S. Army Corps of Engineers 7-1
 - 7.3 U.S. Department of Agriculture, Forest Service 7-1
 - 7.4 U.S. Department of the Interior, Bureau of Indian Affairs 7-1
 - 7.5 U.S. Department of the Interior, Bureau of Land Management 7-2
 - 7.6 State of Utah Public Lands Policy Coordinating Office 7-2
 - 7.7 Utah State Historic Preservation Office 7-2
 - 7.8 Other Utah State Agencies 7-2
 - 7.9 Contractors and Consultants 7-3
- Chapter 8 Distribution List 8-1**
 - 8.1 Federal Agencies 8-1
 - 8.2 State Agencies 8-1
 - 8.3 County and Local Government Agencies 8-1
 - 8.4 Tribes 8-2
 - 8.5 Elected and Appointed Officials 8-2
 - 8.6 Section 106 Consulting Parties, Organizations, Businesses, Other Stakeholders 8-2
 - 8.7 Libraries 8-3
- Chapter 9 References 9-1**
 - 9.1 Proposed Action and Alternatives 9-1
 - 9.2 Affected Environment and Environmental Consequences 9-1
 - 9.2.1 Vehicle Safety and Delay 9-1
 - 9.2.2 Rail Operations Safety 9-3
 - 9.2.3 Water Resources 9-3
 - 9.2.4 Biological Resources 9-6
 - 9.2.5 Geology, Soils, Seismic Hazards, and Hazardous Waste Sites 9-14
 - 9.2.6 Noise and Vibration 9-18

| | | |
|-------------------|--|------|
| 9.2.7 | Air Quality and Greenhouse Gases | 9-18 |
| 9.2.8 | Energy | 9-21 |
| 9.2.9 | Cultural Resources | 9-24 |
| 9.2.10 | Paleontological Resources..... | 9-25 |
| 9.2.11 | Land Use and Recreation..... | 9-27 |
| 9.2.12 | Visual Resources..... | 9-30 |
| 9.2.13 | Socioeconomics..... | 9-30 |
| 9.2.14 | Environmental Justice | 9-33 |
| 9.2.15 | Cumulative Impacts..... | 9-33 |
| 9.3 | Mitigation..... | 9-35 |
| Appendix A | Action Alternatives Supporting Information | |
| Appendix B | Applicable Regulations | |
| Appendix C | Downline Analysis Study Area and Train Characteristics | |
| Appendix D | Grade-Crossing Safety and Delay Analysis | |
| Appendix E | Rail Accident Rates | |
| Appendix F | Water Resources Figures | |
| Appendix G | Biological Resources Figures | |
| Appendix H | Biological Evaluation | |
| Appendix I | Biological Assessment | |
| Appendix J | Bureau of Land Management Greater Sage-Grouse Resource Management Plan Compliance | |
| Appendix K | State of Utah Sage-Grouse Mitigation Plan | |
| Appendix L | Noise and Vibration Analysis Methods | |
| Appendix M | Air Quality Emissions and Modeling Data | |
| Appendix N | Historic Properties Technical Memorandum | |
| Appendix O | Programmatic Agreement | |
| Appendix P | Visual Resources Terminology, Methodology, and Rating System | |
| Appendix Q | IMPLAN Analysis Methods and Results | |
| Appendix R | Other Projects and Actions Considered in the Cumulative Impacts Analysis | |
| Appendix S | Agency and Tribal Consultation | |
| Appendix T | Responses to Comments | |

Tables

| | Page |
|--------|---|
| S-1 | Summary of Impacts..... S-15 |
| 1-1 | Cooperating Agencies..... 1-5 |
| 2-1 | Length and Footprints by Action Alternative 2-28 |
| 2-2 | Temporary Housing Camps for Construction Staff..... 2-31 |
| 2-3 | Bridges and Culverts..... 2-32 |
| 2-4 | Stream Realignments per Action Alternative 2-32 |
| 2-5 | Tunnels 2-32 |
| 2-6 | Number of Road Crossings per Action Alternative..... 2-33 |
| 2-7 | Road Relocations per Action Alternative 2-33 |
| 2-8 | Siding Tracks and Set-Out Tracks 2-34 |
| 2-9 | Operations and Maintenance Staffing Requirements..... 2-36 |
| 2-10 | Estimated Percentages of Total Operations and Maintenance Workforce by Job Type 2-37 |
| 2-11 | Summary of Impacts..... 2-38 |
| 3.1-1 | 2018 Crash Total by County 3.1-5 |
| 3.1-2 | Annual Average Daily Traffic in 2017 and 2020 3.1-5 |
| 3.1-3 | Used Roadway Capacity during Peak Hour Traffic Flow 3.1-6 |
| 3.1-4 | Estimated Increase in Downline Train Accidents per Year..... 3.1-14 |
| 3.1-5 | Estimated Maximum Potential Vehicle Delay per Grade Crossing on Downline Segments (2026)..... 3.1-14 |
| 3.1-6 | Vehicle Miles Traveled during Construction 3.1-15 |
| 3.1-7 | Vehicle Traffic during Construction 3.1-16 |
| 3.1-8 | Used Roadway Capacity during Peak Hour Traffic Flow on US 6 during Construction 3.1-16 |
| 3.1-9 | Annual Vehicle Miles Traveled during Operations 3.1-17 |
| 3.1-10 | Vehicle Traffic during Operations by Action Alternative..... 3.1-18 |

3.1-11 Estimated Overall Predicted Accident Frequency by Action Alternative 3.1-18

3.1-12 Estimated Average Increase in Grade-Crossing Delay per Crossing by Action
Alternative 3.1-19

3.2-1 Downline Segment Rail Traffic and Predicted Accidents per Year 3.2-4

3.2-2 Predicted Annual Train Accidents by Downline Segment 3.2-6

3.2-3 Predicted Annual Train Accidents by Action Alternative 3.2-7

3.3-1 Watersheds Crossed by the Action Alternatives 3.3-10

3.3-2 Surface Water Types Identified in the Field Survey Study Area 3.3-11

3.3-3 Surface Waters Lengths and Areas in the Field Survey Study Area 3.3-12

3.3-4 Classification of Utah Surface Water Beneficial Uses 3.3-14

3.3-5 Section 303(d) Impaired Waters Status of Surface Waters in the Field Survey
Study Area 3.3-15

3.3-6 Acres of Floodplains in the Field Survey Study Area by Action Alternative 3.3-17

3.3-7 Wetlands in the Field Survey Study Area by Action Alternative (acres) 3.3-19

3.3-8 Groundwater Use in the Study Area 3.3-22

3.3-9 Utah Groundwater Classes 3.3-23

3.3-10 Surface Water Impacts by Action Alternative 3.3-39

3.3-11 Surface Waters Adjacent to Project Footprint by Action Alternative 3.3-40

3.3-12 Surface Waters Crossings by Crossing Structure and Number of Stream
Realignments 3.3-40

3.3-13 Sinuosity Impacts at Stream Realignments 3.3-41

3.3-14 Distance and Area of Impact in Section 303(d) Impaired Assessment Units 3.3-42

3.3-15 Floodplain Impacts by Action Alternative 3.3-43

3.3-16 Wetland Impacts by Action Alternative 3.3-44

3.3-17 Wetlands Adjacent to Project Footprint by Action Alternative 3.3-45

3.3-18 Impacts on Groundwater Wells and Springs by Action Alternative 3.3-46

3.4-1 Seasonal Use of Existing Big Game Habitat in the Study Areas 3.4-6

3.4-2 UDWR Big Game Management Units Crossed by the Action Alternatives 3.4-7

3.4-3 Big Game Movement Corridors along the Action Alternatives 3.4-7

3.4-4 Migratory Birds of Conservation Concern Potentially in or near the Study Areas..... 3.4-8

3.4-5 Fish Species Known to Occur in the Study Area Watersheds and Documented in
Perennial Streams Crossed by the Proposed Rail Line 3.4-10

3.4-6 Vegetation Communities in the Study Areas by Land Cover Type (acres) 3.4-12

3.4-7 Wildfires in Utah (1992–2015) 3.4-15

3.4-8 Wildfire Hazard Potential in the Study Areas (acres) 3.4-16

3.4-9 Wildfire Hazard Potential along Downline Segments (acres) 3.4-16

3.4-10 ESA-Listed Plant Species Known to Occur or Potentially Occur in or near the
Study Areas 3.4-19

3.4-11 ESA-Listed Animal Species Known to Occur or Potentially Occur in or near the
Study Areas 3.4-20

3.4-12 UDWR-defined Greater Sage-Grouse Habitat in the Study Areas (acres) 3.4-26

3.4-13 BLM Greater Sage-Grouse Habitat in the Study Areas (acres) 3.4-28

3.4-14 Permanent Removal of and Temporary Disturbance to Big-Game Habitat (acres) 3.4-49

3.4-15 Percent Removal of All Big Game Crucial Habitats in UDWR Management Units 3.4-50

3.4-16 Big Game Movement Corridors Crossed by the Action Alternatives 3.4-51

3.4-17 Permanent Removal of and Temporary Disturbance to Vegetation Communities
(acres) 3.4-51

3.4-18 Permanent Removal of and Temporary Disturbance to Riparian Vegetation
(acres) 3.4-55

3.4-19 Permanent Removal of and Temporary Disturbance to Federally Listed Plant
Species Suitable Habitat (acres) 3.4-56

3.4-20 Permanent Removal of and Temporary Disturbance to Snowshoe Hare Habitat
(acres) 3.4-56

3.4-21 Permanent Removal of and Temporary Disturbance to Mexican Spotted Owl
Habitat (acres) 3.4-57

3.4-22 Permanent Removal of and Temporary Disturbance to UDWR-defined Greater
Sage-Grouse Areas (acres) 3.4-58

3.4-23 Permanent Removal of and Temporary Disturbance to BLM-defined Greater
Sage-Grouse Habitat (acres) 3.4-58

3.4-24 Predicted Train Noise at the Closest Greater Sage-Grouse Leks in the Carbon
Sage-Grouse Management Area 3.4-59

| | | |
|--------|--|--------|
| 3.4-25 | Applicable ARMPA Management Actions by Action Alternative | 3.4-60 |
| 3.4-26 | Quantifiable Elements of Management Action MA-SSS-3 | 3.4-61 |
| 3.5-1 | Geologic Units in the Study Area by Action Alternative (acres in study area) | 3.5-5 |
| 3.5-2 | Quaternary Mass Movement (Landslide, Debris Flow, and Rockslide) in the Study Area by Action Alternative | 3.5-7 |
| 3.5-3 | High and Very High Risk of Soil Hazards by Action Alternative (acres in study area and percentage of study area) | 3.5-9 |
| 3.5-4 | Active Faults in the Study Area and Distance to Action Alternatives..... | 3.5-12 |
| 3.5-5 | Active and Inactive Mines and Mine Prospects by Alternative..... | 3.5-15 |
| 3.5-6 | Oil and Gas Wells in the Study Area by Action Alternative | 3.5-16 |
| 3.5-7 | Hazardous Waste Sites in the Project Footprint | 3.5-17 |
| 3.5-8 | Off-Site Locations Identified in the Database Search..... | 3.5-19 |
| 3.5-9 | Off-Site Locations with the Potential to Affect the Action Alternatives | 3.5-20 |
| 3.5-10 | Risk of Mass Movement on Green River Formation and Mapped Landslide Area by Action Alternative..... | 3.5-26 |
| 3.5-11 | Dimensions of Each Action Alternative (Rail Line Footprint) | 3.5-27 |
| 3.5-12 | Soil Disturbance by Action Alternative (Rail Line Footprint)..... | 3.5-27 |
| 3.6-1 | Ambient Noise Monitoring Results | 3.6-6 |
| 3.6-2 | Reference Noise Levels for Construction Equipment..... | 3.6-7 |
| 3.6-3 | Federal Transit Administration Construction Noise Criteria | 3.6-8 |
| 3.6-4 | 65 DNL Noise Contour Distances by Rail Traffic Scenario | 3.6-10 |
| 3.6-5 | Estimated Train Noise Level Increases by Downline Segment..... | 3.6-11 |
| 3.6-6 | Estimated Construction-Related Noise and Vibration Levels at Sensitive Receptors..... | 3.6-12 |
| 3.6-7 | Estimated Pile-Driving Noise and Vibration Levels at Proposed Bridge Locations | 3.6-13 |
| 3.6-8 | Receptors within 3 dBA Increase Contour by Action Alternative | 3.6-14 |
| 3.6-9 | Receptors within the 65 DNL Contour by Action Alternative | 3.6-14 |
| 3.7-1 | Existing Emissions in the Regional Study Area and Utah Statewide | 3.7-5 |
| 3.7-2 | Representative Meteorological Data in the Local Study Area | 3.7-6 |
| 3.7-3 | Measured Ambient Concentrations in the Uinta Basin..... | 3.7-7 |

3.7-4 Emissions Benefits from Diverted Crude Oil Truck Trips..... 3.7-15

3.7-5 Estimated Downline Emissions of Criteria Pollutants—Increase in Trains per Day 3.7-18

3.7-6 Estimated Downline Emissions of Hazardous Air Pollutants—Increase in Trains
per Day 3.7-20

3.7-7 Estimated Annual Average Downline Emissions Compared to County-Level
Emissions 3.7-22

3.7-8 Emissions during Rail Line Construction..... 3.7-24

3.7-9 Emissions during Rail Line Construction in Areas Subject to General Conformity..... 3.7-25

3.7-10 Emissions during Rail Operations 3.7-26

3.7-11 Modeled Maximum Air Pollutant Concentrations in the Project Opening Year
under the High Rail Traffic Scenario 3.7-31

3.8-1 Diesel and Gasoline Consumption for Each Year of Construction 3.8-8

3.8-2 Wells in the Study Area of each Action Alternative by Lease Type..... 3.8-9

3.8-3 Utilities Crossed by Action Alternative..... 3.8-11

3.8-4 Fuel Consumption by Scenario 3.8-12

3.8-5 Percentage of Statewide Fuel Consumption for First Year of Operation..... 3.8-12

3.9-1 Area of Potential Effects by Action Alternative..... 3.9-3

3.9-2 Archaeological Resources..... 3.9-8

3.9-3 Agricultural Resources..... 3.9-9

3.9-4 Transportation Resources 3.9-9

3.9-5 Residential Resources..... 3.9-10

3.9-6 Land Management Resources 3.9-10

3.9-7 Water-Related Resources..... 3.9-10

3.9-8 Construction Impacts by Property Type..... 3.9-11

3.9-9 Operations Impacts by Property Type..... 3.9-12

3.9-10 Cultural Resources Impact Comparison between Action Alternatives 3.9-14

3.10-1 Geologic Units in the Study Area..... 3.10-5

3.10-2 Previously Recorded Paleontological Localities in the Study Area by Action
Alternative 3.10-8

3.10-3 PFYC Acreage and Fossil Localities in the Study Area by Action Alternative 3.10-10

3.10-4 PFYC Acreage in Areas of Cut and Tunnels in the Study Area by Action Alternative 3.10-10

3.11-1 Land Status by Action Alternative 3.11-3

3.11-2 Grazing Allotments and Animal Unit Months in Study Area 3.11-5

3.11-3 Existing Federal Oil and Gas Leases in the Study Area by Action Alternative 3.11-5

3.11-4 Existing Cooperative Wildlife Management Units in the Study Area..... 3.11-11

3.11-5 Land Use Impacts by Action Alternative 3.11-18

3.11-6 Impacts on Inventoried Roadless Area #0401011 under the Indian Canyon Alternative and Whitmore Park Alternative..... 3.11-22

3.11-7 Temporary and Permanent Disturbances to Cooperative Wildlife Management Units by Action Alternative 3.11-26

3.11-8 BLM Special Designation Areas Affected by the Wells Draw Alternative 3.11-28

3.12-1 Scenic Quality Rating Summary for BLM-Administered Lands in the Study Area..... 3.12-17

3.12-2 Visual Quality Rating Summary using FHWA Visual Quality Rating Guidance 3.12-18

3.12-3 Sensitive Viewscapes and Infrastructure Changes by Action Alternative..... 3.12-27

3.13-1 Population in the Study Area 3.13-3

3.13-2 Housing Stock and Vacancy Status..... 3.13-4

3.13-3 Labor Force and Employment in the Study Area 3.13-6

3.13-4 Employment and Median Income by Industry..... 3.13-7

3.13-5 Estimated Value of Selected Farm Production in the Study Area, 2017..... 3.13-8

3.13-6 Acres of Land Acquisition Required for Construction in the Rail Line Footprint and Temporary Footprint..... 3.13-15

3.13-7 Residences and Other Structures Entirely or Partially within the Rail Line Footprint and Temporary Footprint..... 3.13-19

3.13-8 Annual Employment, Labor Income, and Value Added Impacts from Construction of the Action Alternatives..... 3.13-26

3.13-9 In-State Taxable Construction Expenditures and State Tax Revenue by Action Alternative 3.13-28

3.13-10 Annual Employment, Labor Income, and Value Added Impacts from Operation and Maintenance of the Action Alternatives 3.13-30

3.14-1 Minority Group Representation in the Study Area 3.14-3

| | | |
|---------|---|---------|
| 3.14-2 | Median Household Income and Percent of Households that are Low-Income in the Study Area | 3.14-7 |
| 3.15-1 | Estimated Well Development for the Low Oil Production Scenario | 3.15-5 |
| 3.15-2 | Estimated Well Development for the High Oil Production Scenario | 3.15-6 |
| 3.15-3 | Estimated Traffic for Terminal Construction and Proposed Rail Line Construction | 3.15-10 |
| 3.15-4 | Percentage of Used Roadway Capacity during Terminal Construction and Proposed Rail Line Construction | 3.15-11 |
| 3.15-5 | Estimated Annual Traffic for Steady State Oil and Gas Development and Operation of Proposed Rail Line..... | 3.15-12 |
| 3.15-6 | Used Roadway Capacity during Steady-State Oil and Gas Development and Operation of Proposed Rail Line..... | 3.15-13 |
| 3.15-7 | Annual Vehicle Miles Traveled for Terminal Construction and Proposed Rail Line Construction in 2022 | 3.15-14 |
| 3.15-8 | Annual Vehicle Miles Traveled for Steady-State Oil and Gas Development and Operation of Proposed Rail Line..... | 3.15-14 |
| 3.15-9 | Assumed Terminal Facility Equipment | 3.15-16 |
| 3.15-10 | Percent of All Big Game Crucial Habitats in Oil and Gas Fields Compared to All Crucial Habitat throughout Each UDWR Management Unit | 3.15-21 |
| 3.15-11 | Estimated Emissions Associated with Oil and Gas Development by Source..... | 3.15-34 |
| 3.15-12 | Estimated GHG Emissions from Combustion of Fuels Refined from Crude Oil Transported on the Proposed Rail Line | 3.15-36 |
| 3.15-13 | Relative Levels of Monument Butte and Uinta Basin Railway Cumulative Emissions | 3.15-38 |
| 5-1 | Community Flyer Distribution List..... | 5-2 |
| 5-2 | Public Service Announcement and Media Release Media Distribution List | 5-3 |
| 5-3 | Newspaper Display Advertisements Announcing Draft EIS Availability and Online Public Meetings | 5-3 |
| 5-4 | Legal Notices for Comment Period Extensions | 5-4 |
| 5-5 | Agencies and Tribes Consulted during Scoping for Input on the EIS | 5-5 |

Figures

| | Page |
|--|-------------|
| S-1 Project Alternatives | S-7 |
| 1-1 Project Location..... | 1-2 |
| 2-1 Indian Canyon Alternative | 2-22 |
| 2-2 Wells Draw Alternative..... | 2-24 |
| 2-3 Whitmore Park Alternative | 2-26 |
| 2-4 Cross-Sections of the Proposed Rail Line Footprint | 2-29 |
| 3.1-1 Proposed At-Grade and Grade-Separated Crossings for the Action Alternatives..... | 3.1-10 |
| 3.3-1 Surface Waters, Floodplains, and Wetlands—Watershed Study Area | 3.3-2 |
| 3.3-2 Groundwater Study Area..... | 3.3-4 |
| 3.3-3 Impaired Surface Waters..... | 3.3-16 |
| 3.4-1 UDWR Greater Sage-Grouse Habitat..... | 3.4-25 |
| 3.4-2 BLM Greater Sage-Grouse Habitat | 3.4-27 |
| 3.5-1 Geologic Formations in the Study Area..... | 3.5-6 |
| 3.5-2 Landslide Deposits in the Study Area | 3.5-8 |
| 3.5-3 Soil Hazards in the Study Area..... | 3.5-11 |
| 3.5-4 Active Quaternary Faults in the Study Area | 3.5-13 |
| 3.5-5 Named Faults in the Project Vicinity | 3.5-14 |
| 3.5-6 Hazardous Waste Sites | 3.5-18 |
| 3.6-1 Noise Monitoring Locations and Noise-Sensitive Receptors in the Project Study Area | 3.6-5 |
| 3.6-2 Typical Day-Night Average Noise Levels..... | 3.6-6 |
| 3.6-3 Noise-Sensitive Receptors (Residences) within 65 DNL Contours | 3.6-15 |
| 3.7-1 Air Quality Regional Study Area | 3.7-2 |
| 3.7-2 Nonattainment and PM10 Maintenance Areas | 3.7-9 |
| 3.7-3 Modeling Analysis Locations | 3.7-29 |

| | | |
|---------|--|---------|
| 3.7-4 | Maximum 1-Hour NO ₂ Concentrations (with background) South of Myton (Indian Canyon Alternative and Whitmore Park Alternative) | 3.7-34 |
| 3.7-5 | Maximum 1-Hour NO ₂ Concentrations (with background) South of Myton (Wells Draw Alternative) | 3.7-35 |
| 3.7-6 | Maximum 1-Hour NO ₂ Concentrations (with background) at Switchbacks South of Minnie Maude Road..... | 3.7-36 |
| 3.7-7 | Maximum 1-Hour NO ₂ Concentrations (with background) at Bear Claw Valley South of Argyle Canyon Road | 3.7-37 |
| 3.8-1 | Oil and Gas Pipelines, Transmission Lines, and Oil and Gas Wells | 3.8-5 |
| 3.10-1 | Potential Fossil Yield Classification..... | 3.10-11 |
| 3.11-1 | Special Designations and Recreation Areas | 3.11-8 |
| 3.12-1 | Rendered Key Observation Point Locations | 3.12-4 |
| 3.12-2 | RKOP 090 Looking SW near Milepost 30.8 (Indian Canyon Alternative) and Milepost 36.8 (Whitmore Park Alternative)..... | 3.12-9 |
| 3.12-3 | RKOP 139 Looking SW at Milepost 39 (Indian Canyon Alternative) and Milepost 45 (Whitmore Park Alternative) | 3.12-11 |
| 3.12-4 | RKOP 125 Looking East to South across Willow Creek from US 191 (Indian Canyon Alternative and Wells Draw Alternative) | 3.12-12 |
| 3.12-5 | RKOP 083 Looking Southeast near Milepost 47.4 (Indian Canyon Alternative) and Milepost 53.4 (Whitmore Park Alternative)..... | 3.12-13 |
| 3.12-6 | RKOP 126 Looking Southwest near Road Crossing at Milepost 21.6 (Indian Canyon Alternative) and Milepost 26.9 (Whitmore Park Alternative)..... | 3.12-14 |
| 3.12-7 | RKOP 146 Looking North near Road Crossing at Milepost 50.50 (Indian Canyon Alternative)..... | 3.12-16 |
| 3.12-8 | RKOP 027 Looking toward Milepost 73.2 (Wells Draw Alternative) | 3.12-23 |
| 3.12-9 | RKOP 044 Looking East–Southeast toward Milepost 57 (Wells Draw Alternative) | 3.12-24 |
| 3.12-10 | RKOP 110a Looking North toward Kyune Wye near Milepost 2.5 (Indian Canyon Alternative and Wells Draw Alternative) | 3.12-25 |
| 3.12-11 | RKOP 110b Looking North toward Kyune Wye near Milepost 2.5 (Whitmore Park Alternative)..... | 3.12-26 |
| 3.12-12 | RKOP 033 Looking Southeast toward Milepost 67 (Wells Draw Alternative) | 3.12-30 |
| 3.12-13 | RKOP 037 Looking Southwest toward Grade-Separated Crossings at Milepost 61.06 and Milepost 61.00 (Wells Draw Alternative) | 3.12-31 |

| | | |
|---------|---|---------|
| 3.12-14 | RKOP 120 Looking North near Road Crossing at Milepost 16.1 (Whitmore Park Alternative)..... | 3.12-34 |
| 3.12-15 | RKOP 156 Looking South near Milepost 59 (Whitmore Park Alternative)..... | 3.12-36 |
| 3.12-16 | RKOP 073 Looking Southwest near Milepost 22.1 (Wells Draw Alternative) | 3.12-37 |
| 3.13-1 | Subdivided Parcels in the Vicinity of Argyle Canyon | 3.13-17 |
| 3.13-2 | Subdivided Parcels in the Vicinity of Duchesne Mini-Ranches..... | 3.13-18 |
| 3.13-3 | Identified Ranching and Farming Operations | 3.13-20 |
| 3.13-4 | Ranching and Farming Operations—Western End | 3.13-22 |
| 3.13-5 | Ranching and Farming Operations—Indian Canyon | 3.13-23 |
| 3.13-6 | Ranching and Farming Operations—Eastern End | 3.13-24 |
| 3.14-1 | Percent Minority by Census Block Group..... | 3.14-4 |
| 3.14-2 | Percent American Indian by Census Block Group | 3.14-5 |
| 3.14-3 | Minority Populations Present..... | 3.14-6 |
| 3.14-4 | Percent Low-Income Households by Census Block Group..... | 3.14-8 |
| 3.14-5 | Low-Income Population Present | 3.14-9 |
| 3.14-6 | Minority and/or Low-Income Population Present | 3.14-10 |
| 3.14-7 | Environmental Justice Impacts..... | 3.14-17 |
| 3.15-1 | Past, Present, and Reasonably Foreseeable Future Actions | 3.15-2 |
| 3.15-2 | Example Crude Oil Rail Loading Terminal..... | 3.15-8 |

Acronyms and Abbreviations

| | |
|--------------------|--|
| µeq/l | micro-equivalents per liter |
| µg/m ³ | micrograms per cubic meter |
| AADT | annual average daily traffic |
| AAQS | Ambient Air Quality Standards |
| AAR | American Association of Railroads |
| ACEC | Area of Critical Environmental Concern |
| ACHP | Advisory Council on Historic Preservation |
| AFY | acre-feet per year |
| ANC | acid neutralizing capacity |
| ANF | Ashley National Forest |
| APE | area of potential effects |
| AQCR | Air Quality Control Region |
| AQRV | air quality related value |
| AQS | air quality standard |
| AREMA | American Railway Engineering and Maintenance-of-Way Association |
| ARMPA | Utah Greater Sage-Grouse Approved Resource Management Plan Amendment |
| ARMS | Utah Air Resource Management Strategy |
| Ashely Forest Plan | Ashley Forest Land and Resource Management Plan |
| AUM | Animal Unit Month |
| BA | Biological Assessment |
| Basin/the Basin | Uinta Basin |
| BCC | Birds of Conservation Concern |
| Berry Petroleum | Berry Petroleum LLC |
| BIA | U.S. Bureau of Indian Affairs |
| BLM | U.S. Bureau of Land Management |
| BMP | best management practice |
| BNSF | BNSF Railway Company |
| Board | Surface Transportation Board |
| bpd | barrels per day |
| BRWL | Blue-Rich White Light |

| | |
|-------------------|--|
| Btu | British thermal unit |
| C.F.R. | Code of Federal Regulations |
| Cadna | Computer-Aided Noise Abatement |
| CASTNET | Clean Air Status and Trends Network |
| CDPHE | Colorado Department of Public Health and Environment |
| CEQ | Council on Environmental Quality |
| CH ₄ | methane |
| cm | centimeters |
| CMAQ | Community Multi-scale Air Quality |
| CMP | corrugated metal pipe |
| CO 13 | Colorado State Highway 13 |
| CO 139 | Colorado State Highway 139 |
| CO 64 | Colorado State Highway 64 |
| CO | carbon monoxide |
| CO ₂ | carbon dioxide |
| CO ₂ e | carbon dioxide equivalent |
| Coalition | Seven County Infrastructure Coalition |
| Corps | U.S. Army Corps of Engineers |
| CPW | Colorado Parks and Wildlife |
| CSGMA | Carbon Sage-grouse Management Area |
| CSU | controlled surface use |
| CWA | Clean Water Act |
| CWMU | Cooperative Wildlife Management Unit |
| DAT | deposition analysis threshold |
| dBa | A-weighted decibel |
| DDV | delta-deciviews |
| DHV | design hour volume |
| DNL | day-night average noise level |
| DNM | Dinosaur National Monument |
| DPM | diesel particulate matter |
| DPR | Deseret Power Railroad |
| Drexel Hamilton | Drexel Hamilton Infrastructure Partners |
| DTM | Digital Terrain Model |

| | |
|----------------|---|
| EI | exposure index factor |
| EIA | U.S. Energy Information Administration |
| EIS | Environmental Impact Statement |
| EMU | ecological management unit |
| EPA | U.S. Environmental Protection Agency |
| EPCRA | Emergency Planning and Community Right-to-Know Act |
| ERMA | Extensive Recreation Management Area |
| ESA | Endangered Species Act |
| ESRI | Environmental Systems Research Institute |
| FEMA | Federal Emergency Management Agency |
| FHWA | Federal Highway Administration |
| FIRS | Federal Information Relay Service |
| FLPMA | Federal Land Policy and Management Act |
| Forest Service | U.S. Forest Service |
| FR | Federal Register |
| FRA | Federal Railroad Administration |
| FTA | Federal Transit Administration |
| FTE | full-time equivalent |
| GGE | gasoline gallon equivalent |
| GHG | greenhouse gas |
| GIS | geographic information system |
| GPS | global positioning system |
| GRP | gross regional product |
| GRSG | greater sage-grouse |
| gSSURGO | Gridded Soil Survey Geographic |
| GWP | global warming potential |
| HAP | hazardous air pollutant |
| HUC | Hydrologic Unit Code |
| I-70 | Interstate 70 |
| IMPLAN | Impact analysis for PLANning |
| IMPROVE | Interagency Monitoring of Protected Visual Environments |
| IPaC | Information for Planning and Consultation |
| IRA | Inventoried Roadless Area |

| | |
|---------------------|---|
| ITA | Indian Trust Asset |
| kg/ha-yr | kilograms per hectare per year |
| KOP | key observation point |
| kVa | kilovolt-ampere |
| L&G | Light and Glare |
| LAU | Lynx Analysis Unit |
| LCAS | Lynx Conservation Assessment Strategy |
| Leq | equivalent sound level |
| LOS | level of service |
| LRMP | Land Resource Management Plan |
| LWCF | Land and Water Conservation Fund |
| MA-LR | Management Action - Lands and Realty |
| MA-SSS | Management Action – Special Status Species |
| mg/l | milligrams per liter |
| mi ² | square miles |
| mm | millimeters |
| Monument Butte FEIS | Monument Butte Oil and Gas Development Project Final Environmental Impact Statement |
| mph | miles per hour |
| MST | Mountain Standard Time |
| MT/yr | metric tons per year |
| MUTCD | Federal Highway Administration Manual on Uniform Traffic Control Devices for Streets and Highways |
| MW | megawatts |
| MWh | megawatt hours |
| N ₂ O | nitrous oxide |
| NAAQS | National Ambient Air Quality Standards |
| NAICS | North American Industry Classification System |
| National Register | National Register of Historic Places |
| NEPA | National Environmental Policy Act |
| NFS | National Forest System |
| NHPA | National Historic Preservation Act |
| NO | nitric oxide |

| | |
|-----------------|---|
| NO ₂ | nitrogen dioxide |
| NOI | Notice of Intent |
| NO _x | nitrogen oxide |
| NPDES | National Pollutant Discharge Elimination System |
| NRA | National Recreation Area |
| NRCS | Natural Resources Conservation Service |
| NWI | National Wetland Inventory |
| O&M | operations and maintenance |
| OEА | Office of Environmental Analysis |
| OHV | off-highway vehicle |
| OHWM | ordinary high-water mark |
| PA | Programmatic Agreement |
| PAC | priority areas for conservation |
| PADD | Petroleum Administration for Defense District |
| PAH | polycyclic aromatic hydrocarbon |
| PC&N | public convenience and necessity |
| PEM | palustrine emergent [wetland] |
| PFO | palustrine forested [wetland] |
| PFYC | Potential Fossil Yield Classification |
| PHMA | Priority Habitat Management Area |
| PHMSA | Pipeline and Hazardous Materials Safety Administration |
| PLPCO | State of Utah Public Lands Policy Coordinating Office |
| PM10 | particulate matter 10 microns or less in diameter |
| PM2.5 | particulate matter 2.5 microns or less in diameter |
| POM | polycyclic organic matter |
| PPV | peak particle velocity |
| PSD | Prevention of Significant Deterioration |
| PSS | palustrine scrub-shrub [wetland] |
| PYFC | Potential Fossil Yield Classification |
| R.L Banks Study | Pre-Feasibility Study of a Prospective Railroad Connecting the Uinta Basin to the National Rail Network |
| RD1 | Roosevelt/Duchesne Ranger District |
| RDF | required design feature |

| | |
|-----------------|---|
| RGCP | Rio Grande Pacific Corporation |
| RIPRAP | Recovery Implementation Program Recovery Plan |
| RKOP | rendered key observation point |
| RMP | Resource Management Plan |
| RMPA | Utah Greater Sage-Grouse Resource Management Plan Amendment |
| RMS | root-mean square |
| ROD | Record of Decision |
| ROW | right-of-way |
| RPI | Railway Progress Institute |
| RTD | Denver Regional Transportation District |
| RV | recreational vehicle |
| SEL | sound exposure level |
| SGMA | Sage-Grouse Management Areas |
| SHPO | Utah State Historic Preservation Officer |
| SITLA | Utah School and Institutional Trust Lands Administration |
| SO ₂ | sulfur dioxide |
| SRMA | Special Recreation Management Area |
| SSS | Special Status Species |
| State Plan | Utah Conservation Plan for Greater Sage-Grouse |
| SWPPP | stormwater pollution prevention plan |
| T&E | Threatened and Endangered |
| TBtu | trillion British thermal unit |
| TDS | Total Dissolved Solids |
| the Project | Uinta Basin Railway Project |
| THPO | Tribal Historic Preservation Office |
| TMDL | total maximum daily load |
| TRRC | Tongue River Railroad Company |
| U.S.C. | United States Code |
| UDEQ | Utah Department of Environmental Quality |
| UDOGM | Utah Division of Oil, Gas, and Mining |
| UDOT | Utah Department of Transportation |
| UDWQ | Utah Division of Water Quality |
| UDWR | Utah Division of Wildlife Resources |

| | |
|------------------|--|
| UDWRi | Utah Division of Water Rights |
| UIC | Underground Injection Control |
| UP | Union Pacific |
| UPAC | Utah Professional Archaeological Council |
| URARA | Utah Rock Art Research Association |
| US 191 | U.S. Highway 191 |
| US 40 | U.S. Highway 40 |
| US 6 | U.S. Highway 6 |
| USDOT | U.S. Department of Transportation |
| USFWS | U.S. Fish and Wildlife Service |
| USGS | U.S. Geological Survey |
| Ute Indian Tribe | Ute Indian Tribe of the Uintah and Ouray Reservation |
| VdB | vibration decibels |
| VMT | vehicle miles traveled |
| VOC | volatile organic compound |
| VPH | vehicles per hour |
| VQO | Visual Quality Objective |
| VRI | visual resource inventory |
| VRM | Visual Resource Management |
| WHP | Wildfire Hazard Potential |
| WY 789 | Wyoming State Highway 789 |