STATEWIDE FREIGHT PLAN
Wyoming

Final 2015 and Addenda 2017
# Contents

## Chapter S. Executive Summary ............................................................................................ S-1

S.1 Purpose of the Statewide Freight Plan.................................................................................. S-1
S.2 Importance of Freight to Wyoming ....................................................................................... S-1
S.3 Wyoming’s Freight System ................................................................................................. S-2
S.4 Existing Freight Challenges ............................................................................................... S-3
  S.4.1 Weather ......................................................................................................................... S-3
  S.4.2 Capacity ........................................................................................................................ S-4
  S.4.3 Cost and Condition ....................................................................................................... S-5
  S.4.4 Safety ............................................................................................................................ S-6
S.5 Statewide Freight Plan Goals ............................................................................................. S-7
S.6 Summary ............................................................................................................................ S-8

## Chapter 1. Wyoming Strategic Freight Goals ....................................................................... 1-1

1.1 Introduction ........................................................................................................................ 1-1
  1.1.1 Purpose of This Plan .................................................................................................. 1-1
  1.1.2 Organization of This Plan ....................................................................................... 1-1
1.2 MAP-21 and Statewide Freight Plans .................................................................................... 1-2
1.3 National Freight Goals ....................................................................................................... 1-3
1.4 Wyoming Statewide Freight Plan Goals ............................................................................ 1-3

## Chapter 2. Economic Context of Freight Transportation Planning ....................................... 2-1

2.1 Introduction ........................................................................................................................ 2-1
2.2 Overview of the Wyoming Economy ..................................................................................... 2-1
  2.2.1 Wyoming Private Industry Employment .................................................................. 2-2
  2.2.2 Employment Location Quotients .............................................................................. 2-8
2.3 Wyoming Key Industry Sectors ........................................................................................ 2-9
  2.3.1 Mineral Extraction ..................................................................................................... 2-9
  2.3.2 Agriculture .................................................................................................................. 2-26
  2.3.3 Timber and Forestry .................................................................................................. 2-30
  2.3.4 Warehousing and Logistics ......................................................................................... 2-33
2.4 Analysis of Key Industry Supply Chains ............................................................................. 2-36
2.5 Commodity Flow and Movement ......................................................................................... 2-37
  2.5.1 Direction-Specific Wyoming Commodity Flows ....................................................... 2-41
2.6 References .......................................................................................................................... 2-48
Chapter 3. Freight Policies, Strategies, and Institutions ...................................................... 3-1

3.1 Introduction .................................................................................................................. 3-1
3.2 Freight Policy ............................................................................................................... 3-2
  3.2.1 National Freight Policy ......................................................................................... 3-2
  3.2.2 State Freight Policy – Wyoming Connects ......................................................... 3-3
  3.2.3 Multi-state Freight Policy ..................................................................................... 3-4
3.3 Federal Funding Sources and Programs ........................................................................ 3-6
  3.3.1 Current Federal Funding ...................................................................................... 3-6
  3.3.2 Potential Future Federal Funding ......................................................................... 3-10
3.4 State Funding Sources and Programs .......................................................................... 3-12
  3.4.1 Current State Funding .......................................................................................... 3-12
3.5 Freight-Related Institutions ......................................................................................... 3-19
  3.5.1 Metropolitan Planning Organizations ................................................................. 3-19
  3.5.2 Wyoming Pipeline Authority ............................................................................... 3-22
  3.5.3 Economic Development ....................................................................................... 3-22
3.6 References .................................................................................................................. 3-23

Chapter 4. State Freight Transportation Assets and Operations ........................................ 4-1

4.1 Aviation ...................................................................................................................... 4-1
  4.1.1 Passenger Aircraft and Air Cargo Trucking ......................................................... 4-1
  4.1.2 Cargo Aircraft ..................................................................................................... 4-2
  4.1.3 Air Cargo Operations ......................................................................................... 4-5
4.2 Rail .............................................................................................................................. 4-11
  4.2.1 Existing Rail Line Network Inventory ................................................................. 4-13
  4.2.2 Strategic Rail Corridor Network ......................................................................... 4-50
  4.2.3 Abandoned and Railbanked Lines .................................................................... 4-50
  4.2.4 Wyoming Grade Crossings ............................................................................... 4-51
  4.2.5 Freight Terminals ............................................................................................... 4-52
4.3 Highways .................................................................................................................. 4-55
  4.3.1 Wyoming’s Highway Network .......................................................................... 4-55
  4.3.2 Annual Average Daily Truck Traffic ................................................................. 4-62
  4.3.3 Truck Routes and Hazardous Materials ............................................................. 4-63
  4.3.4 Truck Terminals and Distribution Facilities ....................................................... 4-64
  4.3.5 Truck Parking and Fueling Facilities .................................................................. 4-65
  4.3.6 Ports of Entry ..................................................................................................... 4-67
4.4 Pipelines........................................................................................................................................... 4-68
  4.4.1 Pipeline Ownership .............................................................................................................. 4-68
  4.4.2 Pipeline Types ...................................................................................................................... 4-68
  4.4.3 Natural Gas Pipelines ........................................................................................................... 4-69
  4.4.4 Crude Oil Pipelines ............................................................................................................... 4-72
  4.4.5 Refined Product Distribution ............................................................................................... 4-75
  4.4.6 Carbon Dioxide Pipelines ..................................................................................................... 4-75
  4.4.7 Natural Gas Liquid Pipelines ................................................................................................ 4-77

4.5 Water ............................................................................................................................................... 4-77

4.6 References ....................................................................................................................................... 4-78

Chapter 5. Conditions and Performance of the State’s Freight Transportation System ....... 5-1
  5.1 Conditions and Performance by Mode .............................................................................................. 5-1
    5.1.1 Aviation .................................................................................................................................. 5-1
    5.1.2 Rail .......................................................................................................................................... 5-1
    5.1.3 Pipeline ................................................................................................................................... 5-4
    5.1.4 Highways ................................................................................................................................ 5-6
  5.2 Safety ............................................................................................................................................... 5-28
    5.2.1 Rail Safety ............................................................................................................................. 5-28
    5.2.2 Pipeline Safety ..................................................................................................................... 5-31
    5.2.3 Highway Safety ..................................................................................................................... 5-33
  5.3 References ....................................................................................................................................... 5-37

Chapter 6. Freight Forecast ................................................................................................................. 6-1
  6.1 Introduction ....................................................................................................................................... 6-1
  6.2 Freight Movement Forecast .............................................................................................................. 6-1
    6.2.1 Overall Freight Forecast – All Modes, All Directions ............................................................. 6-2
    6.2.2 Direction-Specific Wyoming Freight Forecast ....................................................................... 6-6
  6.3 References ....................................................................................................................................... 6-12
Chapter 7. Trends, Needs, and Issues

7.1 Introduction

7.2 Panama Canal Expansion
  7.2.1 Overview
  7.2.2 Import Cargoes
  7.2.3 Export Cargoes

7.3 Power Generation Energy Markets
  7.3.1 Coal
  7.3.2 Natural Gas

7.4 Crude Oil Rail Movements

7.5 Warehousing and Distribution Centers

7.6 Truck Tractor and Semi-trailer Regulations
  7.6.1 Introduction
  7.6.2 Comparison of Truck Tractor and Semi-trailer Dimensions
  7.6.3 Gross Vehicle Weights
  7.6.4 Longer Combination Vehicles

7.7 References

Chapter 8. Strengths and Challenges of the State’s Freight Transport System

8.1 Introduction

8.2 Highway
  8.2.1 Safety Goal
  8.2.2 Maintenance Goal
  8.2.3 Reliability Goal

8.3 Rail
  8.3.1 Economy Goal
  8.3.2 Safety Goal

8.4 Pipeline
  8.4.1 Economy and Mobility Goals

8.5 Aviation
  8.5.1 Mobility Goal

8.6 References
Chapter 9. The State’s Decision-making Process ................................................................. 9-1

9.1 Outreach .......................................................................................................................... 9-1
  9.1.1 Freight Advisory Committee .................................................................................. 9-1
  9.1.2 Public Outreach .................................................................................................... 9-2
  9.1.3 Coordination .......................................................................................................... 9-5

9.2 Prioritization of Freight Related Strategies and Projects ................................................. 9-6
  9.2.1 Project Prioritization ............................................................................................. 9-6

Chapter 10. State Freight Improvement Approaches and Recommendations .............. 10-1

10.1 Goal Recommendations and Strategies ........................................................................ 10-2
  10.1.1 Safety – Achieve a safe freight transportation network ..................................... 10-2
  10.1.2 Economy – Support regional economic development ......................................... 10-3
  10.1.3 Mobility – Advance freight mobility through an efficient transportation network .......................................... 10-4
  10.1.4 Maintenance – Maintain the state of good repair .............................................. 10-5
  10.1.5 Environmental – Minimize or mitigate impacts to the environment ..................... 10-6
  10.1.6 Reliability – Achieve a reliable transportation network ........................................ 10-7

10.2 Highway Projects ........................................................................................................... 10-7
  10.2.1 Prioritized Projects .............................................................................................. 10-9
  10.2.2 Non-prioritized Projects ...................................................................................... 10-10

10.3 Aviation Projects .......................................................................................................... 10-13

10.4 Freight Rail Projects .................................................................................................... 10-16

10.5 Pipeline Projects ......................................................................................................... 10-16

10.6 References .................................................................................................................. 10-16

Chapter 11. Implementation Plan .................................................................................. 11-1

11.1 Project Prioritization ................................................................................................. 11-1

11.2 Project Funding .......................................................................................................... 11-2

11.3 Freight Policies, Strategies, and Challenges ................................................................. 11-3

11.4 Partnering and Planning ............................................................................................. 11-4
Appendix A. SCTG Commodity Categories and Definitions .................................................. A-1
Appendix B. EIA 2014 Summary Notes of Interest............................................................... B-1
B.1 Introduction ....................................................................................................................................... B-1
B.2 U.S. Energy Demand .......................................................................................................................... B-1
B.2.1 Industrial and Commercial Sectors Lead U.S. Growth in Primary Energy Use ...................... B-1
B.2.2 Renewables and Natural Gas Lead Rise in Primary Energy Consumption............................. B-2
B.2.3 Residential Energy Intensity Drops across a Wide Range of Technology Assumptions ........ B-3
B.3 Industrial Sector Energy Demand ...................................................................................................... B-4
B.3.1 Reliance on Natural Gas, Natural Gas Liquids, and Renewables Rises as Industrial
Energy Use Grows .................................................................................................................. B-4
B.3.2 Nonmanufacturing Energy Intensity Reductions Are Tempered by the Mining
Industry .................................................................................................................................. B-5
B.3.3 Transportation Sector Energy Consumption Declines in the Reference Case....................... B-6
B.4 Electricity Demand............................................................................................................................. B-7
B.4.1 Growth in Electricity Use Slows, but Use Still Increases by 29 percent from 2012 to
2040 ....................................................................................................................................... B-7
B.4.2 By 2035, Natural Gas Surpasses Coal as the Largest Source of U.S. Electricity
Generation ............................................................................................................................. B-8
B.5 Natural Gas Consumption.................................................................................................................. B-9
B.5.1 Industrial and Electric Power Sectors Drive Growth in U.S. Natural Gas Consumption........ B-9
B.5.2 Natural Gas Prices Rise with an Expected Increase in Production Costs............................. B-10
B.6 Natural Gas Prices............................................................................................................................ B-11
B.6.1 Natural Gas Prices Depend on Economic Growth and Resource Recovery Rates
among Other Factors ........................................................................................................... B-11
B.6.2 With Production Growing Faster than Use, the U.S. Becomes a Net Exporter of
Natural Gas .......................................................................................................................... B-12
B.7 Natural Gas Supply .......................................................................................................................... B-13
B.7.1 U.S. Natural Gas Production, Use, and Exports all Are Affected by Oil Prices .................... B-13
B.7.2 U.S. Natural Gas Production Rates Depend on Resource Availability and Production
Costs ..................................................................................................................................... B-14
B.8 Crude Oil and Other Liquids Supply................................................................................................. B-15
B.8.1 Crude Oil Leads Initial Growth in Liquids Supply, Next-Generation Liquids Grow
Slowly after 2020 ................................................................................................................. B-15
B.8.2 U.S. Crude Oil Production Rates depend on Resource Availability and Production
Costs ..................................................................................................................................... B-16
B.8.3 Lower 48 Onshore Tight Oil Development Spurs Increase in U.S. Crude Oil Production .... B-17
B.9 Petroleum and Other Liquids Supply ............................................................................................... B-18
B.9.1 Increasing U.S. Oil Supply Reduces Net Imports of Petroleum and Other Liquid Fuels ...... B-18
vi

Wyoming Department of Transportation
Final September 2015 and Addenda 2017


Appendix B.  

B.10 Coal Production ........................................................................................................................................ B-19
  B.10.1 Coal Production Growth Limited by Competitive Fuel Prices and Little New Coal-fired Capacity ........................................................................................................................................ B-19
  B.10.2 Outlook for U.S. Coal Production Is Affected by Fuel Price Uncertainties ................................ B-20
  B.10.3 Expected Declines in Mining Productivity Lead to Further Increases in Average Minemouth Prices ........................................................................................................................................ B-21

Appendix C. 23 CFR 658, Appendix C—Trucks over 80,000 Pounds on the Interstate System and Trucks over Surface Transportation Assistance Act of 1982 (STAA) Lengths on the National Network ................................................................................ C-1

  Colorado ...................................................................................................................................................... C-2
  Idaho ........................................................................................................................................................... C-6
  Montana ..................................................................................................................................................... C-8
  Nebraska ................................................................................................................................................... C-13
  South Dakota ............................................................................................................................................ C-17
  Utah ......................................................................................................................................................... C-21
  Wyoming ................................................................................................................................................... C-26

Appendix D. Wyoming State Freight Advisory Committee ................................................................................. D-1

  D.1 Committee By-Laws ........................................................................................................................... D-1
  D.2 Committee Presentation ................................................................................................................... D-4

Appendix E. Online Survey Information ........................................................................................................ E-1

  E.1 Introduction ....................................................................................................................................... E-1
  E.2 Responses to General Questions ..................................................................................................... E-2
    E.2.1 Questions ....................................................................................................................................... E-4
    E.2.2 General Questions and Respondent Tracks ............................................................................... E-4
    E.2.3 County of Residence .............................................................................................................. E-5
    E.2.4 Respondent Track .................................................................................................................. E-5
    E.2.5 State Highway System ............................................................................................................ E-5
    E.2.6 Most Needed Projects ........................................................................................................... E-6
    E.2.7 Statewide Freight Goals ......................................................................................................... E-6
  E.3 Industrial Developer/Shipping/Transportation and Warehousing Responses .................................... E-7
    E.3.1 Questions ....................................................................................................................................... E-7
    E.3.2 Survey Track Information ...................................................................................................... E-11
    E.3.3 Respondents and Their employers ...................................................................................... E-11
    E.3.4 Facilities for Shipping and Receiving .................................................................................... E-12
    E.3.5 Products ....................................................................................................................................... E-12
    E.3.6 Transportation Modes .......................................................................................................... E-12
E.3.7 Existing Infrastructure and Technology ............................................................................... E-12
E.3.8 Freight System Issues ....................................................................................................... E-13
E.3.9 Freight System Improvements .......................................................................................... E-13

E.4 Community Leader Responses ........................................................................................................ E-14
E.4.1 Questions ............................................................................................................................. E-14
E.4.2 Survey Track Information ..................................................................................................... E-17
E.4.3 Existing Corridors and Freight-Traffic Generators ............................................................. E-17
E.4.4 Transportation Concerns Impacting Freight ....................................................................... E-17
E.4.5 Current Economic Development Obstacles ......................................................................... E-17
E.4.6 Transportation/Land Use Planning Obstacles ................................................................... E-17
E.4.7 Statewide Freight Plan Benefits ........................................................................................ E-18

E.5 Elected Official Responses ............................................................................................................... E-19
E.5.1 Questions ............................................................................................................................. E-19
E.5.2 Survey Track Information ..................................................................................................... E-21
E.5.3 Value of the Transportation System .................................................................................... E-21
E.5.4 State’s Transportation Role ................................................................................................ E-21
E.5.5 Funding and Trends ............................................................................................................. E-21

E.6 General Economic Development/Planning Advocate Responses ................................................... E-22
E.6.1 Questions ............................................................................................................................. E-22
E.6.2 Survey Track Information ..................................................................................................... E-23
E.6.3 Responses ............................................................................................................................ E-23

E.7 General Public Responses ........................................................................................................... E-24
E.7.1 Questions ............................................................................................................................. E-24
E.7.2 Survey Track Information ..................................................................................................... E-27
E.7.3 General Public Themes ....................................................................................................... E-27

Appendix F. Public Meeting Materials ................................................................................................ F-1
Appendix G. Bridge Projects .......................................................................................................... G-1
List of Tables

Table 1. Wyoming DOT and National Freight Goals................................................................................................... 1-5

Table 2 1. Wyoming Industry Contributions to Gross State Product, Excluding Government, 2012 ......................... 2-2
Table 2 2. Wyoming Private Employment by Industry Sector, 2003 and 2012 ......................................................... 2-3
Table 2 3. Private Industry Employment by Region, 2012......................................................................................... 2-6
Table 2 4. Share of Private Industry Employment by Region, 2012................................................................. 2-7
Table 2 5. Employment Location Quotients by Region and for Wyoming, 2012..................................................... 2-8
Table 2 6. Coal Production from Wyoming’s Significant Coal-Producing Mines, 2011–2013 ............................ 2-12
Table 2 7. Real Average Annual Costs of Transporting Coal by Rail, by Supply Region ........................................ 2-14
Table 2 8. Real Average Annual Costs of Transporting Coal by Rail from Wyoming to Other States .................. 2-15
Table 2 9. Real Average Annual Costs of Transporting Coal by Rail from Supply Regions to Destination States .... 2-16
Table 2 10. Wyoming Field Production of Crude Oil............................................................................................... 2-18
Table 2 11. Crude Oil Refineries in Wyoming ............................................................................................................. 2-19
Table 2 12. Gross Withdrawals of Natural Gas in Wyoming...................................................................................... 2-20
Table 2 13. Timber Flow into (Imports) and out of (Exports) Wyoming, 2010 ......................................................... 2-30
Table 2 14. Destination and Sales Value of Wyoming’s Primary Wood Products, 2010 ............................................ 2-32
Table 2 15. Modal Share of Wood Products to and from Wyoming, 2011.............................................................. 2-32

Table 4 1. Cargo Carried from Wyoming Airports on Scheduled Passenger Flights, 2013 ........................................... 4-2
Table 4 2. Cargo Arriving at Wyoming Airports on Scheduled Passenger Flights, 2013........................................ 4-2
Table 4 3. Typical FedEx Flight Schedule to and from Memphis Hub................................................................. 4-4
Table 4 4. Casper Air Cargo Forecast ....................................................................................................................... 4-7
Table 4 5. Wyoming Airports Used by FedEx and UPS............................................................................................. 4-9
Table 4 6. Wyoming Rail Carriers and Miles Owned............................................................................................... 4-11
Table 4 7. Wyoming Class I Rail-Miles Owned and Operated................................................................................... 4-14
Table 4 8. BNSF Railway Statistics ............................................................................................................................ 4-14
Table 4 9. BNSF Front Range Subdivision Characteristics ..................................................................................... 4-18
Table 4 10. BNSF Casper Subdivision Characteristics ............................................................................................. 4-19
Table 4 11. BNSF Orin Subdivision Characteristics ................................................................................................ 4-20
Table 4 12. BNSF Canyon Subdivision Characteristics .......................................................................................... 4-22
Table 4 13. BNSF Valley Subdivision Characteristics ............................................................................................ 4-23
Table 4 14. BNSF Black Hills Subdivision Characteristics ........................................................................................ 4-24
Table 4 15. BNSF Big Horn Subdivision Characteristics ....................................................................................... 4-25
Table 4 16. BNSF Campbell Subdivision Characteristics ..................................................................................... 4-26
Table 4 17. BNSF Dutch Subdivision Characteristics ............................................................................................ 4-27
Table 4 18. BNSF Cody Subdivision Characteristics .......................................................................................... 4-28
Table 4 19. Union Pacific Railroad Statistics ........................................................................................................ 4-29
Table 4 20. Union Pacific Railroad Sidney Subdivision Characteristics ............................................................... 4-32

Wyoming Department of Transportation
Final September 2015 and Addenda 2017
Table 10 1. List of Priority Projects ............................................................................................................................. 10-9
Table 10 2. Deficient Bridges along Interstate Routes in Wyoming and Cost of Bridge Replacement........... 10-11
Table 10 3. Summary of the 2015 WACIP ................................................................................................................. 10-14

Table E 1. Online Survey Summary for Responses to General Questions ..........................................................E-2
Table E 2. Online Survey Summary for Industrial Developer/Shipping/Transportation and Warehousing Responses E-9
Table E 3. Online Survey Summary for Community Leader Responses ................................................................. E-15
Table E 4. Online Survey Summary for Elected Official Responses ......................................................................... E-20
Table E 5. Online Survey Summary for General Economic Development/Planning Advocate Responses .......... E-23
Table E 6. Online Survey Summary for General Public Responses ............................................................................. E-25
List of Figures

Figure 1-1. Development Process for Statewide Freight Plan Goals to Maximize Public Benefit .......................... 1-4

Figure 2-1. Wyoming Private Industry by Sector, 2003 and 2012 ........................................................................ 2-4
Figure 2-2. Wyoming Coal Production, 1970–2013 ............................................................................................ 2-10
Figure 2-3. Wyoming Coal Mines ..................................................................................................................... 2-11
Figure 2-4. Distribution of Wyoming Coal, 2013 .................................................................................................. 2-13
Figure 2-5. Union Pacific Railroad Rail Network and Relationship with Ports and Terminals .......................... 2-17
Figure 2-6. Natural Gas Tonnage Moved by Pipeline in 2007 .......................................................................... 2-21
Figure 2-7. Trona Deposits and Mines in Wyoming ........................................................................................... 2-23
Figure 2-8. Truck Trips Required to Establish a Hydraulically Fractured Well in Southwest Manitoba ........ 2-25
Figure 2-9. Alfalfa Hay–Producing Counties ........................................................................................................ 2-26
Figure 2-10. Other Hay-Producing Counties ....................................................................................................... 2-27
Figure 2-11. Sugar Beet–Producing Counties ....................................................................................................... 2-28
Figure 2-12. Barley-Producing Counties ............................................................................................................... 2-29
Figure 2-13. Locations of Wyoming’s Primary Wood Products Manufacturers, 2010 ........................................... 2-31
Figure 2-14. Aerial View of Lowe’s Regional Distribution Center in Cheyenne .................................................. 2-33
Figure 2-15. Lowe’s RDC Network ..................................................................................................................... 2-34
Figure 2-16. Aerial View of Walmart RDC, Cheyenne ......................................................................................... 2-35
Figure 2-17. Actual and Forecasted Oil and Gas Production in Wyoming, 2000–2018 ........................................ 2-36
Figure 2-18. Modal Share by Tonnage for All Modes and All Directions in the United States and Wyoming, 2011 2-38
Figure 2-19. Modal Share by Value for All Modes and All Directions in the United States and Wyoming, 2011 2-39
Figure 2-20. Total Tonnage by Mode and Direction in Wyoming, 2011 .............................................................. 2-40
Figure 2-21. Total Value by Mode and Direction in Wyoming, 2011 ................................................................. 2-41
Figure 2-22. Outbound Tonnage from Wyoming by Mode, 2011 ..................................................................... 2-42
Figure 2-23. Outbound Value from Wyoming by Mode, 2011 ....................................................................... 2-43
Figure 2-24. Inbound Tonnage to Wyoming by Mode, 2011 .......................................................................... 2-44
Figure 2-25. Inbound Value to Wyoming by Mode, 2011 .............................................................................. 2-45
Figure 2-26. Internal Tonnage by Mode in Wyoming, 2011 ............................................................................ 2-46
Figure 2-27. Internal Freight Value by Mode in Wyoming, 2011 ................................................................. 2-47
Figure 3-1. Sources of Wyoming FY 2015 Funding ................................................................. 3-6
Figure 3-2. Wyoming Highway User Fees ........................................................................... 3-12
Figure 3-3. Gasoline and Diesel Fuel Tax Rates for Wyoming and Surrounding States .......... 3-13
Figure 3-4. Gas Tax Allocations ......................................................................................... 3-14
Figure 3-5. Casper-Area MPO .......................................................................................... 3-20
Figure 3-6. Cheyenne MPO .............................................................................................. 3-21

Figure 4-1. UPS Feeder Operations at Riverton Regional Airport ........................................ 4-3
Figure 4-2. Unit Load Devices Loaded to a FedEx Aircraft at Casper–Natrona County International Airport .......................................................... 4-4
Figure 4-3. Cargo Layout at Casper–Natrona County International Airport ...................... 4
Figure 4-4. Air Cargo Volumes at Casper–Natrona County International Airport, 1998–2007 .................................................................................. 4-7
Figure 4-5. Wyoming Air Cargo System ............................................................................ 4-10
Figure 4-6. Wyoming Rail Network, 2014 ........................................................................ 4-12
Figure 4-7. BNSF Routes in Wyoming, 2015 ..................................................................... 4-16
Figure 4-8. BNSF Subdivisions in Wyoming, 2015 ............................................................. 4-17
Figure 4-9. Union Pacific Railroad Routes in Wyoming ..................................................... 4-30
Figure 4-10. Union Pacific Railroad Subdivisions in Wyoming ........................................... 4-31
Figure 4-11. Bighorn Divide & Wyoming Railroad Routes in Wyoming, 2013 ...................... 4-43
Figure 4-12. Rapid City, Pierre & Eastern Railroad Routes in Wyoming, 2014 ..................... 4-45
Figure 4-13. Swan Ranch Railroad Route in Wyoming, 2013 ............................................. 4-47
Figure 4-14. Swan Ranch Railroad Network Detail ........................................................... 4-48
Figure 4-15. National Highway System in Wyoming .......................................................... 4-56
Figure 4-16. Draft Primary Freight Network in Wyoming .................................................. 4-57
Figure 4-17. MAP-21 Critical Rural Freight Corridors in Wyoming .................................. 4-59
Figure 4-18. Congressional High-Priority Corridors on the U.S. National Highway System ................................................................. 4-60
Figure 4-19. Key Freight Corridors in Wyoming ................................................................. 4-61
Figure 4-20. Truck Percentage of ADT for Wyoming, 2014 ............................................... 4-62
Figure 4-21. Projected Truck Percentage of ADT for Wyoming, 2034 ............................... 4-63
Figure 4-22. Existing Commercial Vehicle Fueling Facilities, 2015 ............................... 4-65
Figure 4-23. Locations of Truck Parking Facilities along Interstate Highways in Wyoming, 2014 ........................................................................ 4-66
Figure 4-24. Ports of Entry in Wyoming, 2014 ................................................................ 4-67
Figure 4-25. Natural Gas Flow out of the Central Rockies, September 15, 2013 ................. 4-70
Figure 4-26. Belle Fourche Gathering System .................................................................. 4-73
Figure 4-27. Wyoming Crude Oil Transmission Pipelines .................................................. 4-74
Figure 4-28. Carbon Dioxide Pipelines, 2013 .................................................................................................................. 4-75
Figure 4-29. Wyoming Pipeline Corridor Initiative ..................................................................................................... 4-76
Figure 4-30. Thunder Creek Pipeline .......................................................................................................................... 4-77

Figure 5-1. Condition of Pavement on the Interstate System in Wyoming, 2014 ............................................................ 5-6
Figure 5-2. Condition of Pavement on the NHS Non-Interstate System in Wyoming, 2014 ........................................ 5-7
Figure 5-3. Condition of Pavement on the Non-NHS System in Wyoming, 2014 ............................................................ 5-8
Figure 5-4. Locations of Bridges in Wyoming .................................................................................................................. 5-10
Figure 5-5. WBI Bridge Condition Rating Scale ............................................................................................................... 5-11
Figure 5-6. Overall WBI Classifications of Bridges in Wyoming, 2014 ........................................................................ 5-11
Figure 5-7. Locations of Structurally Deficient Bridges in Wyoming ........................................................................... 5-13
Figure 5-8. Highway Limited Vertical Clearance Locations in Wyoming ......................................................................... 5-15
Figure 5-9. Frequency and Locations of Bridge Strikes in Wyoming, 1974–2014 ............................................................ 5-16
Figure 5-10. Weight, Length, and Width Restrictions for Bridges in Wyoming ............................................................... 5-17
Figure 5-11. Crash Closure Frequency for Key Corridors in Wyoming, 2009–2013 ........................................................ 5-19
Figure 5-12. Average Crash Closure Duration for Key Corridors in Wyoming, 2009–2013 ........................................... 5-20
Figure 5-13. Crash Closure Duration Totals for Key Corridors in Wyoming, 2009–2013 ................................................ 5-21
Figure 5-14. Weather Closure Frequency for Key Corridors in Wyoming, 2009–2013 .................................................. 5-22
Figure 5-15. Average Weather Closure Duration for Key Corridors in Wyoming, 2009–2013 ........................................ 5-23
Figure 5-16. Weather Closure Duration Totals for Key Corridors in Wyoming, 2009–2013 .............................................. 5-24
Figure 5-17. Frequency of Light High-Profile Closures for Key Corridors in Wyoming, 2011–2013 ................................. 5-25
Figure 5-18. Average Duration of Light High-Profile Closures for Key Corridors in Wyoming, 2011–2013 .................... 5-26
Figure 5-19. Light High-Profile Closure Duration Totals for Key Corridors in Wyoming, 2011–2013 .............................. 5-27
Figure 5-20. Wyoming Truck Rollover Locations ............................................................................................................ 5-33
Figure 5-21. Weather Conditions during Crashes That Involved Trucks ......................................................................... 5-35
Figure 5-22. Weather Conditions during Crashes That Did Not Involve Trucks .............................................................. 5-35
Figure 5-23. Road Conditions during Crashes That Involved Trucks ............................................................................. 5-35
Figure 5-24. Road Conditions during Crashes That Did Not Involve Trucks ................................................................. 5-35
Figure 5-25. Average Number of Truck Crashes by Month on I-80 in Wyoming ............................................................ 5-36

Figure 6-1. Forecasted Tonnage by Mode and Direction in Wyoming in 2025 ............................................................... 6-3
Figure 6-2. Forecasted Tonnage by Mode and Direction in Wyoming in 2035 ............................................................... 6-3
Figure 6-3. Forecasted Inbound Tonnage to Wyoming by Mode in 2025 and 2035 ......................................................... 6-7
Figure 6-4. Forecasted Outbound Tonnage from Wyoming by Mode in 2025 and 2035 ................................................... 6-8
List of Appendices

Appendix A. SCTG Commodity Categories and Definitions
Appendix B. EIA 2014 Summary Notes of Interest
Appendix C. 23 CFR 658, Appendix C—Trucks over 80,000 Pounds on the Interstate System and Trucks over Surface Transportation Assistance Act of 1982 (STAA) Lengths on the National Network
Appendix D. Wyoming State Freight Advisory Committee
Appendix E. Online Survey Information
Appendix F. Public Meeting Materials
**Chapter S. Executive Summary**

**S.1 Purpose of the Statewide Freight Plan**

This Statewide Freight Plan (SFP) describes the existing and future roles of freight activity in Wyoming, overall freight trends and forecasts, freight network challenges and opportunities, proposed freight network improvements and investments, and the long-range freight network and investment program.

This SFP also meets the provisions established by the Moving Ahead for Progress in the 21st Century Act (MAP-21; Public Law 112-141), which are intended to improve the safety, condition, and performance of the national freight network and support investment in freight-related surface transportation projects. It also supports the Wyoming Department of Transportation (Wyoming DOT) in implementing a broad approach to statewide planning that will integrate freight elements into the larger Statewide Long-Range Transportation Plan, expand economic development opportunities for grants and public-private partnerships, and improve network safety and efficiency.

**S.2 Importance of Freight to Wyoming**

The freight industry in Wyoming has historically been a vital component of the state’s economy. It allows producers and shippers to move their products to their respective markets in the United States and abroad. An efficient freight system is critical to Wyoming’s mineral extraction and energy sectors, which are the main economic drivers of the state, accounting for nearly 40 percent of the gross state product. Wyoming is the #1 producer of coal in the United States, is ranked 5th in state rankings for natural gas production, accounts for 2 to 3 percent of U.S. crude oil production, and produces 90 percent of U.S. soda ash from the world’s largest trona deposits, of which nearly half is shipped to international markets.

The movement of coal dominates the freight system in Wyoming, and coal is by far Wyoming’s largest export. It typically accounts for nearly 93 percent of all freight moved out of Wyoming. The Wyoming Mining Association estimates that 75 to 80 trains consisting of 110 to 140 coal cars are used per day to export coal from the state. The coal produced in Wyoming represents 39 percent of all coal produced in the country, and it fuels 15 percent of the U.S. domestic electric-power-generation market.

Although coal accounts for the largest share of commodities transported by rail, petroleum products, gases, and fuel oils account for the largest share of commodities moved by pipeline. Resources such as coal, petroleum products, crude oil, gasoline, and fuel oils accounted for 89.4 percent of all Wyoming freight movement in 2011. Since 2009, Wyoming’s crude oil production has been increasing in volume. This increase is largely due to advances in drilling and extraction technology, such as hydraulic fracturing (fracking) and the use of carbon dioxide (CO$_2$)-enhanced oil-recovery techniques that can be used to exploit fields that previously
were not economically viable. These new techniques have changed the face of U.S. domestic oil and natural gas production. In 2013, 63 million barrels of oil were extracted from Wyoming’s 11,196 oil-producing wells.

However, it is also important to understand that freight activity plays a critical part in other industries such as agriculture and timber processing. Without efficient freight transportation, the sugar beet growers in Fremont County would have difficulty accessing markets at a competitive price. For Wyoming residents and businesses, the freight system brings food and drink to the shops and restaurants, copy paper to offices, goods to retail stores, and internet shopping and commerce to homes and local businesses.

S.3 Wyoming’s Freight System

Wyoming’s freight system assets extend across the air, rail, highway, and pipeline networks that crisscross the state.

Ten of the 21 Wyoming airports (48 percent) are associated with the movement of air cargo. These airports are predominantly used for the overnight, express-carrier networks of FedEx and UPS. Feeder flights shuttle cargo between the rural airports and transfer hubs, including the 13,427-square-foot FedEx sorting center at Casper–Natrona County International Airport. A small amount of air cargo is also carried in the belly of passenger planes, with the majority of this cargo destined for Jackson Hole Airport.

Wyoming is served by a rail network that consists of a total of 1,762 route-miles of trackage. The Class I rail network includes rail owned by two companies and forms a 1,738-mile trunk network which provides long-haul service for both inbound and outbound products. The state has three Class III railroads (short-line railroads) that operate an additional 24 miles of track. Industrial rail lines link several coal mines and other industrial installations to the main rail lines.

Most of the Class I rail traffic in Wyoming follows one of two distinct patterns: (1) transcontinental traffic that passes through the state or (2) trains that carry minerals extracted or processed in Wyoming that originate in solid trainloads and depart the state for customers elsewhere. Although coal is the predominant cargo carried by rail, the volume of crude oil shipped by rail has also been rapidly increasing. In 2014, seven oil rail transloading facilities were planned or in operation in Wyoming, and some of these are multimodal facilities that operate in the truck-to-rail and pipeline-to-rail markets.

In terms of agriculture, the state’s modest yields do not produce the consistent, heavy-volume grain shipment opportunities required to support shuttle-train loading facilities. However, 20 agriculture elevators and storage sites in Wyoming are rail served; these are clustered predominantly in the eastern part of the state.

The state freight tonnage transported by rail in Wyoming totaled 559.7 million tons, or about 5.8 million carloads, in 2011. About 3.9 million carloads totaling about 460.5 million tons of freight originated in Wyoming in 2011. Coal made up about 96 percent of originated freight tonnage in 2011. Other Wyoming rail freight traffic in 2011 consisted of terminating (25,466 carloads or about 2.2 million tons), intrastate (132,023 carloads or about 14.9 million tons), and through (about 1.8 million carloads or about 82.2 million tons).

Even though rail and pipeline networks transport the vast amount of Wyoming’s freight, trucking activity accounts for about 50 percent of Wyoming’s inbound freight tonnage. Certain sections of the Wyoming highway network are significant truck corridors. Interstate 80 (I-80) has the most truck volume of all the...
interstates in Wyoming with trucks being more than 50 percent of the traffic volume along I-80 between Rock Springs and Cheyenne. Other routes such as U.S. Highway 30 (US 30) also feature a truck volume percentage of 50 percent or greater. A high proportion of the I-80 truck traffic is through traffic, and previous studies such as the I-80 Freight Corridor Analysis estimated that almost 70 percent of eastbound freight and 88 percent of westbound freight moving on I-80 did not originate or terminate in Wyoming.

MAP-21 places particular emphasis on freight infrastructure that is used for the movement of mining, agricultural, energy and timber equipment and products. A number of critical rural freight corridors are identified in this SFP and include sections of the following highways:

- U.S. Highway 20 (US 20)
- U.S. Highway 26 (US 26)
- U.S. Highway 30 (US 30)
- U.S. Highway 85 (US 85)
- U.S. Highway 191 (US 191)
- U.S. Highway 287 (US 287)
- State Highway 59 (SH 59)
- State Highway 220 (SH 220)
- State Highway 387 (SH 387)

Although pipelines are mostly invisible and are buried out of sight, they are also a critical part of the Wyoming freight transport system. They are not only a cost-effective way of getting certain energy commodities to market, but, for some products such as natural gas, they are the only way. The Wyoming Pipeline Authority estimates that there are over 38,600 miles of pipelines in Wyoming. This pipeline network accounts for 12 percent of Wyoming’s freight movement and is used to carry natural gas, carbon dioxide, natural gas liquids, crude oil, and refined petroleum products such as aviation fuel. The Wyoming pipeline network also forms part of a wider network that transports commodities internationally.

### S.4 Existing Freight Challenges

A wide variety of issues and challenges inhibit the safety, reliability, and effectiveness of the Wyoming freight system. These issues and challenges affect the users and shippers, both within the state and across the nation, who depend on the Wyoming freight system.

#### S.4.1 Weather

Due to Wyoming’s geographical and geological characteristics, weather events such as low visibility, extreme wind, and snow can all affect the performance of the freight system. Aviation industry sources estimates that air cargo operations in Wyoming are affected 20 to 30 days per year by such events. The rail network also suffers from rail buckling due to rapid temperature changes and wind-related train wrecks. However, weather events have the greatest effect on the highway network.

In Wyoming, 40 percent of all recorded weather-related closures for the years 2009-2013 occurred along I-80. The area along I-80 that has the highest frequency of weather-related closures is between Cheyenne and Laramie (mileposts 360 to 314). This is also the area with the highest-elevation point on I-80 (Happy Jack Summit at 8,640 feet elevation). It is common for weather-related closures in this area to last 10 hours or longer on average, especially during winter storms. I-80 between Cheyenne and Laramie also has the highest total duration of weather-related closures compared to all of Wyoming’s key freight corridors, with over 340 total hours of closure between 2009 and 2013. The segment of I-80 between Cheyenne and Rawlins and
the segment of Interstate 25 (I-25) between Cheyenne and Wheatland are also high-frequency closure areas that have over 250 combined hours of weather-related closures.

Wyoming is known for strong winds throughout the state, and these conditions can close roads to light and high-profile vehicles. I-25 has more recorded closures for light high-profile vehicles than does I-80. The area that has the highest frequency of light high-profile vehicle closures is on I-25 between Cheyenne and Wheatland (mileposts 10 to 80), and the area with the second-highest frequency of closures is on I-25 between the Colorado border and Cheyenne. The longest average duration of closure is 4 to 6 hours for I-80 and I-25.

Given the amount of through truck traffic traveling on I-80, weather closures, and especially long-duration closures, affect shippers and receivers throughout North America and affect supply chains with late deliveries and increased transportation costs.

S.4.2 Capacity

A fundamental part of any freight transportation system is its ability to provide enough capacity to move goods where they need to go at an acceptable cost to shippers. Capacity issues directly affect the viability and competitiveness of Wyoming’s mineral and resource producers.

Unlike in other states, Wyoming’s highway network generally has enough capacity to move goods by truck. There are some local areas of congestion associated with slow-moving vehicles on uphill grades and truck passing maneuvers.

However, elements of the pipeline network do suffer from capacity constraints. The different flow volumes of the Express Pipeline and the Platte Pipeline cause a bottleneck at Casper. The further addition of Wyoming crude oil to this bottleneck led the oil industry to develop a rail transload facility at Casper to alleviate this constraint and ensure that product is able to get to market.

This capacity issue also highlights a challenge associated with using pipelines to transport crude oil. There are significant barriers to building new pipeline networks, including the time needed to plan, develop, and construct the pipelines and the upfront capital needed for the pipeline infrastructure. These barriers are present despite pipelines having a lower operational cost than other modes of transport such as rail.

Furthermore, pipeline networks do not have the same reach and flexibility as the rail network. The U.S. pipeline network was designed mainly to move crude oil from the Gulf of Mexico north into the inland states. However, the presence of a domestic crude oil market means that oil from Wyoming can compete with imported crude oil. Oil refineries on the West and East Coasts are potential Wyoming customers, but these areas are not served by the pipeline network in Wyoming—hence the growth in rail transload facilities in Wyoming.

Some actions are being taken to address pipeline capacity constraints, including converting the Pony Express Pipeline from natural gas to oil. Also, in 2011, the Ruby and Bison natural gas pipelines added 18 percent capacity to the natural gas pipeline network in Wyoming.
S.4.3 Cost and Condition

Funding. A key issue for this SFP is that long-term policies and strategies identified in this plan require a funding mechanism for implementation. It is important to understand that funding for the freight system comes from multiple sources, and those sources are directed by various policies and strategies currently in place for each of the different freight funding programs.

Insufficient funding for freight-related projects can result in cost implications for freight transport, have negative impacts on the environment, and reduce economic competitiveness. At the federal level, the main source of funding for transportation projects in Wyoming is the federal gasoline tax. Other sources include the federal diesel fuel tax, vehicle taxes, air passenger excise taxes, aviation fuel taxes, and appropriations from the federal government’s General Fund.

Wyoming’s freight industry is a vital component of the state’s economic health. It is critical to create an ongoing program to provide reliable, substantial public funding for freight projects if the industry is to remain competitive, continue its mitigation of community and environmental impacts, and retain its employment base. The program cannot redirect existing transportation funding; those resources are already insufficient to meet current needs. New funds must be found and specifically dedicated to freight transportation projects to augment existing funding sources, not to replace that funding.

Aviation. The conditions of the existing freight network in Wyoming vary by mode of transport. The Casper–Natrona County International Airport identified a number of condition issues associated with the airport’s express sortation facility, issues including the facility not being designed to accommodate modern air cargo operations and the age of the facility.

Rail. Investment in rail infrastructure in Wyoming by the Class I railroads—BNSF and UP—has been robust and continuous since the opening of the Southern Powder River Basin coal-production area and transportation of coal by rail in the 1970s. Historically, most projects were aimed at developing the capacity necessary to efficiently handle the surge of coal shipments out of Wyoming. These efforts spawned full upgrades to and multiple-tracking of existing mainlines, construction of new lines, and expansion and creation of new terminal facilities.

Class III railroads, or short-line railroads, face a different set of challenges to meet their needs, since they do not have the capital and technical resources, operating capacity and flexibility, or modern infrastructure of the larger Class I railroads. Typically, the largest constraints on U.S. short-line railroads involve accommodating railcars with a 286,000-pound maximum gross weight (these heavier car loadings are an advancement over lighter cars and are fast becoming the industry standard) and operational chokepoints caused by insufficient operating capacity.

Pipeline. For some commodities, such as natural gas, a pipeline network is the only way to link areas of production with areas of consumption. A key issue in natural gas production, transportation, and consumption is how to balance the volume of natural gas produced with the variation in demand from gas consumers. This demand varies by season, with lower demand in the summer and substantially higher demand in the winter. Increasing pipeline capacity to handle the periods of high demand would be expensive and inefficient. For this reason, natural gas storage areas are built close to consumer markets. These storage areas eliminate
bottlenecks in the distribution network and allow the system to balance production volumes with consumption.

Industry feedback suggests that there are no bottlenecks in Wyoming’s gas-transmission pipeline system.

**Truck.** The highway infrastructure in Wyoming is generally in good condition. Over 55 percent of all Wyoming roads are in excellent or good condition based on pavement condition ratings. In 2008, Wyoming DOT changed its management strategy to a pavement-preservation program. The goal of a pavement-preservation program is to maintain existing pavements by rehabilitating them in a timely manner, thereby limiting the number of roads that deteriorate to a poor condition and require costlier repairs.

Wyoming’s highway bridges are a critical link in the state’s highway infrastructure. Wyoming DOT currently manages and maintains about 2,169 Wyoming DOT–owned bridges and in addition inspects all bridges owned by local jurisdictions and other state agencies. In total, 1,152 of these bridges are located on key freight corridors. According to the Wyoming Bridge Index, 50 percent of all bridges in Wyoming are in excellent or good condition and only 5 percent are in the poor category.

### S.4.4 Safety

In 2013, 32,719 people died in motor vehicle crashes in the United States. Of these deaths, 3,964 were in crashes involving large trucks. Seventeen percent of the fatalities involving a large truck were the truck occupants, 71 percent were occupants of other vehicles, and 11 percent were not vehicle occupants. According to a paper submitted to the Transportation Research Board, trucks were involved in 5.6 percent of all traffic crashes and incidents in the United States in 2012. However, a recent analysis of crash records in Wyoming from over a 10-year period from 2002 to 2011 found that heavy trucks were involved in 13,273 crashes, which is 8.3 percent of all crashes.

Between 2009 and 2013, 59 fatal, 874 injury, and 3,007 property-damage-only incidents involving trucks occurred on key freight corridors in Wyoming. The majority of these occurred on I-80, where nearly 60 percent of the fatal incidents took place. I-80 also has the highest frequency of closures due to crashes among all of the key corridors, with 52 percent of all recorded closures for the years 2009–2013.

The American Transportation Research Institute analyzed large-truck rollovers across the United States and identified a total of 1,728 truck rollovers in Wyoming between 2001 and 2009. These rollovers resulted in 57 fatalities. The majority of these incidents occurred along I-25 and I-80. A recent report from the Mountain-Plains Consortium stated that the majority of truck accidents on I-80 occur during the winter.

In 2006, there were 145 Federal Railroad Administration (FRA)-reportable rail incidents in Wyoming. Sixty-one of these were train accidents, four were highway-rail incidents, and 80 were other incidents. By 2013 (January–November), this number had fallen to 50 total incidents, of which 25 were train accidents, four were highway-rail incidents, and 21 were other incidents. This marked decline in Wyoming across all three types of FRA-reportable incidents parallels the U.S. trend.

Since 1994, 177 pipeline incidents in Wyoming have been reported to the Pipeline and Hazardous Materials Safety Administration. These incidents resulted in three fatalities, seven injuries, and $23 million of property damage. Aging pipeline infrastructure is a concern. However, many States and pipeline operators are replacing...
this old infrastructure. Pipelines constructed of cast iron, wrought iron, and bare steel are among those that pose the highest risk. Bare steel pipe was used extensively in natural gas and hazardous liquids pipelines until the 1960s. In 2013, bare steel accounted for 90.52 miles of gas transmission pipeline (1.3 percent of total gas transmission pipeline miles) in Wyoming.

S.5  **Statewide Freight Plan Goals**

Although Wyoming DOT has developed a number of regional and state-level transportation studies, this is the first effort to provide a comprehensive multimodal freight evaluation. Consequently, an important element of the SFP was to develop a unifying vision and a set of goals that can be linked to documented performance measures and evaluation criteria. The goals for the Wyoming freight system were developed in the context of Wyoming DOT’s overall strategic plan and goals and the national freight policy established in MAP-21.

The Wyoming DOT strategic plan’s mission statement documents the need to “Provide a safe, high-quality, and efficient transportation system.” To accomplish this, Wyoming DOT has established the following goals:

- Improve safety on the state transportation system
- Serve our customers
- Improve agency efficiency and effectiveness
- Take care of all physical aspects of the state transportation system
- Develop and care for our people
- Exercise good stewardship of our resources

As part of MAP-21, the U.S. Department of Transportation (USDOT) developed a national freight policy to “improve the condition and performance of the national freight network to provide the foundation for the United States to compete in the global economy and achieve goals related to economic competitiveness and efficiency; congestion; productivity; safety, security, and resilience of freight movement; infrastructure condition; use of advanced technology; performance, innovation, competition, and accountability in the operation and maintenance of the network; and environmental impacts.” Freight and economic vitality is one of seven national transportation goals, which include improving the freight network and rural area access to markets, along with supporting regional economic development.

Wyoming DOT’s and USDOT’s freight goals were used to develop the SFP goals, which are:

- Improve freight safety
- Support regional economic development
- Advance freight network efficiency
- Maintain the state of good repair
- Reduce environmental impacts
- Improve reliability
S.6 Summary

The State of Wyoming has undertaken a comprehensive study of its freight network and has identified key issues and opportunities through a wide-ranging stakeholder and public outreach process. This SFP serves to document this information and set a direction for freight planning and project development into the future while meeting the federal requirements of MAP-21.

The development of this SFP would not have been possible without the participation of a variety of freight stakeholders and others concerned about a safe and efficient freight network in the state that promotes economic vitality. Wyoming DOT wishes to express its appreciation to those individuals and parties who participated in this effort.

Along with the initial freight plan completed in 2015, this document includes a September 2017 addenda that address additional FAST Act freight plan requirements. The addenda consist of:

- Multimodal freight policy goals were established based on the new FAST Act requirements. This section depicts and recommends to USDOT WYDOT’s proposed multimodal freight network within Wyoming to be included in the National Multimodal Freight Network. These recommendations were selected in collaboration with neighboring states.

- National Highway Freight policy goals and a National Highway Freight Network within Wyoming were established based on the new FAST Act requirements. Working with the Cheyenne and Casper MPOs, WYDOT designated urban freight corridors and established additional rural freight corridors in addition to those already designated by FHWA. WYDOT also set a statewide performance target for freight reliability on the Wyoming Interstate system.

- The addenda include a discussion about the State freight advisory committee. In addition to the information provided in the 2015 freight plan, an addendum further describes the State Freight Advisory Committee designees, activities, and their role in developing the freight plan.

- A State freight investment plan was created to show the potential costs of freight needs and proposed annual National Highway Freight Program expenditures. The financial plan includes a project investment plan which lists the freight projects for the State and proposed funding sources for those projects.
Chapter 1. Wyoming Strategic Freight Goals

1.1 Introduction

1.1.1 Purpose of This Plan

This Wyoming Statewide Freight Plan (SFP) is a comprehensive multimodal transportation plan that describes the immediate and long-range planning activities and investments associated with Wyoming’s freight system. This SFP identifies the infrastructure used for freight and goods movement, freight needs, state economic development goals, and the investment strategies, policies, and data necessary to promote an efficient, reliable, and safe freight transportation network.

This SFP is a standalone document, but it builds on previous planning documents including the Statewide Rail Plan, the Wyoming Long-Range Transportation Plan (LRTP), and the Wyoming Connects Corridor Vision and Corridor Plans. This SFP discusses freight issues and goals that are not specifically addressed in other statewide planning documents. This SFP provides agency representatives with the current and future conditions of freight, the needs and gaps in the existing freight system, preliminary recommendations, an implementation plan that includes prioritized needs.

1.1.2 Organization of This Plan

This SFP is organized as follows:

- **Wyoming Strategic Freight Goals**: Identifies Wyoming’s strategic freight goals and describes how the SFP meets the national freight goals.
- **Economic Context of Freight Transportation Planning**: Explains the role that freight plays in Wyoming’s economy, defines the industries that are important to the state, and describes these industries’ supply chains.
- **Freight Policies, Strategies, and Institutions**: Discusses the state freight policies and strategies that will guide freight-related transportation investment decisions.
- **State Freight Transportation Assets**: Includes inventories of facilities with freight mobility challenges and the state’s current freight transportation assets.
- **Condition and Performance of the State’s Freight Transportation System**: Discusses performance measures that support freight-related transportation investment decisions and analyzes the conditions and performance of the state’s freight transportation system.
1.2 MAP-21 and Statewide Freight Plans

This SFP is organized to fulfill the federal requirement to develop a statewide freight plan that meets all of the elements, national goals, and requirements of the Moving Ahead for Progress in the 21st Century Act (MAP-21), enacted in 2012. This SFP also supports the freight goals identified in the Wyoming LRTP as well as the goals identified in the individual LRTPs of Wyoming’s metropolitan planning organizations.

Section 1118 of MAP-21 encourages each State to develop a statewide freight plan that includes, at a minimum, the following elements:

- An identification of significant freight system trends, needs, and issues with respect to the state;
- A description of the freight policies, strategies, and performance measures that will guide the freight-related transportation investment decisions of the State;
- A description of how the plan will improve the ability of the State to meet the national freight goals established under Section 167 of Title 23 of the United States Code;
- Evidence of consideration of innovative technologies and operational strategies, including intelligent transportation systems, that improve the safety and efficiency of freight movement;
- In the case of routes on which travel by heavy vehicles (including mining, agricultural, energy cargo or equipment, and timber vehicles) is projected to substantially deteriorate the condition of roadways, a description of improvements that may be required to reduce or impede the deterioration; and
- An inventory of facilities with freight mobility issues, such as truck bottlenecks, within the state, and a description of the strategies the State is employing to address those freight mobility issues.
Prior to the enactment of MAP-21, the State of Wyoming had begun the process of developing a long-range freight plan by addressing these items. This process included identifying a strategic freight network for the state, defining the relative performance of freight movement, identifying freight related performance measures, and prioritizing projects that will affect the performance of the state freight transportation network.

1.3 National Freight Goals

As set forth in Section 167 of Title 23 of the United States Code, the goals of the national freight policy are:

1. To invest in infrastructure improvements and to implement operational improvements that—
   a. Strengthen the contribution of the national freight network to the economic competitiveness of the United States;
   b. Reduce congestion; and
   c. Increase productivity, particularly for domestic industries and businesses that create high-value jobs;
2. To improve the safety, security, and resilience of freight transportation;
3. To improve the state of good repair of the national freight network;
4. To use advanced technology to improve the safety and efficiency of the national freight network;
5. To incorporate concepts of performance, innovation, competition, and accountability into the operation and maintenance of the national freight network;
6. To improve the economic efficiency of the national freight network; and
7. To reduce the environmental impacts of freight movement on the national freight network.

1.4 Wyoming Statewide Freight Plan Goals

Establishing the Wyoming Statewide Freight Plan Goals was a collaborative effort. The preliminary goals and objectives were developed based on freight transportation needs. In addition to meeting the needs of the statewide freight network, the goals needed to align with other statewide transportation goals and with the national freight goals identified in MAP-21 as listed in Section 1.3, National Freight Goals.

Multiple coordination meetings with regional agencies, tribes, the Freight Advisory Committee, the Wyoming Business Council, and metropolitan planning organizations and an open forum with the general public were held throughout the development process to gain consensus on the goals of this SFP (Figure 1-1). After receiving input from each of these groups and reviewing the input, Wyoming DOT and HDR developed the SFP goals.
The freight goals developed for this SFP focus on key components of freight transport including safety, security, reliability, economic competitiveness, performance, and accountability. Consistency with national freight goals leads to a freight plan that is compliant with MAP-21. Although the goals tend to be easily recognized for their transportation benefits, they are not mode specific and apply to all modes, including air, rail, and pipeline. However, it is important to note that Wyoming DOT has jurisdiction over the transportation funding and regulation aspects of highway freight mobility. Wyoming DOT has no direct regulatory authority over air transportation, rail transportation, or pipelines in Wyoming. Table 1-1 shows the alignment among the goals of this SFP, the national freight goals, and the goals of other statewide transportation planning documents.
<table>
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| **MAP-21 Freight Goals**                   | **Economy**
|                                            | Strengthen Economic Competitiveness, Reduce Congestion, and Increase Productivity                                                         |
|                                            | **Safety**
|                                            | Improve Safety                                                                                                                             |
|                                            | **Maintenance**
|                                            | Improve State of Good Repair                                                                                                             |
|                                            | **Mobility**
|                                            | Improve Safety and Efficiency with the Use of Advanced Technology                                                                       |
|                                            | **Reliability**
|                                            | Incorporate Performance, Innovation, Competition, and Accountability into Operations and Maintenance                                      |
|                                            | **Environmental**
|                                            | Reduce Environmental Impacts                                                                                                              |
| **Wyoming DOT SFP Goals**                  | **Economy**
|                                            | Support regional economic development.                                                                                                   |
|                                            | **Safety**
|                                            | Achieve a safe freight transportation network.                                                                                           |
|                                            | **Maintenance**
|                                            | Maintain the state of good repair.                                                                                                       |
|                                            | **Mobility**
|                                            | Advance freight mobility through an efficient transportation network.                                                                     |
|                                            | **Reliability**
|                                            | Achieve a reliable transportation network.                                                                                               |
|                                            | **Environmental**
|                                            | Minimize or mitigate impacts to the environment.                                                                                         |
| **Wyoming DOT Strategic Plan Goals**       | **Economy**
|                                            | Develop and care for our people.                                                                                                         |
|                                            | **Safety**
|                                            | Keep people safe on the state transportation system.                                                                                     |
|                                            | **Maintenance**
|                                            | Take care of all physical aspects of the state transportation system.                                                                   |
|                                            | **Mobility**
|                                            | Serve our customers.                                                                                                                     |
|                                            | **Reliability**
|                                            | Respectfully perform our lawful responsibilities.                                                                                         |
|                                            | **Environmental**
|                                            | Exercise good stewardship of our resources.                                                                                              |
| **Wyoming DOT LRTP Goals**                 | **Economy**
|                                            | —                                                                                                                                       |
|                                            | **Safety**
|                                            | —                                                                                                                                       |
|                                            | **Maintenance**
|                                            | —                                                                                                                                       |
|                                            | **Mobility**
|                                            | —                                                                                                                                       |
|                                            | **Reliability**
|                                            | —                                                                                                                                       |
|                                            | **Environmental**
|                                            | —                                                                                                                                       |
Safety

Achieve a safe transportation network by decreasing the number and severity of crashes involving freight-related vehicles and decreasing the number and severity of crashes at rail crossings.

Economy

Encourage freight investments with positive economic benefits to the Wyoming economy, maintain an efficient multimodal freight network for Wyoming businesses across all key industries, and strengthen rural economies’ farm-to-market, manufacturing, and resource industry sectors.

Mobility

Improve mobility and efficiencies of the freight network by identifying and mitigating impediments to the freight network for all modes, including truck, rail, air, and pipeline. This includes items such as adding truck climbing lanes, converting to rail systems that support 286k modern rail cars, and minimizing areas with oversized and overweight restrictions, as well as improving multimodal connectivity and last-mile connections.
**Maintenance**

Maintain the state of good repair of the freight system by reducing the number of deficient bridges on the freight network, and maintaining the freight network pavement condition.

**Environmental**

Reduce and/or mitigate adverse environmental impacts of freight.

**Reliability**

Promote redundancy and flexibility within the system to meet unanticipated events and aid emergency response; reduce the frequency and duration of road closures.

The goals identified above assist Wyoming DOT, other state entities, and the wide variety of freight-related stakeholders operating across the different modes and industry sectors to have common objectives in developing and enhancing Wyoming’s freight system that serves the needs of the freight industry and Wyoming’s businesses and residents.
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Chapter 2. Economic Context of Freight Transportation Planning

2.1 Introduction

The freight industry in Wyoming has historically been a vital component of the state’s economy; the industry moves goods throughout the West and maintains connections and links with the rest of the United States. The freight industry is critical to Wyoming’s largest export, coal. In 2011, coal and coal products accounted for nearly 93 percent of all freight moved out of Wyoming. The coal produced in Wyoming represents 39 percent of all coal produced in the country, and shipping this important resource is critical not only to the economic well-being of the state but also to the rest of the United States.

This chapter provides an overview of Wyoming’s economy, information about key industries and their supply chains, and existing conditions of freight movement on Wyoming’s infrastructure. Wyoming’s key freight-dependent industries are mineral extraction (coal, petroleum, and natural gas), agriculture, timber and forestry, and warehousing and logistics.

2.2 Overview of the Wyoming Economy

Though Wyoming is the 10th-largest state in terms of land mass, it has the smallest population of any U.S. state at 582,658 residents as of July 1, 2013. The population of Wyoming increased 3.4 percent between 2010 and 2013, compared to the U.S. population increase of 2.4 percent during the same period (U.S. Census Bureau 2014a).

The median age in Wyoming is slightly younger than the national average, at 36.9 years compared to 37.4 years (U.S. Census Bureau 2014a). Nearly 92 percent of the population over the age of 25 graduated from high school, with 24.7 percent earning a bachelor’s degree or higher. The high school graduation rate is higher than that of the United States as a whole, though the share of the population earning a higher degree is slightly lower.

Wyoming had an average yearly civilian labor force of 301,560 people from 2008 to 2012. During this period, average employment was 284,703, resulting in an average unemployment rate of 5.6 percent (Wyoming at Work 2014). In 2012, total employment in Wyoming was 392,348; of this, 298,049 jobs were wage and salary employment and the remaining 94,299 were proprietors’ employment. Non-farm employment accounted for 379,575 of the total jobs.

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1. FHWA FAF 3.4 obtained from www.ops.fhwa.dot.gov/freight/freight_analysis/faf
2. www.eia.gov/tools/faqs/faq.cfm?id=69&t=2
3. This number is reported by place of employment, not place of residence. This number is the total number of jobs in Wyoming, regardless of where the employee lives, not the total number of Wyoming residents working in Wyoming.
2.2.1 Wyoming Private Industry Employment

In 2012, Wyoming's private industries generated $145.4 billion in gross state product (GSP). Table 2-1 lists the share of this GSP contributed by each industry category. Mining represents the largest share of GSP, accounting for nearly 40 percent in Wyoming, followed by real estate and rental and leasing, which represents just under 11 percent. Overall, freight-dependent businesses account for about 70 percent of total Wyoming output in 2012. These are highlighted in blue in the table.

<table>
<thead>
<tr>
<th>Share of Non-Government GSP</th>
<th>2012 (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mining</td>
<td>39.38</td>
</tr>
<tr>
<td>Real estate and rental and leasing</td>
<td>10.81</td>
</tr>
<tr>
<td>Transportation and warehousing</td>
<td>6.98</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>6.23</td>
</tr>
<tr>
<td>Retail trade</td>
<td>5.68</td>
</tr>
<tr>
<td>Construction</td>
<td>5.16</td>
</tr>
<tr>
<td>Wholesale trade</td>
<td>4.18</td>
</tr>
<tr>
<td>Health care and social assistance</td>
<td>4.16</td>
</tr>
<tr>
<td>Accommodation and food services</td>
<td>3.14</td>
</tr>
<tr>
<td>Professional and technical services</td>
<td>2.72</td>
</tr>
<tr>
<td>Finance and insurance</td>
<td>2.12</td>
</tr>
<tr>
<td>Agriculture/forestry</td>
<td>1.87</td>
</tr>
<tr>
<td>Utilities</td>
<td>1.83</td>
</tr>
<tr>
<td>Other services, except government</td>
<td>1.81</td>
</tr>
<tr>
<td>Information</td>
<td>1.41</td>
</tr>
<tr>
<td>Administrative and waste management</td>
<td>1.23</td>
</tr>
<tr>
<td>Arts, entertainment and recreation</td>
<td>0.64</td>
</tr>
<tr>
<td>Management of companies and enterprises</td>
<td>0.41</td>
</tr>
<tr>
<td>Educational services</td>
<td>0.24</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100.00</strong></td>
</tr>
</tbody>
</table>

Source: BEA 2014a

Blue shading indicates freight-dependent businesses.

In the state, total private employment increased by 18 percent between 2003 and 2012, from 268,419 employees to 316,784.\(^4\) During this time, employment in freight-dependent industries rose by 15 percent, from 132,131 to 152,365. The greatest growth among all industries was in real estate and rental and leasing. The greatest increase in freight-dependent industries was in mining. The growth in mining employment was

\(^4\) Total employment, including government jobs, was 335,584 in 2003 and 392,348 in 2012 according to the Bureau of Economic Analysis.
primarily due to an increase in jobs in the oil and gas extraction and mining support activity subsets of the mining industry, which increased by 59 percent and 66 percent, respectively, during this period. Specifically, oil and gas extraction accounted for 5,100 jobs in 2003 and 8,200 jobs in 2012, while support activities increased from 8,500 to more than 14,000 during the same period. With the exception of retail trade, employment in all freight-dependent industries increased during this period, as shown in Table 1-1 and Figure 2-1 below.

Table 2-2. Wyoming Private Employment by Industry Sector, 2003 and 2012

<table>
<thead>
<tr>
<th>Total Private Employment by Industry</th>
<th>2003</th>
<th>2012</th>
<th>Share of 2012 Employment (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retail trade</td>
<td>38,897</td>
<td>38,312</td>
<td>12.1</td>
</tr>
<tr>
<td>Accommodation and food services</td>
<td>30,566</td>
<td>33,823</td>
<td>10.7</td>
</tr>
<tr>
<td>Mining</td>
<td>21,189</td>
<td>32,843</td>
<td>10.4</td>
</tr>
<tr>
<td>Health care and social assistance</td>
<td>24,216</td>
<td>29,483</td>
<td>9.3</td>
</tr>
<tr>
<td>Construction</td>
<td>27,313</td>
<td>29,206</td>
<td>9.2</td>
</tr>
<tr>
<td>Other services, except public administration</td>
<td>17,360</td>
<td>18,556</td>
<td>5.9</td>
</tr>
<tr>
<td>Real estate and rental and leasing</td>
<td>11,185</td>
<td>17,937</td>
<td>5.7</td>
</tr>
<tr>
<td>Professional, scientific, and technical services</td>
<td>13,900</td>
<td>16,693</td>
<td>5.3</td>
</tr>
<tr>
<td>Finance and insurance</td>
<td>10,994</td>
<td>16,140</td>
<td>5.1</td>
</tr>
<tr>
<td>Transportation and warehousing</td>
<td>11,665</td>
<td>15,030</td>
<td>4.7</td>
</tr>
<tr>
<td>Farm employment</td>
<td>12,125</td>
<td>12,773</td>
<td>4.0</td>
</tr>
<tr>
<td>Administrative and waste management services</td>
<td>11,840</td>
<td>12,752</td>
<td>4.0</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>10,661</td>
<td>11,279</td>
<td>3.6</td>
</tr>
<tr>
<td>Wholesale trade</td>
<td>7,778</td>
<td>10,178</td>
<td>3.2</td>
</tr>
<tr>
<td>Arts, entertainment, and recreation</td>
<td>5,780</td>
<td>7,060</td>
<td>2.2</td>
</tr>
<tr>
<td>Information</td>
<td>4,852</td>
<td>4,780</td>
<td>1.5</td>
</tr>
<tr>
<td>Educational services</td>
<td>2,624</td>
<td>3,403</td>
<td>1.1</td>
</tr>
<tr>
<td>Forestry, fishing, and related activities</td>
<td>2,503</td>
<td>2,744</td>
<td>0.9</td>
</tr>
<tr>
<td>Utilities</td>
<td>2,178</td>
<td>2,536</td>
<td>0.8</td>
</tr>
<tr>
<td>Management of companies and enterprises</td>
<td>793</td>
<td>1,256</td>
<td>0.4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>268,419</strong></td>
<td><strong>316,784</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

Source: BEA 2014b

Blue shading indicates freight-dependent businesses.
Figure 2-1. Wyoming Private Industry by Sector, 2003 and 2012

Source: BEA 2014b

2.2.1.1 Wyoming Private Industry Employment by Region

The importance of the freight economy to the state as a whole has been discussed in the previous section, but Wyoming can be divided into five regions with distinct characteristics. The regions are consistent with the Wyoming Labor Market Information (LMI) regions and are as follows:

- **Northwest**: Big Horn, Fremont, Hot Springs, Park and Washakie Counties
- **Northeast**: Campbell, Crook, Johnson, Niobrara, Sheridan and Weston Counties
- **Central**: Carbon, Converse, and Natrona Counties
- **Southwest**: Lincoln, Sublette, Sweetwater, Teton and Uinta Counties
- **Southeast**: Albany, Goshen, Laramie and Platte Counties
Understanding how private industry employment varies by region is useful in identifying how different aspects of the freight network influence distinct areas of the state.

The Southwest region had the largest total employment of each of the five regions, accounting for 71,413, or 24 percent, of private-sector jobs in 2012. The Northwest region had the lowest employment, with 43,859 private-sector jobs during 2012. Though the Northwest had the lowest total employment, it had the second-highest share of freight-dependent jobs (just less than 50 percent). The Northeast, which contains the Powder River Basin, had the largest share of freight-dependent employment and the largest total mining employment of all regions.

Table 2-3 below presents the total employment by industry sector for each of the regions.\textsuperscript{5} Table 2-4 below lists the share of employment by industry and region, demonstrating the importance of the freight-related industries in Wyoming and their variation throughout the state. Retail trade is in the top five for employment in each of the five regions, accounting for the largest share of private employment in three of the five regions. Mining was the largest industry for employment in the Northeast, and accommodations and food services was the largest industry for employment in the Southwest. The Southwest region is the only region where a freight-dependent industry does not account for the largest share of employment (see Table 2-4 below).

\textsuperscript{5} These totals do not sum to the totals presented previously due to some redacted information at the county level.
Table 2-3. Private Industry Employment by Region, 2012

<table>
<thead>
<tr>
<th>Industry Sector</th>
<th>Northwest</th>
<th>Northeast</th>
<th>Central</th>
<th>Southwest</th>
<th>Southeast</th>
<th>WY Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farm employment</td>
<td>3,720</td>
<td>2,829</td>
<td>1,410</td>
<td>1,890</td>
<td>2,924</td>
<td>12,773</td>
</tr>
<tr>
<td>Forestry, fishing, and related activities</td>
<td>413</td>
<td>545</td>
<td>83</td>
<td>292</td>
<td>98</td>
<td>1,431</td>
</tr>
<tr>
<td>Mining</td>
<td>3,157</td>
<td>10,939</td>
<td>7,478</td>
<td>9,991</td>
<td>214</td>
<td>31,779</td>
</tr>
<tr>
<td>Utilities</td>
<td>211</td>
<td>443</td>
<td>61</td>
<td>318</td>
<td>212</td>
<td>1,245</td>
</tr>
<tr>
<td>Construction</td>
<td>4,310</td>
<td>5,623</td>
<td>5,598</td>
<td>8,065</td>
<td>4,318</td>
<td>27,914</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>1,951</td>
<td>1,508</td>
<td>2,285</td>
<td>2,426</td>
<td>2,444</td>
<td>10,614</td>
</tr>
<tr>
<td>Wholesale trade</td>
<td>1,134</td>
<td>2,281</td>
<td>3,118</td>
<td>471</td>
<td>1,589</td>
<td>8,593</td>
</tr>
<tr>
<td>Retail trade</td>
<td>5,548</td>
<td>6,209</td>
<td>7,647</td>
<td>8,072</td>
<td>10,170</td>
<td>37,646</td>
</tr>
<tr>
<td>Transportation and warehousing</td>
<td>1,520</td>
<td>2,862</td>
<td>2,686</td>
<td>3,432</td>
<td>4,530</td>
<td>15,030</td>
</tr>
<tr>
<td>Information</td>
<td>783</td>
<td>547</td>
<td>759</td>
<td>1,054</td>
<td>1,582</td>
<td>4,725</td>
</tr>
<tr>
<td>Finance and insurance</td>
<td>2,150</td>
<td>2,394</td>
<td>2,950</td>
<td>3,665</td>
<td>4,981</td>
<td>16,140</td>
</tr>
<tr>
<td>Real estate and rental and leasing</td>
<td>2,512</td>
<td>2,608</td>
<td>3,205</td>
<td>5,437</td>
<td>4,175</td>
<td>17,937</td>
</tr>
<tr>
<td>Professional and technical services</td>
<td>2,044</td>
<td>2,661</td>
<td>3,152</td>
<td>3,312</td>
<td>4,477</td>
<td>15,646</td>
</tr>
<tr>
<td>Management of companies and enterprises</td>
<td>209</td>
<td>302</td>
<td>295</td>
<td>202</td>
<td>167</td>
<td>1,175</td>
</tr>
<tr>
<td>Administrative and waste management services</td>
<td>1,533</td>
<td>1,950</td>
<td>2,507</td>
<td>2,875</td>
<td>2,887</td>
<td>11,752</td>
</tr>
<tr>
<td>Educational services</td>
<td>193</td>
<td>271</td>
<td>428</td>
<td>508</td>
<td>1,112</td>
<td>2,512</td>
</tr>
<tr>
<td>Health care and social assistance</td>
<td>3,009</td>
<td>2,988</td>
<td>6,985</td>
<td>2,909</td>
<td>7,855</td>
<td>23,746</td>
</tr>
<tr>
<td>Arts, entertainment and recreation</td>
<td>1,376</td>
<td>739</td>
<td>1,264</td>
<td>2,000</td>
<td>1,282</td>
<td>6,661</td>
</tr>
<tr>
<td>Accommodation and food services</td>
<td>4,991</td>
<td>4,528</td>
<td>5,854</td>
<td>10,820</td>
<td>6,835</td>
<td>33,028</td>
</tr>
<tr>
<td>Other services, except public administration</td>
<td>3,095</td>
<td>3,012</td>
<td>4,247</td>
<td>3,674</td>
<td>4,289</td>
<td>18,317</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>43,859</strong></td>
<td><strong>55,239</strong></td>
<td><strong>62,012</strong></td>
<td><strong>71,413</strong></td>
<td><strong>66,141</strong></td>
<td><strong>298,664</strong></td>
</tr>
</tbody>
</table>

Source: BEA 2014c, aggregated to regions
Blue shading indicates freight-dependent businesses.
### Table 2-4. Share of Private Industry Employment by Region, 2012

in percent (%)

<table>
<thead>
<tr>
<th>Industry Sector</th>
<th>Northwest</th>
<th>Northeast</th>
<th>Central</th>
<th>Southwest</th>
<th>Southeast</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farm employment</td>
<td>8.5</td>
<td>5.1</td>
<td>2.3</td>
<td>2.6</td>
<td>4.4</td>
<td>4.3</td>
</tr>
<tr>
<td>Forestry, fishing, and related activities</td>
<td>0.9</td>
<td>1.0</td>
<td>0.1</td>
<td>0.4</td>
<td>0.1</td>
<td>0.5</td>
</tr>
<tr>
<td>Mining</td>
<td>7.2</td>
<td>19.8</td>
<td>12.1</td>
<td>14.0</td>
<td>0.3</td>
<td>10.6</td>
</tr>
<tr>
<td>Utilities</td>
<td>0.5</td>
<td>0.8</td>
<td>0.1</td>
<td>0.4</td>
<td>0.3</td>
<td>0.4</td>
</tr>
<tr>
<td>Construction</td>
<td>9.8</td>
<td>10.2</td>
<td>9.0</td>
<td>11.3</td>
<td>6.5</td>
<td>9.3</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>4.4</td>
<td>2.7</td>
<td>3.7</td>
<td>3.4</td>
<td>3.7</td>
<td>3.6</td>
</tr>
<tr>
<td>Wholesale trade</td>
<td>2.6</td>
<td>4.1</td>
<td>5.0</td>
<td>0.7</td>
<td>2.4</td>
<td>2.9</td>
</tr>
<tr>
<td>Retail trade</td>
<td>12.6</td>
<td>11.2</td>
<td>12.3</td>
<td>11.3</td>
<td>15.4</td>
<td>12.6</td>
</tr>
<tr>
<td>Transportation and warehousing</td>
<td>3.5</td>
<td>5.2</td>
<td>4.3</td>
<td>4.8</td>
<td>6.8</td>
<td>5.0</td>
</tr>
<tr>
<td>Information</td>
<td>1.8</td>
<td>1.0</td>
<td>1.2</td>
<td>1.5</td>
<td>2.4</td>
<td>1.6</td>
</tr>
<tr>
<td>Finance and insurance</td>
<td>4.9</td>
<td>4.3</td>
<td>4.8</td>
<td>5.1</td>
<td>7.5</td>
<td>5.4</td>
</tr>
<tr>
<td>Real estate and rental and leasing</td>
<td>5.7</td>
<td>4.7</td>
<td>5.2</td>
<td>7.6</td>
<td>6.3</td>
<td>6.0</td>
</tr>
<tr>
<td>Professional and technical services</td>
<td>4.7</td>
<td>4.8</td>
<td>5.1</td>
<td>4.6</td>
<td>6.8</td>
<td>5.2</td>
</tr>
<tr>
<td>Management of companies and enterprises</td>
<td>0.5</td>
<td>0.5</td>
<td>0.5</td>
<td>0.3</td>
<td>0.3</td>
<td>0.4</td>
</tr>
<tr>
<td>Administrative and waste management services</td>
<td>3.5</td>
<td>3.5</td>
<td>4.0</td>
<td>4.0</td>
<td>4.4</td>
<td>3.9</td>
</tr>
<tr>
<td>Educational services</td>
<td>0.4</td>
<td>0.5</td>
<td>0.7</td>
<td>0.7</td>
<td>1.7</td>
<td>0.8</td>
</tr>
<tr>
<td>Health care and social assistance</td>
<td>6.9</td>
<td>5.4</td>
<td>11.3</td>
<td>4.1</td>
<td>11.9</td>
<td>8.0</td>
</tr>
<tr>
<td>Arts, entertainment and recreation</td>
<td>3.1</td>
<td>1.3</td>
<td>2.0</td>
<td>2.8</td>
<td>1.9</td>
<td>2.2</td>
</tr>
<tr>
<td>Accommodation and food services</td>
<td>11.4</td>
<td>8.2</td>
<td>9.4</td>
<td>15.2</td>
<td>10.3</td>
<td>11.1</td>
</tr>
<tr>
<td>Other services, except public administration</td>
<td>7.1</td>
<td>5.5</td>
<td>6.8</td>
<td>5.1</td>
<td>6.5</td>
<td>6.1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100.0</strong></td>
<td><strong>100.0</strong></td>
<td><strong>100.0</strong></td>
<td><strong>100.0</strong></td>
<td><strong>100.0</strong></td>
<td>—</td>
</tr>
</tbody>
</table>

*Source: BEA 2014c, aggregated to regions*

*Blue shading indicates freight-dependent businesses.*
Employment location quotients indicate a relative concentration of an industry in a particular area. A location quotient of 1.0 indicates that the industry concentration is the same as for the United States as a whole. A value greater than 1.0 indicates a higher-than-average industry concentration, and a value less than 1.0 indicates a less-than-average industry concentration. Table 2-5 presents the employment-based location quotients for the various regions of Wyoming as well as the state as a whole compared to the United States overall.

Table 2-5. Employment Location Quotients by Region and for Wyoming, 2012

<table>
<thead>
<tr>
<th>Employment Location Quotient</th>
<th>Northwest</th>
<th>Northeast</th>
<th>Central</th>
<th>Southwest</th>
<th>Southeast</th>
<th>Wyoming</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farm employment</td>
<td>5.0</td>
<td>3.0</td>
<td>1.4</td>
<td>1.6</td>
<td>2.6</td>
<td>2.5</td>
</tr>
<tr>
<td>Forestry, fishing, and related activities</td>
<td>1.7</td>
<td>1.8</td>
<td>0.2</td>
<td>0.7</td>
<td>0.3</td>
<td>0.9</td>
</tr>
<tr>
<td>Mining</td>
<td>8.4</td>
<td>23.2</td>
<td>14.1</td>
<td>16.4</td>
<td>0.4</td>
<td>12.5</td>
</tr>
<tr>
<td>Utilities</td>
<td>1.3</td>
<td>2.2</td>
<td>0.3</td>
<td>1.2</td>
<td>0.9</td>
<td>1.1</td>
</tr>
<tr>
<td>Construction</td>
<td>1.7</td>
<td>1.8</td>
<td>1.6</td>
<td>2.0</td>
<td>1.1</td>
<td>1.6</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>0.5</td>
<td>0.3</td>
<td>0.5</td>
<td>0.4</td>
<td>0.5</td>
<td>0.4</td>
</tr>
<tr>
<td>Wholesale trade</td>
<td>0.6</td>
<td>1.0</td>
<td>1.2</td>
<td>0.2</td>
<td>0.6</td>
<td>0.7</td>
</tr>
<tr>
<td>Retail trade</td>
<td>1.1</td>
<td>1.0</td>
<td>1.1</td>
<td>1.0</td>
<td>1.3</td>
<td>1.1</td>
</tr>
<tr>
<td>Transportation and warehousing</td>
<td>0.9</td>
<td>1.4</td>
<td>1.2</td>
<td>1.3</td>
<td>1.8</td>
<td>1.3</td>
</tr>
<tr>
<td>Information</td>
<td>0.9</td>
<td>0.5</td>
<td>0.6</td>
<td>0.7</td>
<td>1.1</td>
<td>0.8</td>
</tr>
<tr>
<td>Finance and insurance</td>
<td>0.8</td>
<td>0.7</td>
<td>0.7</td>
<td>0.8</td>
<td>1.2</td>
<td>0.8</td>
</tr>
<tr>
<td>Real estate and rental and leasing</td>
<td>1.1</td>
<td>0.9</td>
<td>1.0</td>
<td>1.4</td>
<td>1.2</td>
<td>1.1</td>
</tr>
<tr>
<td>Professional and technical services</td>
<td>0.6</td>
<td>0.6</td>
<td>0.6</td>
<td>0.6</td>
<td>0.9</td>
<td>0.7</td>
</tr>
<tr>
<td>Management of companies and enterprises</td>
<td>0.3</td>
<td>0.4</td>
<td>0.3</td>
<td>0.2</td>
<td>0.2</td>
<td>0.3</td>
</tr>
<tr>
<td>Administrative and waste management services</td>
<td>0.5</td>
<td>0.5</td>
<td>0.6</td>
<td>0.6</td>
<td>0.6</td>
<td>0.6</td>
</tr>
<tr>
<td>Educational services</td>
<td>0.2</td>
<td>0.2</td>
<td>0.3</td>
<td>0.3</td>
<td>0.6</td>
<td>0.3</td>
</tr>
<tr>
<td>Health care and social assistance</td>
<td>0.5</td>
<td>0.4</td>
<td>0.9</td>
<td>0.3</td>
<td>0.9</td>
<td>0.6</td>
</tr>
<tr>
<td>Arts, entertainment and recreation</td>
<td>1.2</td>
<td>0.5</td>
<td>0.8</td>
<td>1.1</td>
<td>0.8</td>
<td>0.9</td>
</tr>
<tr>
<td>Accommodation and food services</td>
<td>1.4</td>
<td>1.0</td>
<td>1.1</td>
<td>1.8</td>
<td>1.3</td>
<td>1.3</td>
</tr>
<tr>
<td>Other services, except public administration</td>
<td>1.0</td>
<td>0.8</td>
<td>1.0</td>
<td>0.8</td>
<td>1.0</td>
<td>0.9</td>
</tr>
</tbody>
</table>

Source: BEA 2014b and 2014c, aggregated to regions
Lighter blue shading indicates freight-dependent businesses.
Darker blue shading indicates industries that have a higher concentration than the U.S. average.
In Table 2-5 above, freight-dependent industries are highlighted in lighter blue. Those industries that have a higher concentration than the U.S. average are highlighted in darker blue.

The location quotient analysis indicates a much higher concentration of mining in Wyoming, particularly in the Northeast, Southwest, and Central regions of the state. Wyoming also has a much greater concentration of farm employment than the United States as a whole. This is true across all five regions of the state.

Within Wyoming, transportation and warehousing is most heavily concentrated in the Southeast region. This is likely due to the population center around Cheyenne as well as the intersection of I-80 and I-25.

### 2.3 Wyoming Key Industry Sectors

Wyoming’s economy is centered around a few key industries including mining (mineral and resource extraction), agriculture, timber and forestry, and warehousing. With the heavy concentration of mineral and resource mining in the state, the economy is heavily subject to the fluctuations associated with this type of industry. Wyoming is the United States’ leading producer of coal, which is supplied primarily by the Powder River Basin. This section describes the key industries in Wyoming and the important role that they play in the state’s freight system, including their supply chains.

#### 2.3.1 Mineral Extraction

Bringing minerals to market involves extracting minerals and products from the ground, processing them, and transporting those products to markets and consumers at a cost that both is suitable to the market and makes the required return and profit for the extractor and any other companies involved in the end-to-end process. For this reason, the physical movement of those goods from production to consumer (and the various stages in between) is a key factor when a mineral extraction company decides whether such extraction is economically viable.

Other factors that mineral extraction companies consider are the capacity of the transport network, competition, frequency of movement, ease of movement, reliability, and the performance of the network. These factors are important to establishing supply chains that fulfill the mantra of getting the right goods to the right place, at the right time, in the right condition, and at the right price.

#### 2.3.1.1 Coal

Over the last 40 years, Wyoming has eclipsed the once-dominant coal-mining regions of the eastern United States in overall coal production. More than 6.5 billion tons of Wyoming coal have been mined since 1994, and Wyoming is now the largest coal-producing state in the country. In 2013, about 388 million short tons (Wyoming Mining Association 2015a) of coal were mined from Wyoming mines. This accounts for nearly 40 percent of the U.S. domestic supply of coal and makes Wyoming the number 1 coal-producing state. West Virginia is second. In 2013, West Virginia produced nearly 116 million short tons of coal (EIA 2015a).

Wyoming has climbed to the top of the state rankings in coal production because over half of the state is located on top of some type of coal deposit. The primary coal-extraction regions in the state are the Powder River Basin, the Hanna Basin, and the Green River Basin. The majority of Wyoming’s coal is produced from the...
Powder River Basin, which consists of the Montana Counties of Big Horn, Custer, Powder River, Rosebud, and Treasure and the Wyoming Counties of Campbell, Converse, Crook, Johnson, Natrona, Niobrara, Sheridan, and Weston. The Powder River Basin provides coal that is relatively close to the surface and in thick seams, resulting in some of the lowest producing costs for coal mined in the United States. The coal in this area is sub-bituminous coal, which has a relatively high energy output and low sulfur and ash content, all of which comply with the Clean Air Act regulations for consumption in the U.S. energy market.

In 2013, total statewide coal production in Wyoming was down 3 percent from the previous year (Wyoming State Geological Survey 2014a). Two reasons for this decrease have been suggested: (1) low natural gas prices have led some power generators to switch their power plants from coal to gas and (2) power generators have retired some older coal-fired power plants, which are generally not environmentally compliant. The trend of Wyoming’s coal production is illustrated in Figure 2-2.

![Figure 2-2. Wyoming Coal Production, 1970–2013](Wyoming Coal Production 1970-2013)


The volume and longevity of the full coal reserve in the Powder River Basin and adjacent southeastern Montana has been a subject of debate since coal mining began in the region in the 1970s. The amount of coal remaining depends partly on the depth and geographic location of the deposits and whether they are...
technically or economically feasible to recover, sell, and transport. Another factor is the environmental regulations that could reduce the domestic market for coal. In 2013, the U.S. Geological Survey reported that the entire two-state Powder River Basin region, which is the largest coal-producing region in the world, has about 162 billion short tons of recoverable coal from a total of 1.07 trillion short tons of in-place resources (USGS 2013). Of this, the Wyoming portion is estimated to have originally had 855 billion tons of in-place resource, which leads to a coal availability of 768 billion tons and about 127 billion recoverable tons.

The locations of Wyoming’s coal mines are shown in Figure 2-3.

**Figure 2-3. Wyoming Coal Mines**

![Wyoming Coal Mines Map](image)

*Source: Wyoming State Geological Survey 2013*

Wyoming’s significant coal-producing mines are listed in Table 2-6 below.
Table 2-6. Coal Production from Wyoming’s Significant Coal-Producing Mines, 2011–2013

<table>
<thead>
<tr>
<th>Mine</th>
<th>Operator</th>
<th>2011 Production</th>
<th>2012 Production</th>
<th>2013 Production</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Antelope Mine</td>
<td>Antelope Coal, LLC</td>
<td>37,060,246</td>
<td>34,316,314</td>
<td>31,354,248</td>
</tr>
<tr>
<td>2. Belle Ayr Mine</td>
<td>Alpha Coal West</td>
<td>24,582,007</td>
<td>24,227,846</td>
<td>18,258,922</td>
</tr>
<tr>
<td>3. Black Thunder Mine</td>
<td>Thunder Basin Coal Co.</td>
<td>104,958,089</td>
<td>93,082,919</td>
<td>100,687,876</td>
</tr>
<tr>
<td>4. Buckskin Mine</td>
<td>Kiewit Mining Properties, Inc.</td>
<td>24,967,006</td>
<td>18,058,827</td>
<td>15,023,906</td>
</tr>
<tr>
<td>5. Caballo Mine</td>
<td>Peabody Powder River Operations, LLC</td>
<td>24,137,594</td>
<td>16,841,183</td>
<td>8,979,111</td>
</tr>
<tr>
<td>6. Coal Creek Mine</td>
<td>Thunder Basin Coal Co.</td>
<td>10,013,251</td>
<td>7,564,231</td>
<td>8,522,265</td>
</tr>
<tr>
<td>7. Cordero Rojo Mine</td>
<td>Cordero Mining LLC, Cordero Rojo</td>
<td>39,455,590</td>
<td>39,204,736</td>
<td>36,670,450</td>
</tr>
<tr>
<td>8. Dry Fork Mine</td>
<td>Western Fuels of Wyoming, Inc.</td>
<td>5,770,964</td>
<td>6,006,787</td>
<td>5,433,936</td>
</tr>
<tr>
<td>9. Eagle Butte Mine</td>
<td>Alpha Coal West</td>
<td>25,365,054</td>
<td>22,466,733</td>
<td>19,904,433</td>
</tr>
<tr>
<td>10. NARM (North Antelope Rochelle Complex Mines)</td>
<td>Peabody Powder River Operations, LLC</td>
<td>109,064,323</td>
<td>107,639,188</td>
<td>111,005,549</td>
</tr>
<tr>
<td>14. Jim Bridger Mine (surface and highwall)</td>
<td>Bridger Coal Co.</td>
<td>1,677,334</td>
<td>887,654</td>
<td>1,136,044</td>
</tr>
<tr>
<td>15. Jim Bridger Mine (underground)</td>
<td>Bridger Coal Co.</td>
<td>3,043,110</td>
<td>4,636,557</td>
<td>4,442,616</td>
</tr>
<tr>
<td>16. Grass Creek Mine</td>
<td>Grass Creek Coal Co.</td>
<td>28,738</td>
<td>24,040</td>
<td>26,587</td>
</tr>
<tr>
<td>17. Kemmerer Mine</td>
<td>Westmorland Kemmerer</td>
<td>4,541,084</td>
<td>4,644,628</td>
<td>4,639,135</td>
</tr>
</tbody>
</table>

Source: Wyoming State Geological Survey 2014c

The majority of Wyoming’s coal is destined for the power generation market and is estimated to fuel 15 percent of U.S. domestic electric power generation (Wyoming Mining Association 2014). Much of this coal is shipped to power plants in 32 states (Wyoming State Geological Society 2015), a fact that has caused coal and petroleum products to be the two largest commodities moved both out of and within the state. The exported coal is used to create steam to generate electricity. In 2012, about 99 percent of the coal mined in Wyoming was consumed in the United States, with the balance exported into international markets, according to the Wyoming State Geological Survey (2014a).
Ninety-six percent of Wyoming coal is transported by rail, and the Wyoming Mining Association (2015a) estimates that up to 80 trains consisting of up to 150 coal cars are used per day to export coal to Wyoming’s markets. These export markets are shown in Figure 2-4.

**Figure 2-4. Distribution of Wyoming Coal, 2013**

In 2013, Texas was the largest recipient of Wyoming coal with 54 million tons (MT) followed by Illinois (50 MT), Missouri (41 MT), Wisconsin (20 MT) and Iowa (20 MT) (Wyoming State Geological Survey 2015).

The U.S. Energy Information Agency (EIA) reports that, on average, transportation costs account for about 20 percent of total costs associated with the purchase cost of coal at power-generating plants. However, in the case of the Powder River Basin coal, this cost can be as high as 59 percent (EIA 2014a).
Table 2-7 identifies the real average coal transportation cost by rail per ton from each of the major U.S. coal-producing regions. In 2012, the Powder River Basin region had the second-highest rail transport costs. From 2008 to 2012, the Power River Basin’s rail transport costs increased by 17 percent compared to 12 percent for rail transport overall.

Table 2-7. Real Average Annual Costs of Transporting Coal by Rail, by Supply Region
in 2012 dollars per ton

<table>
<thead>
<tr>
<th>Coal Supply Region</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northern Appalachia</td>
<td>15.97</td>
<td>16.44</td>
<td>17.44</td>
<td>18.69</td>
<td>20.15</td>
</tr>
<tr>
<td>Central Appalachia</td>
<td>22.09</td>
<td>21.06</td>
<td>22.46</td>
<td>22.42</td>
<td>22.67</td>
</tr>
<tr>
<td>Southern Appalachia</td>
<td>16.77</td>
<td>15.02</td>
<td>16.39</td>
<td>W</td>
<td>W</td>
</tr>
<tr>
<td>Illinois Basin</td>
<td>8.10</td>
<td>8.88</td>
<td>11.47</td>
<td>14.61</td>
<td>15.16</td>
</tr>
<tr>
<td>Powder River Basin</td>
<td>17.71</td>
<td>16.62</td>
<td>17.95</td>
<td>20.17</td>
<td>20.72</td>
</tr>
<tr>
<td>Uinta Region</td>
<td>26.09</td>
<td>19.47</td>
<td>21.04</td>
<td>20.23</td>
<td>18.92</td>
</tr>
<tr>
<td>Average for all regions</td>
<td>18.09</td>
<td>16.96</td>
<td>18.26</td>
<td>19.97</td>
<td>20.30</td>
</tr>
</tbody>
</table>

Source: EIA 2014a

W = Withheld to avoid disclosure of individual company data

Table 2-8 below shows the trend in the real average coal transportation cost per ton from Wyoming to each state. From 2008 to 2012, Michigan experienced the largest cost increase at 80 percent per ton, while Wyoming’s intrastate costs dropped by 20 percent.
Table 2-8. Real Average Annual Costs of Transporting Coal by Rail from Wyoming to Other States in 2012 dollars per ton

<table>
<thead>
<tr>
<th>Destination State</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ohio</td>
<td>28.91</td>
<td>26.87</td>
<td>32.08</td>
<td>36.19</td>
<td>40.74</td>
</tr>
<tr>
<td>Michigan</td>
<td>19.52</td>
<td>19.46</td>
<td>19.70</td>
<td>31.70</td>
<td>35.08</td>
</tr>
<tr>
<td>Indiana</td>
<td>23.77</td>
<td>20.99</td>
<td>21.05</td>
<td>30.66</td>
<td>30.11</td>
</tr>
<tr>
<td>Tennessee</td>
<td>24.91</td>
<td>22.21</td>
<td>23.37</td>
<td>27.02</td>
<td>29.51</td>
</tr>
<tr>
<td>Wisconsin</td>
<td>19.97</td>
<td>20.36</td>
<td>20.74</td>
<td>25.89</td>
<td>24.99</td>
</tr>
<tr>
<td>Arizona</td>
<td>23.08</td>
<td>W</td>
<td>W</td>
<td>W</td>
<td>24.37</td>
</tr>
<tr>
<td>Nevada</td>
<td>W</td>
<td>25.40</td>
<td>30.00</td>
<td>30.10</td>
<td>23.99</td>
</tr>
<tr>
<td>Minnesota</td>
<td>18.57</td>
<td>19.02</td>
<td>21.32</td>
<td>21.97</td>
<td>21.66</td>
</tr>
<tr>
<td>Arkansas</td>
<td>W</td>
<td>18.80</td>
<td>18.95</td>
<td>20.82</td>
<td>21.47</td>
</tr>
<tr>
<td>Oklahoma</td>
<td>14.30</td>
<td>19.02</td>
<td>18.50</td>
<td>18.90</td>
<td>21.03</td>
</tr>
<tr>
<td>Texas</td>
<td>14.70</td>
<td>15.11</td>
<td>20.93</td>
<td>21.25</td>
<td>20.11</td>
</tr>
<tr>
<td>Illinois</td>
<td>15.81</td>
<td>15.44</td>
<td>16.35</td>
<td>16.52</td>
<td>19.14</td>
</tr>
<tr>
<td>Missouri</td>
<td>15.76</td>
<td>13.43</td>
<td>14.52</td>
<td>17.06</td>
<td>18.54</td>
</tr>
<tr>
<td>Kansas</td>
<td>14.40</td>
<td>13.81</td>
<td>14.75</td>
<td>18.03</td>
<td>18.40</td>
</tr>
<tr>
<td>Nebraska</td>
<td>8.62</td>
<td>10.41</td>
<td>11.28</td>
<td>11.95</td>
<td>14.35</td>
</tr>
<tr>
<td>Colorado</td>
<td>12.01</td>
<td>11.94</td>
<td>11.92</td>
<td>12.73</td>
<td>13.23</td>
</tr>
<tr>
<td>Iowa</td>
<td>10.78</td>
<td>10.20</td>
<td>10.50</td>
<td>10.80</td>
<td>10.97</td>
</tr>
<tr>
<td>Wyoming</td>
<td>7.14</td>
<td>5.87</td>
<td>5.40</td>
<td>5.57</td>
<td>5.71</td>
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<td>Alabama</td>
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<td>W</td>
<td>W</td>
<td>W</td>
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<td>Florida</td>
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<td>—</td>
<td>—</td>
<td>—</td>
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</tr>
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<td>Georgia</td>
<td>W</td>
<td>W</td>
<td>W</td>
<td>W</td>
<td>—</td>
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<tr>
<td>Kentucky</td>
<td>24.52</td>
<td>W</td>
<td>W</td>
<td>W</td>
<td>W</td>
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<td>Louisiana</td>
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<td>Maryland</td>
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<td>W</td>
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<td>W</td>
<td>W</td>
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<td>Oregon</td>
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<td>W</td>
<td>W</td>
<td>W</td>
<td>W</td>
</tr>
<tr>
<td>South Dakota</td>
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<td>W</td>
</tr>
<tr>
<td>West Virginia</td>
<td>—</td>
<td>W</td>
<td>W</td>
<td>—</td>
<td>W</td>
</tr>
</tbody>
</table>

Source: EIA 2014a

W = Withheld to avoid disclosure of individual company data
Table 2-9 compares the real average annual coal transportation costs from different coal supply regions to destination states by rail. With the exception of Tennessee, coal from the Powder River Basin has the highest rail transport costs to each state for which data are available.

Table 2-9. Real Average Annual Costs of Transporting Coal by Rail from Supply Regions to Destination States
in 2012 dollars per ton

<table>
<thead>
<tr>
<th>Destination State</th>
<th>Coal Supply Region</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colorado</td>
<td>Powder River Basin</td>
<td>12.01</td>
<td>11.94</td>
<td>11.92</td>
<td>12.73</td>
<td>13.23</td>
</tr>
<tr>
<td>Illinois</td>
<td>Illinois Basin</td>
<td>W</td>
<td>W</td>
<td>W</td>
<td>W</td>
<td>11.55</td>
</tr>
<tr>
<td></td>
<td>Powder River Basin</td>
<td>15.81</td>
<td>15.44</td>
<td>16.35</td>
<td>16.52</td>
<td>19.14</td>
</tr>
<tr>
<td>Indiana</td>
<td>Illinois Basin</td>
<td>5.31</td>
<td>5.10</td>
<td>5.91</td>
<td>6.94</td>
<td>7.27</td>
</tr>
<tr>
<td></td>
<td>Northern Appalachia</td>
<td>20.80</td>
<td>16.94</td>
<td>17.26</td>
<td>19.35</td>
<td>W</td>
</tr>
<tr>
<td></td>
<td>Powder River Basin</td>
<td>25.79</td>
<td>21.72</td>
<td>21.08</td>
<td>30.66</td>
<td>30.11</td>
</tr>
<tr>
<td>Michigan</td>
<td>Central Appalachia</td>
<td>16.03</td>
<td>17.20</td>
<td>17.09</td>
<td>19.86</td>
<td>18.09</td>
</tr>
<tr>
<td></td>
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<td>W</td>
<td>W</td>
</tr>
<tr>
<td></td>
<td>Northern Appalachia</td>
<td>14.84</td>
<td>16.94</td>
<td>16.84</td>
<td>15.33</td>
<td>16.99</td>
</tr>
<tr>
<td></td>
<td>Powder River Basin</td>
<td>18.85</td>
<td>17.12</td>
<td>17.71</td>
<td>29.95</td>
<td>33.35</td>
</tr>
<tr>
<td>Ohio</td>
<td>Central Appalachia</td>
<td>20.77</td>
<td>12.45</td>
<td>10.65</td>
<td>13.12</td>
<td>W</td>
</tr>
<tr>
<td></td>
<td>Illinois Basin</td>
<td>W</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>Northern Appalachia</td>
<td>14.67</td>
<td>11.46</td>
<td>10.39</td>
<td>10.76</td>
<td>11.09</td>
</tr>
<tr>
<td></td>
<td>Powder River Basin</td>
<td>29.09</td>
<td>27.70</td>
<td>32.08</td>
<td>36.19</td>
<td>40.74</td>
</tr>
<tr>
<td>Tennessee</td>
<td>Central Appalachia</td>
<td>13.08</td>
<td>12.96</td>
<td>16.26</td>
<td>17.54</td>
<td>16.68</td>
</tr>
<tr>
<td></td>
<td>Illinois Basin</td>
<td>W</td>
<td>W</td>
<td>W</td>
<td>16.58</td>
<td>17.55</td>
</tr>
<tr>
<td></td>
<td>Powder River Basin</td>
<td>24.91</td>
<td>22.21</td>
<td>23.37</td>
<td>27.02</td>
<td>29.51</td>
</tr>
<tr>
<td></td>
<td>Uinta Basin</td>
<td>26.18</td>
<td>24.87</td>
<td>26.17</td>
<td>29.80</td>
<td>30.17</td>
</tr>
</tbody>
</table>

Source: EIA 2014a

W = Withheld to avoid disclosure of individual company data

EIA sounds a note of caution regarding the data in Table 2-7, Table 2-8, and Table 2-9 (EIA 2014a):

Nonetheless, the ability of EIA’s Coal Waybill Data to accurately estimate coal transportation rates on a state-to-state (or coal basin-to-state) basis is related in large part to the number of waybills used to calculate an average rate along a particular route (i.e., the sample size for that particular origin and destination). This means that users should exercise caution when interpreting the significance of state-to-state (or basin-to-state) rates when the rate was calculated using a relatively small sample. In addition, when examining rate trends over a multiple-year period, users typically can be more confident of results when there are large sample sizes for each of the years studied. The same caution should be exercised when comparing the results of one origin-destination pair to another, whether it is on a state-to-state or coal basin-to-state basis.
Rail is expected to continue to transport the vast majority of the coal to distant power-generation plants. In addition to the coal it exported to domestic customers in 2013, Wyoming exported 3 million tons of coal to international customers (Wyoming State Geological Survey 2014d). The connectivity of Wyoming’s rail infrastructure to ports that handle coal is vital if Wyoming is to satisfy foreign demand for its coal. Figure 2-5 illustrates Union Pacific Railroad’s rail network relative to West Coast ports and river terminals that serve barge services operating on the Mississippi River.

Korean and Japanese companies already import Wyoming coal, but other Asian countries as well as those in Europe could prove to be future customers, so access to both U.S. coasts is necessary. Coal destined for Asia is currently shipped via Vancouver, British Columbia, Canada. Future port developments that could provide export capacity for Wyoming coal include Longview, Washington, on the Columbia River and the Strait of Georgia between Vancouver Island and mainland British Columbia.

Figure 2-5. Union Pacific Railroad Rail Network and Relationship with Ports and Terminals

![Map of Union Pacific Railroad rail network and relationship with ports and terminals.](image)

Source: Union Pacific Railroad 2014

Not all of Wyoming’s coal is exported from the state. Wyoming has several coal-fired power plants, which in 2013 consumed 25 million tons of coal, and four coal-processing facilities. Eighty-nine percent of Wyoming’s electricity is generated by coal (EIA 2015b). The power plants were initially sited to take advantage of the close proximity to their fuel source—an adjacent coal mine—and to use conveyors from the mine to supply coal to
the plant. This method is still in use today, though some neighboring mines, such as the one adjacent to the Dave Johnston power plant, are exhausted, and the plants now rely on rail to move coal from other Wyoming mines.

### 2.3.1.2 Petroleum (Crude Oil and Refined Products)

Within the United States, the primary uses of oil are for transportation or home heating, though a very small amount is used to fuel electricity-generating plants (USEPA 2013). In 2013, 63 million barrels of oil were extracted from 11,196 oil-producing wells in Wyoming. Wyoming accounts for 2 to 3 percent of U.S. crude oil production (Petroleum Association of Wyoming 2014).

Since 2009, Wyoming’s crude oil production has been increasing in volume (Table 2-10). This increase is largely due to advances in drilling and extraction technology, such as hydraulic fracturing and the use of carbon dioxide (CO\(_2\))-enhanced oil-recovery techniques that can be used to exploit fields that previously were not economically viable. These new techniques have changed the face of U.S. domestic oil and natural gas production. The increase in internal production of crude oil in the United States due to the ability to extract tight oil, including from Wyoming, is expected by EIA to lead to a decreased reliance on imported petroleum and thus to a net reduction in U.S. petroleum imports over time (EIA 2014b).

#### Table 2-10. Wyoming Field Production of Crude Oil

<table>
<thead>
<tr>
<th>Decade</th>
<th>Year 0</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
<th>Year 6</th>
<th>Year 7</th>
<th>Year 8</th>
<th>Year 9</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980s</td>
<td>—</td>
<td>130,563</td>
<td>118,300</td>
<td>118,303</td>
<td>124,269</td>
<td>128,514</td>
<td>121,337</td>
<td>115,267</td>
<td>113,985</td>
<td>107,715</td>
</tr>
<tr>
<td>1990s</td>
<td>103,856</td>
<td>99,928</td>
<td>96,810</td>
<td>87,667</td>
<td>79,528</td>
<td>78,884</td>
<td>73,365</td>
<td>70,176</td>
<td>64,782</td>
<td>61,126</td>
</tr>
<tr>
<td>2000s</td>
<td>60,726</td>
<td>57,433</td>
<td>54,801</td>
<td>52,970</td>
<td>51,940</td>
<td>51,768</td>
<td>52,973</td>
<td>54,115</td>
<td>53,044</td>
<td>51,532</td>
</tr>
<tr>
<td>2010s</td>
<td>53,116</td>
<td>54,649</td>
<td>57,837</td>
<td>63,372</td>
<td>75,440</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

*Source: EIA 2015c*

This production increase has also been accompanied by an increase in crude oil shipments by rail. In support of these new techniques and the resources available in Wyoming, permits have been issued for several new crude oil facilities across the state. Many of these facilities will support the movement of oil in unit trains via the Wyoming state rail network.

By 2014, six oil rail transloading facilities were planned or in operation in Wyoming. One facility, at Casper, has been designed to move crude oil produced in Canada because the inbound Express Pipeline from Canada to Casper operates at 280,000 barrels per day capacity, but the Platte Pipeline linking Casper to refining markets in the Midwest operates at 160,000 barrels per day capacity (Storrow 2014). The rail transloading facilities are also operating in the truck-to-rail market, where crude is collected from the well head areas by truck and transported to transloading facilities for onward movement by rail. The proposed Eighty-Eight Oil facility in Fort Laramie will be the first rail transloading facility that can accommodate multiple types of crude, including oil from the Williston Basin (Bakken Shale), Powder River Basin (Niobrara Shale), southwest Wyoming, Big Horn Basin, and Canada. The facility will be a multimodal facility that ties into the existing Eighty-Eight Oil pipeline infrastructure. This pipeline receives crude from the Butte, Belle Fourche, Platte, and Rocky Mountain pipelines.
Not all of Wyoming’s crude oil is exported. Some of it is processed at the state’s six refineries (Table 2-11), which have a combined capacity to process 166,300 barrels of oil per day (EIA 2014c).

Table 2-11. Crude Oil Refineries in Wyoming

<table>
<thead>
<tr>
<th>Refinery</th>
<th>Location</th>
<th>Barrels per Calendar Day</th>
<th>Products</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frontier Refining</td>
<td>Cheyenne</td>
<td>47,000</td>
<td>Gasoline, diesel</td>
</tr>
<tr>
<td>Garco Energy, LLC</td>
<td>Douglas</td>
<td>3,800</td>
<td>Diesel</td>
</tr>
<tr>
<td>Little America Refining</td>
<td>Evansville</td>
<td>24,500</td>
<td>Diesel</td>
</tr>
<tr>
<td>Silver Eagle Refining</td>
<td>Evanston</td>
<td>3,000</td>
<td>Diesel</td>
</tr>
<tr>
<td>Sinclair Wyoming Refining</td>
<td>Sinclair</td>
<td>74,000</td>
<td>Kerosene/jet fuel, diesel, heavy gas oil</td>
</tr>
<tr>
<td>Wyoming Refining Co.</td>
<td>Newcastle</td>
<td>14,000</td>
<td>Diesel</td>
</tr>
</tbody>
</table>

Source: EIA 2014c

The majority of the refined products are destined for the local and surrounding markets, so trucks are typically the mode most used to distribute fuel from the refineries to storage and distribution facilities across the state. Trucks are also used to distribute fuel to end users, such as the state’s 347 motor gasoline stations (EIA 2015b). Two pipelines transport refined products out of the state: the Pioneer Pipeline, which runs 305 miles from Sinclair, Wyoming, to North Salt Lake, Utah, and the 550-mile Rocky Mountain Pipeline.
2.3.1.3 Natural Gas

In 2013, Wyoming accounted for 7.4 percent of the U.S. marketed natural gas production, and in 2013 Wyoming was ranked 5th in state rankings for natural gas production, producing 1,858,207 million cubic feet (EIA 2015b). Wyoming exports the vast majority of its natural gas, since the state’s consumption is not significant and has not changed over time compared to the production of natural gas in the state. The majority of pipelines link Wyoming’s gas-production centers with end users in the Midwest and on the West Coast. In 2013, 24,981 wells in Wyoming produced natural gas (Petroleum Association of Wyoming 2014).

In 1995, Wyoming’s natural gas reserves were estimated to be 12 trillion cubic feet (Tcf). By 2011, the previous 15 years of production had amounted to 20 Tcf. In 2011, Wyoming’s natural gas reserves were estimated to be 35 Tcf (Wyoming Pipeline Authority 2011). The reason for this large increase in estimated reserves is that increased market prices for natural gas, combined with the use of technology such as drilling multiple wells from single sites, horizontal drilling, and hydraulic fracturing, allowed natural gas extractors to increase the efficiency of their extraction operations and access reserves that previously were not discovered or were not thought to be extractable at market prices.

Table 2-12. Gross Withdrawals of Natural Gas in Wyoming

<table>
<thead>
<tr>
<th>Decade</th>
<th>Year 0</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
<th>Year 6</th>
<th>Year 7</th>
<th>Year 8</th>
<th>Year 9</th>
</tr>
</thead>
<tbody>
<tr>
<td>1960s</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>257,965</td>
<td>283,916</td>
<td>342,998</td>
</tr>
<tr>
<td>1970s</td>
<td>365,502</td>
<td>392,011</td>
<td>391,847</td>
<td>376,992</td>
<td>344,555</td>
<td>326,238</td>
<td>336,833</td>
<td>345,042</td>
<td>372,310</td>
<td>440,014</td>
</tr>
<tr>
<td>1980s</td>
<td>450,553</td>
<td>455,353</td>
<td>465,143</td>
<td>539,774</td>
<td>600,138</td>
<td>597,896</td>
<td>596,978</td>
<td>733,478</td>
<td>810,753</td>
<td>865,961</td>
</tr>
<tr>
<td>1990s</td>
<td>883,713</td>
<td>978,478</td>
<td>1,036,817</td>
<td>1,022,602</td>
<td>1,070,862</td>
<td>1,100,113</td>
<td>1,090,549</td>
<td>1,153,115</td>
<td>1,161,447</td>
<td>1,200,238</td>
</tr>
<tr>
<td>2000s</td>
<td>1,326,042</td>
<td>1,634,987</td>
<td>1,747,476</td>
<td>1,836,115</td>
<td>1,929,040</td>
<td>2,003,826</td>
<td>2,111,766</td>
<td>2,257,884</td>
<td>2,488,267</td>
<td>2,536,336</td>
</tr>
<tr>
<td>2010s</td>
<td>2,514,657</td>
<td>2,375,301</td>
<td>2,225,622</td>
<td>2,047,757</td>
<td>1,990,550</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

Source: EIA 2015d

Production appears to have peaked in 2010. Since then, volumes have steadily declined, mainly due to lower market prices and the depletion of existing fields. However, new developments are expected to increase production in the short term. Seventeen oil and gas projects are expected to be developed between 2014 and 2018 with 23,000 wells (Wyoming State Geological Survey 2014e).

Pipelines remain the optimum way to get natural gas to markets. Figure 2-6 below illustrates the volumes of natural gas moving through the United States in 2007 according to the FAF (FHWA 2007).
2.3.1.4 Other Mineral and Resource Operations

*Clay, Concrete, Glass, and Stone Products*

Bentonite is dense clay with unique chemical properties that allows it to swell up to 18 times its original dry mass when it is saturated by water. Its primary ingredient, hydrous silicate of alumina, attracts and retains water molecules to its negatively charged side, which accounts for this unusual phenomenon. The clay is named after the Benton Formation in Wyoming where it was first commercially discovered. Major exploitation and processing of the material began in the 1920s.

In the early years of production, it was used as a sealant and in the manufacture of foundry molds, cosmetics, and drilling mud. In subsequent years, it was discovered to be an effective binder with a low-grade iron ore known as taconite and was mixed together to form small pellets which allowed efficient transportation of taconite from mines to steel mills via rail and ship. Wyoming has about 70 percent of the world’s known supply of this clay and is the number 1 bentonite-producing state in the United States.
According to data from USGS (2011), bentonite produced in the United States was used in the following manner: 30 percent for absorbents, 26 percent for drilling mud, 13 percent for iron ore pelletizing, 12 percent for foundry sand bonds and castings, and 19 percent for miscellaneous uses including animal feed, groundwater control, sealing agents, and the manufacture of cat litter and cosmetics.

In 2013, Wyoming produced just over 4 million tons of bentonite (Wyoming Mining Association 2015b), and the industry was expected to boom since the material is a building block in the consumer goods market as well as the surging domestic oil industry. Principal bentonite-producing areas are located in north-central and northeastern Wyoming in Big Horn, Crook, Hot Springs, Johnson, Natrona, Washakie, and Weston Counties. BNSF Railway and Canadian Pacific Railway serve the bentonite-production areas and handle this rail traffic out of Wyoming.

**Trona and Soda Ash**

The largest trona deposits in the world, estimated to be as voluminous as 127 billion tons, are found in Wyoming. Over 40 separate trona beds are located in Wyoming, predominantly in Sweetwater County in the southwestern corner of the state. These sodium-rich deposits were created about 50 million years ago from volcanic ash and minerals left behind as sediment when ancient Lake Gosiute, covering 15,000 square miles of Wyoming’s Green River Basin, evaporated. Trona was first mined in the state in 1947, and in 2013 four mines were operational in the state. Figure 2-7 below shows the location of trona deposits.

After mining, trona ore is processed into sodium carbonate or soda ash (about 1.5 pounds of trona yield 1 pound of soda ash). According to data from USGS (2011), 90 percent of U.S. soda ash is produced in Wyoming, and, of that volume, 48 percent is used in glass production, 29 percent in chemical manufacturing, 10 percent to make soaps and detergents, 5 percent for distributors, 4 percent for flue gas desulfurization, 2 percent for pulp and paper, and 2 percent for miscellaneous uses, including water treatment. According to the Wyoming Mining Association (2015c), the state produced nearly 16.3 million tons of trona in 2013, about half of which was exported to international markets. About 95 percent of Wyoming’s soda ash rail traffic is handled by Union Pacific Railroad, whose mainlines overlay the primary trona production areas.
Figure 2-7. Trona Deposits and Mines in Wyoming


Sulfur

Sulfur is obtained from various sources, primarily during the processing of natural gas and refining of crude oil. USGS, which produces an annual yearbook, reports that global demand for sulfur, which is used in fertilizer production and myriad other industrial uses, remains strong. Its major derivative, sulfuric acid, is one of the most important industrial materials. In 2011, 649,000 metric tons (715,198 short tons) of sulfur were shipped from Wyoming (USGS 2011).

The principal sulfur-producing counties in Wyoming are Carbon, Fremont, Laramie, Lincoln, Natrona, Park, Sweetwater, and Uinta Counties. Nearly all of the sulfur produced in Wyoming is transported by rail.
2.3.1.5 Logistics Associated with Mineral Extraction Operations

Although most of the transportation infrastructure associated with mineral extraction is focused on moving the extracted product, some of the overall supply chain is associated with supplying and sustaining the extraction operation itself. For example, a Bakken drilling rig consumes 1,500 gallons of diesel a day. Other material flows associated with extraction operations include:

- Moving plants and machinery, including over-dimensional loads
- Drilling operations, including:
  - Supply of drill pipe
  - Products for fracking operations including water, sand, and chemicals
- Establishing the site, including facilities and infrastructure
- Supplying fuel and lubricants for mineral extraction equipment, including fuel consumed in drill rigs and excavation and transport equipment
- Supplying spares and replacement equipment
- Removing drilling and rig equipment once drilling operations are complete

A report to the Texas Transportation Commission (2012) identified the following loaded truck movements associated with the development and operation of an individual gas/oil well:

- Bring well into production: 1,184
- Maintain production (each year): up to 353
- Refracturing (every 5 years): 997

Figure 2-8 below shows the number of truck trips associated with establishing a typical drilling operation in the Manitoba, Canada, region.
Before the products are transported onto the drilling areas, they are typically staged or consolidated in hubs or logistics centers located close to the drilling area of operations. Some companies intend to use multimodal facilities where incoming products can be transported by both rail and truck, stored, and then moved onward to the extraction and production facilities. One example is Univar, a chemical company, which has built a 24,000-square-foot rail-served facility in Cheyenne to support the oil and gas sector.
2.3.2 Agriculture

Wyoming’s agricultural products are produced by 11,500 farms using 30.2 billion acres. Livestock, especially cattle, dominate the Wyoming agriculture sector. In 2013, the total value of livestock produced in Wyoming was $833 million, with cattle accounting for $706 million of the total. The total value of crops produced in Wyoming was $520 million, with hay accounting for $390 million, sugar beets $53 million, and barley $38 million of the total. In 2012, Wyoming’s agricultural product exports amounted to $457 million, or 27 percent of Wyoming’s farm receipts, with beef and veal accounting for the largest export product at $82 million, while grain products accounted for $18 million (USDA-FAS 2014). Figure 2-9 through Figure 2-12 illustrate the main crop-producing counties (USDA-NASS 2014).

Figure 2-9. Alfalfa Hay–Producing Counties
Figure 2-10. Other Hay-Producing Counties
Figure 2-11. Sugar Beet–Producing Counties
Rail is typically used for long-haul movements of grain and accounts for 40 percent market share of Wyoming’s grain transportation (Transportation Research Forum 2013). There are 20 rail-served grain elevators on the Wyoming rail network, predominantly in the eastern part of the state. However, the road network is the primary means to move agricultural products. This road network links farmers and ranchers with the different elements of the supply chain, including markets such as the Torrington Livestock Markets, which sells up to 19,000 head of cattle per week (Torrington Livestock Markets 2015), and processing centers, including the Lovell and Torrington sugar factories, that prepare products for eventual sale in the nation’s retail outlets and restaurants.
2.3.3 Timber and Forestry

The information in this section is summarized from the U.S. Forest Service report *Wyoming’s Forest Products Industry and Timber Harvest* (USFS 2010).

Wyoming’s timber harvest in 2010 was about 5,872 thousand cubic feet (MCF), exclusive of bark. Ninety-four percent of timber went as logs to sawmills. Sawmills received 5,508 MCF of logs and produced 2,407 MCF of finished lumber, while 54 percent of the volume delivered to sawmills became mill residue. Nearly all the residue generated from sawmills was shipped to other facilities to be used as fuel or processed into another product.

In 2010, the following 29 primary wood-processing facilities operated in Wyoming:

- 12 sawmills
- 7 post and pole producers
- 3 log home manufacturers
- 2 log furniture manufacturers
- 5 other wood products facilities

Five sawmills accounted for 98 percent of Wyoming’s lumber production in 2010.

The estimated capacity for processing timber in Wyoming during 2010 was 137 million board feet (MMBF) Scribner. Wood-processing facilities in the state used about 32 percent of processing capacity in 2010, processing 44 MMBF of timber.

Wyoming both imports and exports timber. In 2010, imported timber amounted to 64 percent of the material received by Wyoming’s mills, while 50 percent of Wyoming’s grown timber was exported. Wyoming imported 29.8 MMBF of timber from other states and exported 16.7 MMBF, making Wyoming a net importer of 13.1 MMBF of timber during 2010 (Table 2-13). South Dakota, followed by Utah and Montana, imported the largest amounts of timber.

<table>
<thead>
<tr>
<th>Timber Product</th>
<th>Imports</th>
<th>Exports</th>
<th>Net Imports</th>
</tr>
</thead>
<tbody>
<tr>
<td>Saw logs</td>
<td>29,213</td>
<td>16,725</td>
<td>12,488</td>
</tr>
<tr>
<td>Post and pole</td>
<td>458</td>
<td>—</td>
<td>458</td>
</tr>
<tr>
<td>House logs</td>
<td>160</td>
<td>—</td>
<td>160</td>
</tr>
<tr>
<td><strong>All products</strong></td>
<td><strong>29,831</strong></td>
<td><strong>16,725</strong></td>
<td><strong>13,106</strong></td>
</tr>
</tbody>
</table>

*Source: USFS 2010*

---

6 *Scribner* is short for *Scribner Log Rule*. A log rule is the basis for a table of values from which the volume of a log can be expressed in the desired unit of measure.
Just over 50 percent of Wyoming’s 2010 timber harvest went to other states for processing, with Montana receiving nearly 60 percent of the exported timber and the remainder going to South Dakota. This movement of timber across Wyoming state lines is not surprising given the location of timber sources and processing centers near the periphery of the state.

Figure 2-13 shows the locations of Wyoming’s wood-processing facilities. Further data to support the distribution of Wyoming’s timber products are provided in Table 2-14 below.

**Figure 2-13. Locations of Wyoming’s Primary Wood Products Manufacturers, 2010**

![Map showing the locations of Wyoming’s primary wood products manufacturers, 2010.](Source: USFS 2010)
Table 2-14. Destination and Sales Value of Wyoming’s Primary Wood Products, 2010
in thousands of dollars

<table>
<thead>
<tr>
<th>Type of Wood Product</th>
<th>Wyoming</th>
<th>Rockies</th>
<th>Far West</th>
<th>North Central</th>
<th>North East</th>
<th>South</th>
<th>Pacific Rim</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lumber, timbers, and associated products</td>
<td>1,463</td>
<td>5,686</td>
<td>446</td>
<td>12,770</td>
<td>871</td>
<td>1,917</td>
<td>1,046</td>
<td>24,200</td>
</tr>
<tr>
<td>House logs and log homes</td>
<td>605</td>
<td>92</td>
<td>92</td>
<td>152</td>
<td>92</td>
<td>92</td>
<td>—</td>
<td>1,126</td>
</tr>
<tr>
<td>Other finished products</td>
<td>1,208</td>
<td>1,428</td>
<td>423</td>
<td>584</td>
<td>27</td>
<td>155</td>
<td>—</td>
<td>3,824</td>
</tr>
<tr>
<td>All primary wood products</td>
<td>3,276</td>
<td>7,207</td>
<td>961</td>
<td>13,506</td>
<td>991</td>
<td>2,164</td>
<td>1,046</td>
<td>2,915</td>
</tr>
</tbody>
</table>

Source: USFS 2010

Rockies (Rocky Mountains) includes Arizona, Colorado, Idaho, Nevada, New Mexico, Utah, and Montana.

Far West includes Alaska, California, Hawaii, Oregon, and Washington.

North Central includes Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin.


South includes Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia.

Other finished products include posts, poles, log furniture, wood pellets, and firewood.

Trucking dominates the movement of Wyoming’s timber and wood products. Trucks are the vital component that transport harvested timber from production areas to processing centers and then onward to markets. An analysis of FAF data confirms the domination of trucking in this particular sector (Table 2-15).

Table 2-15. Modal Share of Wood Products to and from Wyoming, 2011
in percent (%)

<table>
<thead>
<tr>
<th>Movement</th>
<th>Truck</th>
<th>Rail</th>
<th>Multiple Modes and Mail</th>
<th>Other and Unknown</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inbound to Wyoming</td>
<td>97.5</td>
<td>0.4</td>
<td>1.4</td>
<td>0.6</td>
</tr>
<tr>
<td>Outbound from Wyoming</td>
<td>97.8</td>
<td>0.6</td>
<td>0.7</td>
<td>0.9</td>
</tr>
</tbody>
</table>

Source: USFS 2010

As shown in Table 2-15 above, rail’s share is small by comparison. It appears to be concentrated on the movement of finished timber products. An example of a rail-served timber facility is the Wood Works, Inc., facility in Cheyenne.
2.3.4 Warehousing and Logistics

Warehouses associated with non-energy uses are also being developed in Wyoming. Several factors make Wyoming an attractive location for warehousing/distribution and logistics facilities, including proximity to a sizeable consumer market as well as land availability, labor availability, low energy costs, and access to rail and highway networks.

In 2002, Lowe’s, a home improvement retailer, opened a 1.2-million-square-foot, 425-employee regional distribution center (RDC) in Cheyenne (Figure 2-14).

Figure 2-14. Aerial View of Lowe’s Regional Distribution Center in Cheyenne
This warehouse was the eighth RDC for Lowe’s, whose RDC network now includes 15 locations across the United States (Figure 2-15). The facility receives products from suppliers; the products are then stored and sorted for onward distribution to the company’s central and western U.S. stores by road.

Figure 2-15. Lowe’s RDC Network
Walmart has also opened an 890,000-square-foot, full-line grocery RDC in Cheyenne (Figure 2-16). This type of facility is used to store, sort, and distribute dairy, dry grocery, meat, produce, and frozen products to stores. The facility includes a building for perishables and a building for dry groceries.

**Figure 2-16. Aerial View of Walmart RDC, Cheyenne**

In addition to the Lowe’s and Walmart warehouses, a number of industrial and business parks are establishing themselves as hubs for logistic activities and developments. Examples include:

- Casper Logistics Hub, which consists of 700 acres of industrial land and the CTRAN rail yard. It is adjacent to BNSF Railway’s Class I rail line and I-25.
- Salt Creek Heights Business Park, a 135-acre industrial location outside Casper.
- Swan Ranch Rail Park, a 550-acre industrial facility located near the I-80/I-25 interchange south of Cheyenne. The rail park has access to both the BNSF Railway and Union Pacific Railroad rail lines.

Not surprisingly, these industrial parks are attracting companies that support the oil and gas industry. Examples include suppliers and manufacturers of oil and gas equipment, chemicals, pipes, and steel tubing. Access to the rail network is considered important in these companies’ site-selection process because some elements of their supply chain might rely on rail, whether used for inbound or outbound movements.
2.4 Analysis of Key Industry Supply Chains

Mineral extraction production volumes are affected by many factors including market pricing (and competition from competing fuel sources), improvements in extraction technology, and external dynamics such as environmental regulations. Currently, in Wyoming, coal and natural gas production volumes are decreasing, but oil production volumes are increasing (Figure 2-17).

Figure 2-17. Actual and Forecasted Oil and Gas Production in Wyoming, 2000–2018


This switch in volume and product mix is leading to a repurposing of some infrastructure, such as the development of the Black Thunder oil transloading facility on a coal mine and sharing elements of existing railhead infrastructure. Another example is the proposed conversion of the Pony Express Pipeline from natural gas to oil. Although some repurposing of facilities is possible, a like-for-like switch is unlikely. Costs might be prohibitive, or the existing transport network might not link the producing area to the specific product market.

Changes to mineral extraction technology are leading to the movement of other commodities that directly support the extraction process, such as CO₂, sand, and chemicals used for hydraulic fracturing (fracking). Transport systems are being planned and developed to support this change, such as the permitting process that would allow accelerated construction of CO₂ pipelines.

There is also significant movement of raw material on an intrastate basis. Coal is used to fuel Wyoming’s power stations; crude oil flows to Wyoming refineries, whose refined products are consumed within the state.
and also exported; timber is destined for both Wyoming and neighboring-state sawmills; and agricultural products, especially cattle, are marketed, sold, and processed within the state.

Privately owned infrastructure, namely rail lines and pipelines, are the mode of choice for moving raw materials in bulk form to markets. The development of new, rail-served industrial parks allows manufacturers and suppliers who serve the oil, gas, and mining industries to locate in Wyoming and benefit from rail access.

Although the rail-pipeline network is the dominant mode for moving extracted material, the road network is vital for moving the materials and machinery that are necessary to sustain mining and extraction operations. Trucking is also the dominant transport mode in the agricultural and timber sectors.

Wyoming’s location and access to transportation infrastructure, in addition to other advantages such as the labor market and energy costs, have attracted two major national retailers who have located substantial RDCs in Cheyenne. However, the logistics sector in Wyoming appears to be dominated by companies that are supporting the oil, gas, and mining sectors.

2.5 Commodity Flow and Movement

A clear picture of the freight network starts with the overall commodity movements, including all modes and all directions. This report uses the Freight Analysis Framework (FAF) database as the basis for commodity and modal freight movements (FHWA 2007). The FAF is developed based on the Commodity Flow Survey (CFS) sample that is developed by the U.S. Department of Transportation (USDOT). The CFS is undertaken through a partnership between the U.S. Census Bureau and USDOT’s Bureau of Transportation Statistics. The CFS is conducted every 5 years (in years ending in 2 and 7) as part of the U.S. Census Bureau’s Economic Census.

The current FAF data (version 3.4) are based on the 2007 CFS, since the final 2012 CFS data have not yet been released. FAF version 3.4 provides information on the value, weight, mode, and direction of shipments from manufacturing, mining, wholesale, and selected retail and service establishments for 2007 and provides forecasts for this information in 5-year increments from 2015 through 2040. FAF version 3.4 also contains provisional freight data for 2011. The FAF data are provided at the two-digit Standard Classification of Transported Goods (SCTG) level for all freight that has an origin, destination, or both in any particular state. For a listing of example commodities included in each SCTG category, see Appendix A, SCTG Commodity Categories and Definitions.

Note that two key commodities are discussed in this report: coal (SCTG 16) and coal and petroleum products (SCTG 19). Coal (SCTG 16) includes all primary coal: non-agglomerated bituminous coal, non-agglomerated anthracite, non-agglomerated lignite, and agglomerated coal (including briquettes). Coal and petroleum products (SCTG 19) is a broader category that includes products of coal and petroleum that do not fit into other classification categories. These products include other coal products and products of petroleum refining, and natural asphaltic minerals not elsewhere classified; refined petroleum oils and oils obtained from bituminous minerals; coke and semi-coke of coal, lignite, or peat and retort carbon; liquefied natural gas; lubricating oils and greases; liquefied propane; liquefied butane; other liquefied gaseous hydrocarbons; gaseous hydrocarbons in a gaseous state; petroleum coke; petroleum asphalt; and bituminous mixtures based on natural asphalt, natural bitumen, petroleum asphalt, mineral tar, or mineral-tar pitch, and tared
macadam. Although this is category includes commodities other than coal products, the data do not allow analysis at a greater level of detail, so totals for the whole category are considered.

The FAF is the primary source of all commodity-related data and forecasts in this report. Supplemental changes to the forecasts were made for key industries based on information in EIA’s *Annual Energy Outlook 2014* (EIA 2014b). These changes are generally due to improvements in resource mining since the last CFS was undertaken.

Tonnage is one measure of freight movement; value is another. The division of value moved by freight in Wyoming is slightly different than that of tonnage. According to the FAF, more than 633 million tons of freight had an origin, destination, or both in Wyoming in 2011. The vast majority of this freight, 76 percent, was coal. When including other forms of coal (SCTG 19), coal or its products accounted for more than 85 percent of all Wyoming freight movements. The vast majority, 448 million tons, was moved by rail, with the largest share of this freight originating in Wyoming and moving to destinations outside the state. Beyond coal and coal and petroleum products, the next-largest share of freight moved into, out of, or within Wyoming was basic chemicals, which accounted for about 4.4 percent of all freight. No other commodities accounted for more than 2 percent of all movements.

Because coal, a commodity that is not time-sensitive in its delivery, is so dominant in Wyoming and because rail shipping costs are often lower than for trucks, a significant share of all freight in Wyoming is shipped by rail. Figure 2-18 shows that about 75 percent of all freight in Wyoming uses rail transport. In contrast, the United States as a whole ships only slightly more than 10 percent of its freight by rail. Wyoming also ships a slightly larger percentage of its freight by pipeline than does the rest of the nation.

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Basic chemicals, as defined by the SCTG manual, include inorganic and organic chemicals such as caustic soda, caustic potash, hydrogen gases, sodium or potassium compounds, cyclic hydrocarbons, acyclic alcohols, phenols, and organic acids, among others. Additional details regarding the SCTG codes are provided in Appendix A, SCTG Commodity Categories and Definitions.
In total, 17.4 billion tons of freight were shipped in the United States in 2011, of which 11.9 billion, or 68 percent, were shipped by truck and 2.1 billion tons, or 12 percent, were shipped by rail. Wyoming does not follow the same pattern of modal movement as the country as a whole, instead being dominated by rail movement, with the 472 million tons moved by rail accounting for 74 percent of all freight movements.

In terms of the value of goods shipped, trucks and pipelines moved the largest share of value in Wyoming, accounting for 44 percent and 34 percent of all value, respectively, or a total of $59 billion of the $75.5 billion total value of Wyoming-related shipments. In contrast, the United States as a whole is heavily dominated by truck movements, which accounted for 73 percent of the $16.7 trillion of value moved in 2011. Figure 2-19 compares the share of value moved by mode in the United States and Wyoming.
Figure 2-19. Modal Share by Value for All Modes and All Directions in the United States and Wyoming, 2011

Source: FHWA 2011, provisional data

Figure 2-19 below shows the total tonnage moved in each direction—into Wyoming, out of Wyoming, and within Wyoming—for each mode. Figure 2-19 shows that the vast majority of Wyoming freight was outbound freight moved by rail—more than 442 million of the 633 million tons moved in 2011, or 70 percent. Most of this freight was coal. The movement with the next-largest share was 9.7 percent, or 61.7 million tons of freight, moved outbound by pipeline. This information clearly shows that Wyoming is a net exporter of freight, with 83 percent of all tonnage leaving the state, 13.7 percent traveling within the state, and only 3.5 percent moving inbound.
Figure 2-20. Total Tonnage by Mode and Direction in Wyoming, 2011

Aggregated, the majority of value, 44 percent or $33 billion, was moved by truck (Figure 2-21). Of this, $14.6 billion was freight moving within Wyoming, $12.5 billion was freight entering Wyoming, and $6.3 billion was freight leaving Wyoming.\(^8\)

Though trucking accounted for the overall largest share of freight value, pipelines accounted for the largest single share, a value of nearly $22 billion. This is 57 percent of outbound freight value and 29 percent of total freight value. Additional details regarding the various commodities moved in each direction are provided in Section 2.5.1 below.

\(^8\) Note that the value of commodities includes only those movements that originate, terminate, or both within Wyoming. Therefore, this underestimates the total value of product that depends on the infrastructure maintained in Wyoming to reach its final destination.
2.5.1 Direction-Specific Wyoming Commodity Flows

2.5.1.1 Outbound Movements – All Modes

In 2011, a total of 524 million tons of freight originated in Wyoming and were exported out of the state (Figure 2-22 below). The vast majority of this freight was coal that was mined in Wyoming and moved by rail to its ultimate destination. Coal accounted for 82 percent of all outbound freight, or 429.6 million tons. Of this, more than 422 million tons were moved by rail. Rail movements accounted for 84 percent of all freight movements, and the 422 million tons of coal accounted for more than 95 percent of the 442 million rail-tons shipped from Wyoming. The top five destinations for outbound coal moved by rail were Texas, Illinois, Missouri, Kansas, and Oklahoma.

Pipeline was the second-most-used mode for shipments originating in Wyoming, accounting for nearly 62 million tons, or 11.8 percent of the total. The vast majority of freight moving by pipeline, 52 million tons, was in the FAF category of “other coal and petroleum products,” which includes refined petroleum, liquefied natural gas, liquefied propane, lubricating oils and greases, and other refined petroleum oils. In 2011, only two other commodities were moved out of Wyoming by pipeline: 7.6 million tons of crude petroleum and 1.8 million tons of basic chemicals.

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This is SCTG Category 19. For more information, see Section 2.5, Commodity Flow and Movement.
Truck freight movements accounted for less than 3 percent (about 14 million tons) of all tonnage originating in Wyoming. The five largest commodities exported by truck were basic chemicals, cereal grains, fertilizers, coal, and petroleum products.

**Figure 2-22. Outbound Tonnage from Wyoming by Mode, 2011**

in thousands of tons

![Bar chart showing outbound tonnage from Wyoming by mode in 2011](image)

*Source: FHWA 2011, provisional data*
The majority of the value of freight originating in Wyoming and traveling outbound is associated with pipeline movements (Figure 2-23). In 2011, pipelines accounted for 57 percent of all outbound freight movements, or $21.8 billion. This is mostly attributable to the movement of coal and petroleum products (SCTG 19). Rail and trucks each moved about 17 percent of all outbound freight value, more than $6 billion each. In terms of overall value of rail freight, coal accounted for more than $4 billion, or more than 61 percent of the total. The value of outbound truck freight was more evenly distributed than other modes, with the largest single commodity, machinery, accounting for only 12 percent of the modal value. Other top commodities included fertilizers, gasoline, live animals including fish, and coal and petroleum products.

Figure 2-23. Outbound Value from Wyoming by Mode, 2011
in millions of 2007 dollars

Source: FHWA 2011, provisional data
2.5.1.2 Inbound Movements – All Modes

Inbound freight, or freight that originates outside of Wyoming and terminates in the state, was the smallest of the three primary directional movements, accounting for only 22 million tons in 2011, or 3.5 percent of all freight tonnage. Most of the tonnage being transported into the state arrived via trucks (Figure 2-24). Unlike the other directional flows, the commodities entering Wyoming were very diverse, with no single commodity accounting for more than 10 percent of total movements and no mode accounting for a large majority of movements.

Coal and petroleum products (SCTG 19) were the largest inbound commodity, accounting for 2.1 million tons, or 9.7 percent of all inbound freight. Of these coal and petroleum products, nearly 79 percent entered the state via pipelines with the vast majority coming from Texas, Louisiana, New York, and Oklahoma. Based on the origins of these products, they are likely to consist mostly of refined petroleum products. In 2013, 20,000 tons of Montana-mined coal was trucked to and consumed in Wyoming as an industrial plant product in addition to 1,000 tons of Pennsylvania mined anthracite for industrial plant applications (EIA 2015d).

Cereal grains accounted for the second-largest share of inbound freight in 2011, with just under 2.1 million tons, or 9.4 percent of all freight. All of the cereal grains were imported via trucks, which is the single-largest inbound modal movement. The third through fifth top inbound commodities were fuel oils, crude petroleum, and basic chemicals. The majority of fuel oil arrives in Wyoming by truck, pipeline, and rail from Utah, Montana, and Oklahoma. Crude petroleum is shipped primarily by pipeline or trucks from North Dakota, Montana, Illinois, and Colorado. Ninety-one percent of basic chemicals were shipped to Wyoming from Utah by either rail or trucks.

Figure 2-24. Inbound Tonnage to Wyoming by Mode, 2011

Source: FHWA 2011, provisional data
Similar to the tonnage, the majority of the value of commodities moving into Wyoming is moved by trucks, accounting for more than $12.5 billion, or 66 percent, of the total $19 billion in 2011 (Figure 2-25). These commodities were primarily mixed freight, machinery, and articles of base metal, accounting for $1.9 billion, $1.7 billion, and $1.5 billion, respectively. The second-largest means of freight movement was multi-mode, which includes all commodities that move by more than one mode. The largest-value commodities moving by multiple modes were electronics, accounting for $0.5 billion, and textiles/leather and precision instruments, which accounted for $0.3 billion each.

**Figure 2-25. Inbound Value to Wyoming by Mode, 2011**

Value in millions of 2007 dollars

Source: FHWA 2011, provisional data
2.5.1.3 Internal Movements – All Modes

Internal movements are those that both originate and terminate within Wyoming. Internal movements accounted for nearly 87 million tons of freight in 2011. Similar to the freight originating in Wyoming and terminating outside the state, the internal movements were also dominated by coal, accounting for more than 50 million tons, or nearly 58 percent, of all internal freight tonnage moved. According to the Wyoming State Geological Survey (2015), in 2013, Wyoming’s power plants utilized just over 25 million tons of Wyoming coal and 27,000 tons were used in other Wyoming industrial plants.

Unfortunately, it has not been possible to determine why the tons reported by FAF for intrastate coal movements differ from the reports published by the Wyoming State Geological Survey and EIA. One possibility is that the difference is associated with data collection and interpretation of the census data in 2007.

The FAF analysis does identify that the majority of the coal, nearly 26 million tons, was moved by rail, with the remainder moved by either truck or an unknown mode. Basic chemicals accounted for the second-most tonnage moved internally, followed by fuel oils. The largest share of freight movement by mode was trucks, with 7 million of the 30 million tons being coal, followed by 4.3 million tons of fuel oil and 2.9 million tons of nonmetallic mineral products (Figure 2-26).

![Figure 2-26. Internal Tonnage by Mode in Wyoming, 2011](chart)

Source: FHWA 2011, provisional data

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10 In the FAF, freight moved by other and unknown modes is defined as “movements not elsewhere classified, such as flyaway aircraft, and shipments for which the mode cannot be determined.”
The vast majority of the value of freight moving within Wyoming is moved by trucks, accounting for $14.6 billion of the $18.1 billion of value in 2011 (Figure 2-27). This value was not dominated by any single commodity. The highest-value commodity was fuel oils, accounting for $3.4 billion, followed by machinery, accounting for $2.2 billion, and gasoline, accounting for $1.6 billion. Pipeline was the second-largest mode in terms of value, with more than $2 billion of freight moved, 61 percent of which was fuel oils. Other commodities moved within Wyoming by pipeline were crude petroleum, basic chemicals, gasoline, and coal and petroleum products.

Figure 2-27. Internal Freight Value by Mode in Wyoming, 2011
in millions of 2007 dollars

Source: FHWA 2011, provisional data
2.6 References

[BEA] U.S. Bureau of Economic Analysis
2014b Table SA-25N, Total full-time and part-time employment by NAICS industry, State.
2014c Table CA-25N, Total full-time and part-time employment by NAICS industry, County.

[EIA] U.S. Energy Information Administration

[FHWA] Federal Highway Administration

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2014a State and County Quick Facts. Available at www.census.gov/qfd/states/56000.html.
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[USDA-FAS] U.S. Department of Agriculture, Foreign Agricultural Service


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2014 Harvested Acres by Crop Type.
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2014a Wyoming Coal Mining Facts.
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Chapter 3. Freight Policies, Strategies, and Institutions

3.1 Introduction

This chapter identifies policies, strategies, and institutions that influence freight planning; the direction of freight planning; and investment decisions associated with freight at the national, regional, state, and local levels. Organizations involved in Wyoming freight include the state Department of Transportation, local and regional governmental agencies, tribal organizations, and the private sector. Section 3.2, Freight Policy, describes the state and regional organizations involved in Wyoming freight. Representatives from each of these organizations were invited to participate in the development of this SFP as Freight Advisory Committee members.

A key issue is that the long-term policies and strategies identified in this SFP require a funding mechanism for implementation. It is important to understand that funding for the freight system comes from multiple sources, and those sources are directed by various policies and strategies currently in place for each of the different freight funding programs.

Insufficient funding for freight-related projects can result in cost implications for freight transport, have negative impacts on the environment, and reduce economic competitiveness. The purpose of this SFP is to identify projects and priorities so that, in the event of additional freight funding, projects can be evaluated against the SFP goals, objectives, recommendations, and ranking criteria. The purpose of this chapter is to identify the various funding programs and mechanisms currently available for freight projects. This chapter also contains a short summary of the limitations on what state revenue can be collected and how this revenue can be expended to maintain and improve Wyoming’s freight system.

Wyoming’s freight industry is a vital component of the state’s economic health. It is critical to create an ongoing program to provide reliable, substantial public funding for freight projects if the industry is to remain competitive, continue its mitigation of community and environmental impacts, and retain its employment base. The program cannot redirect existing transportation funding; those resources are already insufficient to meet current needs. New funds must be found and specifically dedicated to freight transportation projects to augment existing funding sources, not to replace that funding.
3.2 Freight Policy

3.2.1 National Freight Policy

3.2.1.1 Moving Ahead for Progress in the 21st Century (MAP-21)

Implementation of MAP-21 marked the first time in history that the federal government provided standards and guidance for state freight transportation planning. Although freight has long held a position of prominence in transportation planning, there has never been a national freight plan, and state and regional agencies lacked guidelines for a common format for their own freight plans. The independently developed state and regional plans support a coordinated set of freight projects. However, with global trade continuing to expand and the locations of resource extraction, manufacturing, and consumption shifting continuously, a robust, coordinated, national freight plan is needed.

MAP-21 recommended that USDOT encourage each State to develop a state freight plan and form a state freight advisory committee to assist in the plan’s development. Pursuant to these recommendations, USDOT released *Interim Guidance on State Freight Plans and State Freight Advisory Committees* (USDOT 2012). The State of Wyoming has developed this SFP in compliance with this guidance.

Furthermore, MAP-21 could provide States with additional funding for implementing a plan that supports these national goals. The federal share of a project is generally 80 percent and may be 90 percent if projects are on the Interstate System. Those projects identified in the SFP can potentially increase the federal share of the funding to 90 percent for non-interstate projects and 95 percent for projects on the Interstate System.

3.2.1.1 National Freight Goals

MAP-21 requires USDOT to develop a National Freight Policy which is required to support the following seven National Freight Policy Goals (Section 1115):

8. To invest in infrastructure improvements and to implement operational improvements that—
   a. Strengthen the contribution of the national freight network to the economic competitiveness of the United States;
   b. Reduce congestion; and
   c. Increase productivity, particularly for domestic industries and businesses that create high-value jobs;

9. To improve the safety, security, and resilience of freight transportation;

10. To improve the state of good repair of the national freight network;

11. To use advanced technology to improve the safety and efficiency of the national freight network;

12. To incorporate concepts of performance, innovation, competition, and accountability into the operation and maintenance of the national freight network;

13. To improve the economic efficiency of the national freight network; and

14. To reduce the environmental impacts of freight movement on the national freight network.
3.2.2  State Freight Policy – Wyoming Connects

Wyoming DOT is responsible for managing and operating the state transportation system. Wyoming DOT’s Long-Range Transportation Plan (LRTP) provides the statewide vision, identifies long-term needs and provides strategies to achieve strategic transportation goals. In conjunction with the LRTP, Wyoming DOT developed a series of documents identifying State Significant Corridors (SSC) to evaluate the statewide transportation system. Chapter 1, Wyoming Strategic Freight Goals, discusses the goals of each of these plans and their incorporation into this SFP. Wyoming Connects, including updates to the LRTP, provides guidance on Wyoming planning process and on the screening process for those projects that are eventually incorporated into the Statewide Transportation Improvement Plan (STIP).

**LRTP Goals**

- Preserve the quality of the existing transportation system.
- Enhance safety on the transportation system.
- Provide for the efficient transportation of people and goods in Wyoming.
- Provide transportation mode choices to the people of Wyoming.
- Fairly and equitably fulfill regulatory and revenue-generating responsibilities.
- Pursue adequate funding to accomplish the Department’s mission.
3.2.3 Multi-state Freight Policy

A number of organizations, including multi-state coalitions, affect freight policy in Wyoming. The majority of the multi-state coalitions are associated with I-80; two of these are the I-80 Winter Operations Coalition and the coalition that developed the I-80 Corridor System Master Plan. Wyoming DOT actively participates in these regional groups that affect the movement of freight through Wyoming.

3.2.3.1 I-80 Winter Operations Coalition

I-80 is a major economic freight and traveler corridor that stretches from the East Coast to the West Coast of the United States. During winter, poor travel reliability and increased delay seriously affect commerce and goods moving along this major route (Kimley-Horn, no date).

The I-80 Winter Operations Coalition consists of representatives from California, Nevada, Utah, Wyoming, and Nebraska. The coalition has developed numerous documents related to freight transport and the I-80 corridor, documents that include the Freight Action and Coordination Plan.

Coalition Objectives

1. Establish institutional structure for coordinating operations on I-80 in the western states.
2. Aggregate weather conditions information from multiple sources.
3. Identify traffic data collection capabilities and share information with other agencies.
4. Establish existing capabilities and near-term enhancements to identify specific continuity issues.
5. Research innovative practices from other areas of the country facing similar challenges.

Daniel Kuhn from the Utah Department of Transportation noted the following:

“Given the time-sensitive nature of most highway freight, one of the most critical needs of truck drivers is to have access to accurate and frequently updated information about issues that affect the routes they are driving. Weather, road construction, accidents, traffic delays, and other factors can have a major impact on a trucker’s ability to get over the road within prescribed hours-of-service laws. These factors become particularly acute to the drivers of the thousands of refrigerated (reefer) trucks which carry much of America’s and Canada’s perishable and time-sensitive food supply.”
3.2.3.2 I-80 Corridor System Master Plan

The I-80 Corridor System Master Plan was developed as a collaborative way to share information, identify problems, and provide solutions for travel along I-80. This project led to the creation of a Stakeholder Network which included California, Nevada, Utah, and Wyoming. Individual working groups were developed from the overall stakeholder network, one of which was the Freight and Logistics working group. The mission of the I-80 Freight and Logistics working group was to thoroughly investigate all issues relevant, important, and actionable regarding the topic of freight mobility and the I-80 corridor from San Francisco to Cheyenne (NDOT, no date).
3.3 Federal Funding Sources and Programs

This section describes current and potential future funding sources at the federal level for freight transportation projects. Figure 1-1 illustrates the various sources of funding for Wyoming DOT in fiscal year (FY) 2015.

### 3.3.1 Current Federal Funding

At the federal level, the main source of funding for transportation projects is the federal gasoline tax. Other sources include the federal diesel fuel tax, vehicle taxes, air passenger excise taxes, aviation fuel taxes, and appropriations from the federal government’s General Fund.

Freight needs are funded primarily through the Highway Account of the federal Highway Trust Fund. In the last several years, Congress has also authorized transfers from the General Fund to the Highway Trust Fund to fund public transportation as well as to help the Highway Trust Fund remain solvent.

#### 3.3.1.1 Fuel Taxes

Fuel taxes are the most significant revenue source used to fund transportation at the federal level. Fuel taxes are collected from all States in the form of federal fuel taxes and other truck-related taxes. Revenue from these taxes goes to the federal Highway Trust Fund.

These federal tax rates are flat rates that are not indexed to inflation and remain constant unless Congress changes them. The current tax rates on fuel are too low to meet the long-term needs for service.
improvements and congestion relief on the federal-aid highway system. As vehicles become more fuel efficient and drivers are able to go farther using less fuel, less fuel tax revenues are collected from States, thereby further putting the Highway Trust Fund at risk of insolvency.

Taxes on tires, truck and trailer sales, and heavy vehicles are levied on oil companies, tire manufacturers, truck and trailer retailers, and the owners of heavy vehicles. Highway users, including operators of freight vehicles, generally pay these types of taxes indirectly because the taxes become part of the purchase price of the taxed items.

### 3.3.1.2 Highway and Transportation Funding Act of 2014

MAP-21 consolidated multiple funding and surface transportation programs since 2005. A few of these programs are listed below.

**Highway Safety Improvement Program (HSIP).** The HSIP provides funding to strategies, activities, and projects that strive to achieve a reduction in traffic fatalities on all public roads, including non-State-owned public roads. In order to acquire HSIP funding, the strategy, activity, or project must address a hazardous road location or highway safety problem and be consistent with a State Strategic Highway Safety Plan. Truck parking facilities are also eligible for funding in this program under section 1401 of MAP-21. The Section 130 program provides federal support to minimize the incidence of accidents, injuries, and fatalities at public rail-highway crossings. States may use funds to improve rail crossings, which includes installing or upgrading warning devices or surface improvements, eliminating at-grade crossings through grade separation, or consolidating or closing crossings. The federal share is 90 percent for these funds, and States, railroads, or municipalities can provide the 10-percent match. MAP-21 sets aside $220 million annually from the Highway Safety Improvement Program (HSIP) to fund this program. Wyoming DOT receives an average of $1.1 million in Section 130 funds annually.

**Surface Transportation Program (STP).** The STP provides funding to projects that preserve and improve the conditions and performance on any federal-aid highway, bridge, or tunnel or any public road. Many types of projects can be funded under this program, but a few relevant examples are:

- Truck parking facilities
- Infrastructure-based Intelligent Transportation System capital improvements
- Development and establishment of management systems
- Replacement, rehabilitation, preservation, protection, and anti-icing/de-icing for bridges and tunnels on any public road, including construction or reconstruction necessary to accommodate other modes

**National Highway Performance Program (NHPP).** The NHPP provides funding for projects that help to maintain or improve the condition and performance of the National Highway System. Only projects that directly affect the National Highway System are eligible to receive funding from this program.
Congestion Mitigation and Air Quality Improvement Program (CMAQ). This program was implemented to support projects that contributed to air quality improvements and congestion relief. MAP-21 included provisions that allow states to fund projects or programs associated with establishing electric vehicle charging or natural gas refueling stations.

Transportation Alternatives Program (TAP). The TAP provides funding for a variety of alternative transportation projects.

Transportation Investment Generating Economic Recovery Program (TIGER). Since 2009, the federal TIGER Discretionary Grant Program has been funding freight projects on a nationally competitive basis. Though not intended specifically for freight, this program has been a vital funding component for many freight projects around the country, including projects in California. However, it also has several disadvantages.

- TIGER funds rarely provide more than 25 percent of the project cost, so access to and coordination of multiple funding sources is necessary.
- TIGER’s national scope and relatively low funding amount mean that only a small number of freight projects are funded in any one state during a funding cycle.
- A limited amount of available funding is sought by a large number of competing applicants.
- The specific criteria for selecting projects vary from cycle to cycle and the application process is cumbersome, making it difficult for smaller entities to compete.
- Infrequent and irregular funding cycles do not provide a predictable or reliable funding source for long-term fiscal planning, project development, and project delivery through construction.
- Project sponsors need a federal freight funding program that enables long-term planning and a reasonable level of assurance that federal funding will be available into the future.

3.3.1.3 Airport Improvement Program

The Airport Improvement Program (AIP) provides grants to public agencies—and, in some cases, to private owners and entities—for planning and developing public-use airports that are included in the National Plan of Integrated Airport Systems (NPIAS). (All of Wyoming’s airports with a cargo operation are included in the NPIAS.) Eligible projects include those improvements related to enhancing airport safety, capacity, security, and environmental concerns. In general, sponsors can use AIP funds on most airfield capital improvements or repairs and in some specific situations for terminals, hangars, and non-aviation development. Projects related to airport operations and revenue-generating improvements are typically not eligible for funding (FAA 2015).

3.3.1.4 Other Federal Programs for Rail-Related Funding

Other programs administered by federal agencies for rail-related capital projects are eligible for funding assistance under other programs. These programs are described below.

U.S. Department of Commerce, Economic Development Administration. The U.S. Department of Commerce provides Economic Development Administration (EDA) grants for projects that promote job retention or creation in economically distressed industrial areas. Eligible projects must be located within EDA-designated
redevelopment areas or economic development centers. Eligible rail projects include construction of rail sidings and industrial spurs as well as disaster recovery grants. Grant assistance is generally available for up to 50 percent of the project cost, although EDA can provide up to 80 percent for projects in severely depressed areas.

The State of Wyoming has not received any funds from this program.

**U.S. Department of Agriculture Programs.** The U.S. Department of Agriculture Community Facility Program and Rural Development Program provide grant or loan funding mechanisms to fund construction, extension, enlargement, or improvement of community facilities providing essential services in rural areas and towns. Grant assistance is available for up to 75 percent of the project cost. Eligible rail-related facilities include community transportation infrastructure for municipal docks and industrial parks.

The State of Wyoming has not received any funds from this program.

**U.S. Environmental Protection Agency.** U.S. Environmental Protection Agency (EPA) funding is available for environmental remediation at Brownfield and other industrial sites where contaminants and other pollutants might be present, including properties once owned by railroads.

The State of Wyoming has not received any funds from this program.

**Railroad Track Maintenance Tax Credit Program.** The Railroad Track Maintenance Tax Credit Program (also known as the Section 45G tax credit or the short-line tax credit) was originally authorized in the Internal Revenue Code in 2005 to provide tax credits to qualified entities for an amount equal to 50 percent of qualified rail maintenance expenditures on rail lines owned or leased by Class II or Class III railroads. The maximum credit amount allowed was $3,500 per mile of track. The credit has been applied to improvements and upgrades related to roadbed, track, and bridges. The American Short Line and Regional Railroad Association (ASLRRA) estimated in 2013 that the credit funds over $300 million in improvements to rail infrastructure each year.

Although this program first expired at the end of 2007, the tax credits were extended through various legislation, though the recent program expired in December 2014.

The Short Line Railroad Rehabilitation and Investment Act of 2015 was introduced into the Senate on March 3, 2015, and seeks to extend the Section 45G short-line track maintenance credit. The short-line Bighorn Divide & Wyoming Railroad (BDW) is eligible for Section 45G and has used the tax credit over several years to cover a portion of the cost of ongoing rail and tie replacement and ballast tampering to improve the condition of the track structure. Wyoming’s other short lines could also use this funding mechanism.

### 3.3.1.5 Community Development Block Grant Program

The Community Development Block Grant (CDBG) Program is a grant program through the U.S. Department of Housing and Urban Development (HUD). The State receives annual funding allocations ranging between $2.2 million and $3.75 million. Funds are administered by the Wyoming Business Council and are directed to Counties and incorporated Cities and Towns. The Cities of Casper and Cheyenne receive CBDG funds directly from HUD because HUD considers them to be entitlement cities. An entitlement city is a city in a metropolitan area with a population of 50,000 or more, a principal city of a metropolitan area, or an urban county with a
population of at least 200,000 that receives an annual allocation of CDBG funds directly from HUD under the CDBG Entitlement Program.

The CDBG Program funds three general types of projects:

- **Community Development and Housing** has three funding categories: Public Infrastructure Grants, Access for the Disabled Grants, and Community Facilities Grants.
- **Economic Development** has two funding categories, Infrastructure Grants and Downtown Development Grants.
- **Planning Grants and Loan Program** has six grant categories: Job Training Grants, Planning Only Grants, Technical Assistance Grants, Convertible Loans, Float Loans, and Section 108 Loans.

### 3.3.1.6 Other Current Federal Funding

Other existing federal funding sources include the Projects of National or Regional Significance (PNRS) and programs under the Transportation Infrastructure, Finance, and Innovation Act (TIFIA).

- **PNRS.** Surface transportation projects that qualify for U.S. Code Title 23 funds and are of national or regional importance are eligible for funding under the PNRS. This program seeks to improve economic productivity, facilitate international trade, relieve congestion, and enhance movement of passengers and freight. Similar to the TIGER Program, PNRS funding levels, cycle frequency, and criteria are not reliable for long-term fiscal planning.

- **TIFIA Program.** The TIFIA Program provides credit assistance for nationally or regionally significant surface transportation projects. This assistance includes loans, loan guarantees, and lines of credit.

On the operations side, Motor Carrier Safety Assistance Program (MCSAP) grants are directly available to States from the Federal Motor Carrier Safety Administration (FMCSA). MCSAP lead agencies can apply for Basic and Incentive grant funding by submitting a commercial vehicle safety plan. If funds are approved, FMCSA will reimburse 80 percent of eligible costs incurred in a fiscal year.

### 3.3.2 Potential Future Federal Funding

This section describes potential future funding sources at the federal level for freight transportation projects. National Cooperative Freight Research Program (NCFRP) Report 15, *Dedicated Revenue Mechanisms for Freight Transportation Investment* (NCFRP 2012), explored a variety of revenue sources for future funding of the nation’s freight transportation needs. The analysis assumed that the current federal fuel and excise tax system remains in place and that dedicated revenue mechanisms would be used to fund a national infrastructure program similar to the Highway Trust Fund.

Some of the major options that were evaluated are a fuel tax surcharge, vehicle-miles traveled (VMT) fees, and federal vehicle registration fees. Some of the options that were excluded due to both feasibility and applicability to freight infrastructure are international trade fees, ton-mile fees, freight value-added taxes, waybill taxes, and carbon taxes.
3.3.2.1 Fuel Tax Surcharge

Four fuel tax surcharge options were evaluated as part of NCFRP Report 15. The first option was a diesel fuel tax with non-freight refunds. This option would target freight highway users through an increase in the diesel fuel tax along with an increase in tax refunds or credits for non-freight vehicles. This fuel tax surcharge could be collected through the existing system with no incremental cost.

The second option was diesel fuel and gas taxes with non-freight refunds. This option would more equitably cover all types of highway freight vehicles. With increased vehicle coverage, the cost of compliance would also increase.

The third option evaluated was a diesel fuel tax with vehicle identifier (ID). An electronic monitoring device could be placed on freight vehicles so that they could be identified at fueling locations. The implementation cost as well as the collection and enforcement costs for this type of tax system would be significant.

The fourth option was a diesel fuel and gas tax with vehicle ID. This option would require tagging all vehicles in order to distinguish between freight and non-freight vehicles so that the appropriate tax rates could be levied at fueling stations.

3.3.2.2 Vehicle-Miles Traveled (VMT) Fees

VMT fees are a way to charge vehicle drivers based on the number of miles that are driven on the highway system. Two basic types of VMT fees were evaluated: distance/vehicle VMT fees and time/location VMT fees. Distance/vehicle VMT fees would vary by vehicle class, and drivers would be charged by the number of miles driven. Fees would correlate directly with mileage consistent with a user fee. Time/location VMT fees could also incorporate congestion pricing and other demand management into the fee structure.

3.3.2.3 Federal Registration Fees

Expanded federal registration fees for all freight trucks would be a relatively simple and effective means to generate revenue for a dedicated freight infrastructure fund. Fees could be set according to a truck’s weight and class in order to recoup the fees based on the effect that certain types of trucks are expected to have on highway infrastructure. This type of tax would be easy to collect with existing systems and would require small increases in labor and electronic processing capabilities.
3.4 State Funding Sources and Programs

3.4.1 Current State Funding

3.4.1.1 Wyoming Funding Sources

State funding sources are collected from highway user fees, mineral taxes, general funds, and other sources. Wyoming highway user fees are some of the lowest in the nation when accounting for tolls, user fees, and taxes. The 2015 gasoline tax rate in Wyoming was $0.24 per gallon, which amounts to an anticipated $46 million in contributions to the state highway funds in FY 2015. Diesel fuel taxes accounted for over $73 million in anticipated revenue for FY 2015. Revenue is also collected from other freight-oriented sources including a commercial vehicle fee and commercial driver’s licenses.

Figure 3-2 lists the highway user fees that provide Wyoming’s funding sources.

![Figure 3-2. Wyoming Highway User Fees](image)

Wyoming’s state gasoline tax rate was $0.14 per gallon from 1998 to July 2013, when it was raised to $0.24 per gallon. Even with the recent increase, Wyoming’s gasoline tax is more than $0.04 per gallon lower than the national average. Each tax source, listed above, is directed to an account for that source and then transferred to Wyoming DOT for expenditure.

Most states have different tax rates for gasoline and diesel fuel. In contrast, Wyoming’s diesel fuel tax is $0.24 per gallon, the same as the gasoline tax. Figure 3-3 presents the gasoline and diesel fuel tax rates for Wyoming and the surrounding states.
A small portion of the gasoline tax is earmarked for the Wyoming Department of Parks and Cultural Resources for snowmobile trails and motorboat costs and to cover the costs of collecting taxes on aircraft fuel. Of the remaining tax, 57.5 percent is available to Wyoming DOT. The remaining 42.5 percent is available to city and county roadway projects (Figure 3-4).

An amount up to 2 percent of the diesel fuel tax is applied to defray administrative costs. Of the remaining diesel fuel tax, 20 percent goes to Counties, 5 percent goes to Cities and Towns, and 75 percent goes to Wyoming DOT (Wyoming DOT 2015).
3.4.1.2 State Aviation Grants and Loans

The Wyoming Aeronautics Commission makes grants-in-aid from state funds to Counties, Cities, and Towns in Wyoming. Projects funded by the Wyoming Aeronautics Commission include:

- **Construction Projects** – runway or taxiway construction, navigational aids, equipment storage buildings, terminals, and lighting projects
- **Maintenance Projects** – crackseal, sealcoat, runway and taxiway marking, and concrete repair
- **Equipment Grants** – snow-removal equipment, mowers, tractors, and front-end loaders
- **Planning Projects** – land purchases, environmental studies, airport layout plans, master plans, site relocation studies, rates and charges studies, and economic benefits reports

Airport managers can receive state funding through loans for constructing, developing, and improving Wyoming airport facilities that generate user fees. The funding for loans is provided by the Wyoming Permanent Mineral Trust Fund and cannot exceed an aggregate of $10 million. Wyoming Counties, Cities, and Towns and joint powers boards specifically involved in providing governing authority over airports are eligible to apply for loans.
3.4.1.3 Wyoming Business Council’s (WBC) Business Ready Community Program

The Wyoming Business Council (WBC), based in Cheyenne, was created as a state government entity and lead economic development agency in 1998 following the passage of the Wyoming Economic Development Act. One of WBC’s primary goals is to facilitate economic growth in Wyoming by helping to retain existing business and industry in the state and by attracting new companies that will support and add value to Wyoming’s major industries, including agriculture, minerals and energy sectors—all of which depend on transportation. Increasing the availability of a diverse and logistically favorable transportation infrastructure is a strategy identified in the *Wyoming Business Council Business Plan 2013* (WBC 2013) associated with an objective to support local communities and business infrastructure investments.

WBC’s Business Ready Community (BRC) Program provides funding for publicly owned infrastructure that serves business and encourages economic development, including new transportation infrastructure for planned industrial sites. Cities, Towns, Counties, joint powers boards, and tribes are all eligible to apply for grants and loans. WBC contributes a percentage of the total cost with the balance paid by matching contributions from local sources and additional private investment.

Programs funded by WBC provide many businesses with grant opportunities. A few of these programs are listed below, along with some of the programs’ benefits.

**Industrial Development Revenue Bonds (IDRB).** Under current U.S. Treasury Department regulations, manufacturing projects in the United States can be financed with below-market interest rates through the use of tax-exempt industrial development revenue bonds. Tax-exempt industrial development revenue bonds can be used for:

- Single-family and multi-family housing
- Student loans
- Pollution control
- Airports
- Sewage facilities
- Solid-waste disposal facilities
- About 20 other specific uses

The Wyoming Business Council administers the BRC program, which provides financing for publicly owned infrastructure that serves the needs of businesses and promotes economic development and diversity within Wyoming communities.
Previous freight-related funding through the Business Ready Community Program includes the following.

<table>
<thead>
<tr>
<th>Swan Ranch Industrial Park, Casper</th>
<th>Transloading Rail Site, Evanston</th>
</tr>
</thead>
<tbody>
<tr>
<td>$2.2-million grant in 2014 for developing a rail spur (High 2014).</td>
<td>$1.48 million in Community Readiness grant funds awarded to the City of Evanston in 2013 for the purchase of an existing transload site (formerly Pioneer Oil), two rail spurs, and associated commodity-unloading infrastructure. The facility, which is expected to make the city more competitive with local businesses that request rail access, is served by UP.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Energy Rail Park Feasibility Study, Gillette</th>
<th>Upton Logistics Center, Upton</th>
</tr>
</thead>
<tbody>
<tr>
<td>$25,000 in Feasibility Study Planning grant funding from 2013 was applied to the $40,000 Energy Park Rail Spur Feasibility Study. The study, conducted in collaboration with BNSF, evaluates an existing rail spur and will determine the opportunity and cost associated with improved or expanded property use and rail infrastructure.</td>
<td>As of July 2013, the logistics center had received $5,393,616 in funding, with local contributions and private investment totaling about $15.7 million. This project began as the Upton Regional Industrial Site when the Town of Upton and Weston County Development Corporation (WCDC) received an initial $1.5-million BRC grant in 2004 to purchase the 555-acre American Colloid Plant and to construct a new rail spur for a connection to the BNSF network.</td>
</tr>
</tbody>
</table>
**Industrial Spur, Natrona County**

$1.5 million in Community Readiness grant funds to Natrona County in 2008 for construction of a rail spur over 8,000 feet long. The rail spur will connect with the BNSF network, will include two turnouts, and will be long enough to accommodate entire unit trains. The site will ultimately be developed as a rail-served industrial park complete with water, sewer, electricity, natural gas, telecommunications facilities, and an upgraded road.

**Casper Logistics Hub, Bishop/Casper**

$1.5-million Business Committed grant to Natrona County in 2013 for the installation of water and sewer infrastructure at the logistics hub (formerly the Bishop Rail Park). Casper Crude to Rail LLC will place a multimodal petroleum transport facility in the Casper Logistics Hub. Improvements will include the installation of 19,900 linear feet of 16-inch water transmission pipeline and 19,600 linear feet of 4-inch sanitary sewer force main. The City of Casper will own and maintain the infrastructure.

**Transportation and Utility Infrastructure, Evansville**

$973,646 Business Committed grant to the City of Evansville in 2006 for construction of rail spurs, water, sewer, and road infrastructure needed to serve PolyPipe, an expanding business committed to constructing a new 35,000-square-foot pipe-manufacturing facility in the Cole Creek Industrial Park (a 72-acre parcel identified as an industrial area in the 2005 Evansville Community Development Plan).

**Trans-Modal Site, Laramie**

$955,050 in Community Readiness grant funds to the Laramie Economic Development Corporation (LEDC) in 2010 to refurbish UP Track 107 and extend it 1,640 feet to create the South Laramie Trans-Modal Site. Grant funds will be used to pay for the rail extension and to upgrade an existing at-grade road crossing. UP will own the property and lease it to LEDC for a term of 20 years at $1,350 per acre.
Transportation and Utility Infrastructure, Speer and Laramie Counties

$3,479,569 in Community Readiness grant funds to Laramie County in 2012 to extend water infrastructure and paving into the Swan Ranch Business Park. The park is a logistics hub located south of Cheyenne and contains 4,000 developable acres. It is bordered by UP and BNSF lines as well as I-25 and I-80. Granite Peak Development is developing the hub in phases. Phase I of the original project consisted of 550 acres, and Laramie County was the recipient of a $3-million of Business Committed grant in 2010 to fund road construction as well as a water well and lines and a regional septic system. These improvements were necessary to recruit a Midwestern Pipeline Services pipe-coating plant. Phase II, which involves opening an additional 670 acres for development, will provide dual rail access to the BNSF and UP networks.

Additionally, WBC’s Crop and Forage Promotion Program seeks to expand markets and uses for Wyoming crops, and this program could encourage increased freight use for state-grown products.

Transportation Infrastructure, Worland and Washakie Counties

$394,553 in Business Committed grant funds to Washakie County in 2004 to construct a new rail crossing on a BNSF line and frontage road that links seven existing businesses (including Black Hills Bentonite) with U.S. Highway 20. The City of Worland, Washakie County, Wyoming DOT, and BNSF entered into a Memorandum of Understanding (MOU) to construct a new public grade crossing, approaches, and a connecting road network that would eliminate the existing at-grade crossings, which were scheduled to close in 2004 due to safety concerns. The frontage road is the County’s contribution to the agreement. Without the project, existing businesses and properties would be inaccessible and landlocked.

3.5 Freight-Related Institutions

This section identifies other public agencies and institutions that influence freight planning and investment in Wyoming.

3.5.1 Metropolitan Planning Organizations

3.5.1.1 Governance Structure and Responsibilities

According to USDOT, metropolitan planning organizations (MPOs) are federally mandated and funded organizations that are responsible for planning, programming, and coordinating federal highway and transit investments in urban areas. MPOs have identified rail service as a means of promoting economic vitality by fostering global competitiveness and productivity. The planning activities of MPOs have surpassed their original passenger-rail-oriented scope and now also address cost-effective, energy-efficient, and environmentally responsible means of moving freight by rail; promoting rail connectivity to other transportation modes; and pursuing greater accessibility to rail for shippers. MPOs are required for maintaining long-range transportation plans and work in partnership with Wyoming DOT to identify best transportation practices and policies that benefit the state, preserve existing transportation systems, and broaden public awareness and outreach in transportation-related matters.
Wyoming’s two MPOs have jurisdiction over the state’s largest metropolitan areas. Both areas are connected to the state’s rail network.

### 3.5.1.2 Casper-Area Metropolitan Planning Organization

The planning area for the Casper-Area MPO includes the city of Casper; the towns of Evansville, Mills, and Bar Nunn; and Natrona County (Figure 3-5). The MPO members are the City of Casper; the Towns of Evansville, Mills, and Bar Nunn; Natrona County; and Wyoming DOT. The planning area is served by the BNSF Railway and the Bighorn Divide & Wyoming Railroad.

**Figure 3-5. Casper-Area MPO**

![Map of Casper-Area MPO](image)

### 3.5.1.3 Cheyenne Metropolitan Planning Organization

The planning area for the Cheyenne MPO includes the city of Cheyenne and parts of surrounding Laramie County (Figure 3-6). The MPO members are the City of Cheyenne, Laramie County, and Wyoming DOT.
As one example of this ongoing cooperation, Wyoming DOT provided planning assistance to the Cheyenne MPO as it undertook a study for a possible relocation of the BNSF Railway rail yard on the west side of Cheyenne.

Figure 3-6. Cheyenne MPO
3.5.1.4 Funding Mechanisms

MAP-21 provides funding to the MPOs through USDOT for transportation planning purposes. The funding is appropriated to States through the Federal Highway Administration (metropolitan planning funding) and the Federal Transit Administration (5303 funding) and is allocated by the State to the MPOs by formula. MPOs with urbanized-area populations over 200,000 also receive federal Surface Transportation Program funding and federal Transportation Alternatives Program funding. Such funds would be allocated by Wyoming DOT as required by federal statute if any MPOs over 200,000 population existed in Wyoming.

Federal Congestion Mitigation and Air Quality Program funds are also allocated by Wyoming DOT as required by federal statute to the two MPOs to help bring air quality nonattainment and maintenance areas within the MPO planning areas into compliance with the requirements of the Clean Air Act. MPOs are responsible for selecting projects to receive these federal funds and for ensuring that transportation projects in each region are meeting regional policies and federal and state requirements such as those in the Clean Air Act.

3.5.2 Wyoming Pipeline Authority

The Wyoming Pipeline Authority is actively engaged in promoting the development of intrastate and interstate pipeline infrastructure necessary to enhance natural resource development within Wyoming and encourage the export of the state’s natural resources to the nation. These resources include natural gas, natural gas liquids, crude oil, CO₂, synthetic fuels, and water related to energy production.

In anticipation of the need for CO₂ pipeline infrastructure, the Wyoming Pipeline Authority has established the Wyoming Pipeline Corridor Initiative. This project will create corridors across state and federal land to ensure a surface coordination of corridors between the various Bureau of Land Management (BLM) field offices and reduce permitting time.

3.5.3 Economic Development

Several local business councils also help with local development. Two of these are the Cheyenne–Laramie County Corporation for Economic Development (Cheyenne LEADS) and the Casper-Area Economic Development Alliance. Both are private nonprofit organizations that help businesses with all aspects of relocating and expanding around their cities. These councils are actively engaged with freight-expansion and development projects.
3.6 References

[FAA] Federal Aviation Administration

High, Lucas

Kimley-Horn

[NCFRP] National Cooperative Freight Research Program


[USDOT] U.S. Department of Transportation

[WBC] Wyoming Business Council

[Wyoming DOT] Wyoming Department of Transportation
Chapter 4. State Freight Transportation Assets and Operations

This chapter identifies Wyoming’s freight transportation assets across all freight-carrying modes (aviation, rail, highways, pipelines, and water) and how those assets are used to move freight. It also describes those facilities that are integral components of the freight system and are necessary to support safe and efficient freight movement.

4.1 Aviation

Air cargo typically consists of goods and products that are time sensitive or are sufficiently high value to warrant using air cargo services. Examples of goods moved by air services include documents, mail, medical and pharmaceutical materials, mechanical parts and spares for machinery, produce such as soft fruit, and flowers. In most instances, moving goods by air is significantly more expensive than surface transport.

Air cargo is transported in three ways:

- In the belly holds of passenger aircraft
- On dedicated, all-cargo aircraft
- By truck (some trucks carrying air cargo between airports are given a flight number)

4.1.1 Passenger Aircraft and Air Cargo Trucking

Feedback from airport managers in Wyoming suggests that very little air cargo is carried on scheduled passenger aircraft. The reasons for this include the following:

- The regional jets typically used to serve Wyoming’s airports have very little cargo space available.
- Wyoming is close to other airport hubs, such as Denver and Salt Lake City, that have a concentration of air cargo companies and facilities, and cargo can be trucked to and from these hubs relatively quickly.
- Consolidation within the airline industry, including both passenger and cargo airlines, has reduced the available cargo capacity, especially on domestic flights.
- Increasing and more-stringent security practices are associated with transporting cargo on passenger aircraft.
- Where space is available on aircraft flying into and out of Wyoming airports, the cost to load, coordinate, and sell the space is prohibitive in a region where there is a low demand for such cargo services.

Table 4-1 and Table 4-2 below list data from the USDOT T-100 Domestic Segment (U.S. Carriers) database of cargo carried to and from Wyoming on scheduled passenger airlines in 2013.
Table 4-1. Cargo Carried from Wyoming Airports on Scheduled Passenger Flights, 2013
in pounds

<table>
<thead>
<tr>
<th>Originating Airport</th>
<th>American Airlines</th>
<th>Delta Air Lines</th>
<th>Frontier Airlines</th>
<th>United Airlines</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cheyenne (CYS)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1,055</td>
</tr>
<tr>
<td>Jackson Hole (JAC)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>4,686</td>
</tr>
</tbody>
</table>

Source: HDR analysis of USDOT 2014

Table 4-2. Cargo Arriving at Wyoming Airports on Scheduled Passenger Flights, 2013
in pounds

<table>
<thead>
<tr>
<th>Destination Airport</th>
<th>American Airlines</th>
<th>Delta Air Lines</th>
<th>Frontier Airlines</th>
<th>United Airlines</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cheyenne (CYS)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>330</td>
</tr>
<tr>
<td>Jackson Hole (JAC)</td>
<td>1,161</td>
<td>168</td>
<td>1,357</td>
<td>88,076</td>
</tr>
</tbody>
</table>

Source: HDR analysis of USDOT 2014

Almost all (93.6 percent) of United Airlines’ cargo to and from Jackson Hole Airport goes through Denver International Airport. The majority of cargo carried on passenger aircraft within Wyoming is destined for Jackson Hole Airport.

4.1.2 Cargo Aircraft

Wyoming’s air-cargo-related activity is concentrated on the overnight, express-carrier networks of FedEx and UPS. Air Cargo Management Group (2012) estimates that, in 2011, FedEx had a 48.1-percent share of U.S. domestic air freight and express revenue, while UPS had a 36.7-percent share. In 2013, FedEx and the U.S. Postal Service (USPS) entered into a 7-year agreement with FedEx Express to provide airport-to-airport transportation of USPS Express Mail and Priority Mail within the United States.

4.1.2.1 UPS

The UPS air cargo network in Wyoming consists of three operations:

- Feeder flights to Denver International Airport
- Feeder flights to Salt Lake City International Airport
- Feeder flight to Billings Logan International Airport
Feeder Flights to Denver International Airport

This operation uses four Metro aircraft, each capable of carrying up to 4,500 lb. of cargo, operated by Key Lime Air to connect Wyoming airports with a UPS trans-shipment hub at Denver International Airport, where an onward flight connects with UPS’s main hub in Louisville, Kentucky.

The overnight feeder operation typically loads the Metro aircraft with outbound packages departing the airports in Wyoming between 6 p.m. and 7 p.m. The aircraft return with inbound shipments arriving between 8:30 a.m. and 9:30 a.m. for onward delivery by UPS delivery trucks (Figure 4-1).

The airports served by this operation are:

- Casper–Natrona County International (CPR)
- Cheyenne Regional (CYS)
- Gillette–Campbell County (GCC)
- Laramie Regional (LAR)
- Rawlins Municipal (RWL)
- Riverton Regional (RIW)
- Yellowstone Regional (COD) (Cody, Wyoming)

Feeder Flights to Salt Lake City International Airport

Ameriflight operates a Beech 99 with a cargo capacity of 3,400 lb. at Jackson Hole Airport and a Metroliner at Rock Springs–Sweetwater County Airport to link these airports with a UPS hub at Salt Lake City International Airport.

Feeder Flight to Billings Logan International Airport

A Cessna 402 with a cargo capacity of 1,500 lb., operated by Richland Aviation, links Sheridan County Airport with the UPS hub at Billings Logan International airport.
FedEx’s operations in Wyoming are focused on Casper–Natrona County International Airport, where FedEx leases a 13,427-square-foot sorting center from the Airport. The hub consolidates outbound shipments that arrive by feeder aircraft and truck and loads them into aircraft unit load devices (ULDs) (Figure 4-2), which are then loaded onto a departing aircraft that flies to the FedEx world hub in Memphis. The process is reversed for inbound shipments; ULDs are offloaded from the arriving aircraft, and packages are sorted and dispatched onto feeder aircraft or trucks for delivery.

The flight linking Casper–Natrona County International Airport to the Memphis hub uses either Airbus 300/310 or Boeing 757 aircraft. A typical schedule associated with the inbound and outbound flights is provided in Table 4-3.

FedEx’s aircraft feeder operation at Casper–Natrona County International Airport uses Cessna 208s with an average payload of 2,200 to 2,500 lb. to serve the following airports:

- Rock Springs–Sweetwater County (RKS)
- Steamboat Springs (HDN) (Steamboat Springs, Colorado)
- Western Nebraska Regional (BFF) (Scottsbluff, Nebraska)
- Yellowstone Regional (COD)

FedEx also carries USPS Priority Mail from Casper–Natrona County International Airport and Rock Springs–Sweetwater County Airport.

<table>
<thead>
<tr>
<th>Flight Number</th>
<th>Airport</th>
<th>Arrive</th>
<th>Depart</th>
</tr>
</thead>
<tbody>
<tr>
<td>FX1295 (May 29, 2014)</td>
<td>Boise</td>
<td>6:56 p.m.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Casper</td>
<td>8:10 p.m.</td>
<td>8:51 p.m.</td>
</tr>
<tr>
<td></td>
<td>Memphis</td>
<td>12:02 a.m.</td>
<td></td>
</tr>
<tr>
<td>FX1495 (May 30, 2014)</td>
<td>Memphis</td>
<td></td>
<td>4:10 a.m.</td>
</tr>
<tr>
<td></td>
<td>Casper</td>
<td>5:19 a.m.</td>
<td>6:35 a.m.</td>
</tr>
<tr>
<td></td>
<td>Boise</td>
<td>7:41 a.m.</td>
<td></td>
</tr>
</tbody>
</table>
**Feeder Flight to Salt Lake City International Airport**

A Beech 99 operated by Ameriflight links FedEx’s operations at Jackson Hole Airport with FedEx’s transfer hub at Salt Lake City International Airport.

### 4.1.2.3 Ad Hoc Charter

In some instances, cargo aircraft can be chartered to deliver specific loads to meet particular needs, such as the provision of bulky, large machinery spares for mining or industrial equipment that are urgently required. These operations occur infrequently in Wyoming.

### 4.1.3 Air Cargo Operations

Wyoming’s air cargo operations can be categorized as follows:

- Operations at Casper–Natrona County International Airport anchored by FedEx’s hub operations
- Scheduled passenger air cargo operations focused on Jackson Hole Airport
- FedEx and UPS feeder operations using commercial and general aviation airports across Wyoming

#### 4.1.3.1 Casper–Natrona County International Airport

The Airport is designated as a Non-hub Primary Commercial Service airport. In addition to cargo, it also provides passenger services, with the majority of its scheduled services serving either Denver International Airport or Salt Lake City International Airport. In 2013, 100,124 passengers enplaned at Casper–Natrona County International Airport.

The airport facilities consist of two runways, one 10,165 feet long, the other 8,679 feet long. The general aviation apron provides about 144,100 square yards of parking for cargo and general aviation. It also has an instrument landing system with a half-mile-visibility minimum.

In addition to the hanger used as sorting facility, the FedEx operation uses a 167,700-square-foot area on the apron. This area is used for cargo transfer among aircraft, trucks, vans, and ground support equipment. Figure 4-3 below illustrates the cargo layout at Casper–Natrona County International Airport.

UPS operations do not require the use of cargo warehouse facilities, since UPS vans drive to the aircraft and unload and load cargo directly to and from the aircraft. These trucks are typically loaded at off-airport facilities.

Casper–Natrona County International Airport enplaned 19,394,787 lb. of cargo in 2008 (Casper Airport Board 2010). Figure 4-4 below illustrates the trend of air cargo at Casper–Natrona County International Airport from 1998 through 2007.
Figure 4-3. Cargo Layout at Casper–Natrona County International Airport
The Casper Airport Board commissioned an Air Cargo Study in 2007. This study also identified a forecast for air cargo activity at Casper–Natrona County International Airport, which is listed in Table 4-4.

**Table 4-4. Casper Air Cargo Forecast**

<table>
<thead>
<tr>
<th>Year</th>
<th>Enplaned Air Cargo Volume</th>
<th>Cargo Aircraft Operations</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>19,394,787</td>
<td>9,568</td>
</tr>
<tr>
<td><strong>Forecast</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2013</td>
<td>21,316,903</td>
<td>9,764</td>
</tr>
<tr>
<td>2018</td>
<td>24,952,990</td>
<td>10,101</td>
</tr>
<tr>
<td>2023</td>
<td>29,209,295</td>
<td>10,450</td>
</tr>
<tr>
<td>2028</td>
<td>34,191,611</td>
<td>10,810</td>
</tr>
</tbody>
</table>

Casper–Natrona County International Airport is also home to Foreign Trade Zone (FTZ) 157, the only FTZ in Wyoming. A foreign-trade zone is a designated location in the United States where companies can use special procedures that help encourage U.S. activity and value added—in competition with foreign alternatives—by allowing delayed or reduced duty payments on foreign merchandise. The FTZ was granted approval in 1989 and was approved for a 10,000-square-foot warehousing facility, a 10-acre covered and open storage site, and a 475-acre air cargo park. Since the inception of the FTZ, there has been no activity associated with the site.
4.1.3.2 Jackson Hole Airport

The majority of air cargo carried through Wyoming on passenger aircraft passes through Jackson Hole Airport, with United Airlines carrying the majority of cargo to and from its Denver hub.

Jackson Hole Airport is located 7 miles north of Jackson in Grand Teton National Park. It has a single runway 6,300 feet long by 150 feet wide that is owned by the Jackson Hole Airport Board. In 2012, 274,342 passengers enplaned at Jackson Hole Airport. The passenger airlines that serve Jackson Hole Airport with direct flights are:

- American Airlines – Chicago and Dallas
- Delta Air Lines – Atlanta, Minneapolis, and Salt Lake City
- Frontier Airlines – Denver
- United Airlines – Chicago, Denver, Houston, San Francisco, and Los Angeles

In the winter, additional destinations such as New York and Seattle are also served by direct flights. Aircraft used by passenger airlines at Jackson Hole Airport include Boeing 737s and 757s and Airbus A319s and A320s, all of which can carry cargo (though this depends on passenger loads).

Because Grand Teton National Park is a noise-sensitive area, the Airport has adopted a number of noise-abatement measures, which can restrict operations as well as the type of aircraft (including all cargo) using Jackson Hole Airport. These measures include the following:

- A voluntary noise curfew is in effect, with no landings between 11:30 p.m. and 6:00 a.m. and no takeoffs between 10:00 p.m. and 6:00 a.m.
- All Stage II aircraft are banned. The Federal Aviation Administration (FAA) has established limits on allowable levels of aircraft noise emissions under 14 CFR 36, “Noise Standards: Aircraft Type and Airworthiness Certification.” In 1977, FAA amended 14 CFR 36 to define more-stringent noise limits for transport-category large and turbojet-powered aircraft and introduced the concept of certification “stages” to provide terminology to differentiate between the original and revised standards. For these aircraft categories, the amendment created three stages:
  - Stage 1 aircraft have never been shown to meet any noise standards, either because they have never been tested or because they have been tested and have failed.
  - Stage 2 aircraft meet original noise limits set in 1969.
  - Stage 3 aircraft meet more-stringent limits established in 1977.
- No single-event noise level on approach may exceed 92 dBA (decibels on the A-weighted scale).
4.1.3.3 FedEx and UPS Feeder Operations

Ten of Wyoming’s airports are used for feeder flights that connect Wyoming’s rural communities with the wider national and international domestic marketplace (Table 2-13) through FedEx’s Memphis and UPS’s Louisville hubs. These feeder services, which are typically operated under contract to FedEx and UPS by air cargo and regional carriers, use mostly turbo-prop aircraft carrying cargo between 1,500 and 4,500 lb. The aircraft depart the airports in the late afternoon and early evening with outbound cargo and arrive in the early morning with inbound cargo. Some flights are operated with only one flight segment, while others operate with two or three segments, stopping off at other airports on the way to load and offload cargo before reaching their destinations.

Table 4-5. Wyoming Airports Used by FedEx and UPS

<table>
<thead>
<tr>
<th>Airport</th>
<th>Airport Code</th>
<th>Airport Category a</th>
<th>Feeder Cargo Operations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Casper–Natrona County International</td>
<td>CPR</td>
<td>P</td>
<td>✓ (hub) ✓</td>
</tr>
<tr>
<td>Cheyenne Regional</td>
<td>CYS</td>
<td>P</td>
<td>✓</td>
</tr>
<tr>
<td>Gillette–Campbell County</td>
<td>GCC</td>
<td>P</td>
<td>✓</td>
</tr>
<tr>
<td>Jackson Hole</td>
<td>JAC</td>
<td>P</td>
<td>✓</td>
</tr>
<tr>
<td>Laramie Regional</td>
<td>LAR</td>
<td>CS</td>
<td>✓</td>
</tr>
<tr>
<td>Rawlins Municipal</td>
<td>RWL</td>
<td>GA</td>
<td>✓</td>
</tr>
<tr>
<td>Riverton Regional</td>
<td>RIW</td>
<td>P</td>
<td>✓</td>
</tr>
<tr>
<td>Rock Springs–Sweetwater County</td>
<td>RKS</td>
<td>P</td>
<td>✓</td>
</tr>
<tr>
<td>Sheridan County</td>
<td>SHR</td>
<td>P</td>
<td>✓</td>
</tr>
<tr>
<td>Yellowstone Regional</td>
<td>COD</td>
<td>P</td>
<td>✓</td>
</tr>
</tbody>
</table>

a Airport categories:

P = commercial service, primary, non-hub – more than 10,000 passenger boardings per year

CS = commercial service, non-primary – more than 2,500 passenger boardings per year, but not more than 10,000

GA = general aviation

Feeder services use all eight of Wyoming’s primary commercial-service airports (P), one of the two commercial-service non-primary airports (CS), and one of the 11 general-aviation airports (GA). Ten of the 21 airports (48 percent) in Wyoming’s aviation system are used for cargo movements by FedEx and UPS (Figure 4-5 below).

The difference in the number of Wyoming airports that UPS and FedEx serve by air (10 versus four) is due to the way that UPS and FedEx plan and operate their different networks. UPS’s main hub serving Wyoming is Denver, while FedEx’s is Casper. This means that FedEx relies less on feeder flights because trucks can cover the distance between the Casper hub and other areas.
Figure 4-5. Wyoming Air Cargo System
4.2 Rail

Wyoming is served by a rail network comprising a total of 1,762 route-miles of trackage. The Class I railroad network includes two companies and forms a 1,738-mile network that provides long-haul service for both inbound and outbound products. The state has three Class III railroads (short-line railroads) which operate an additional 24 miles of track. A lone tourist railroad operating over 2 miles of track, which is not a component of the national rail network, is not included in the state’s route-mile calculation. Industrial railroads provide transportation service to several coal mines and other industrial installations in Wyoming, but, due to their classification, the mileage of privately owned industrial track over which they operate is not included in calculations of the state’s rail network. Similarly, the industrial track of Class I and Class III rail carriers is also not included in the route-mile calculations.

Table 4-6 shows the number of route-miles owned by carrier and the percentage it represents in terms of the state’s total network as of June 1, 2014.

<table>
<thead>
<tr>
<th>Railroad</th>
<th>Carrier Class</th>
<th>Route-Miles Owned</th>
<th>Percentage of State Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>BNSF Railway</td>
<td>I</td>
<td>965(^a)</td>
<td>54.77</td>
</tr>
<tr>
<td>Union Pacific Railroad</td>
<td>I</td>
<td>879(^a)</td>
<td>49.89</td>
</tr>
<tr>
<td>Bighorn Divide and Wyoming Railroad</td>
<td>III</td>
<td>14</td>
<td>0.79</td>
</tr>
<tr>
<td>Rapid City, Pierre &amp; Eastern Railroad</td>
<td>III</td>
<td>7</td>
<td>0.40</td>
</tr>
<tr>
<td>Swan Ranch Railroad</td>
<td>III</td>
<td>3</td>
<td>0.17</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>1,762(^a)</strong></td>
<td></td>
</tr>
</tbody>
</table>

Source: STB 2013

\(^a\) Includes 106 miles of jointly owned and operated track in the Southern Powder River Basin coal-production area; 106 miles are accounted for in the individual BNSF Railway (BNSF) and Union Pacific Railroad (UP) figures in the table but are counted once for the total.

\(^b\) Percentages total to more than 100% because 106 miles of track are jointly owned and operated by BNSF and UP.

Figure 4-6 below is a map of the Wyoming rail network that shows all active lines as they existed in 2014.

Most of the Class I rail traffic in Wyoming follows one of two distinct patterns: (1) transcontinetal traffic that passes through the state without stopping except for train crew changes, refueling, or inspections or (2) trains that carry coal, soda ash, or other minerals extracted or processed in Wyoming that originate in solid trainloads and depart the state for customers elsewhere.

Because of Wyoming’s geographic location and relatively low and snow-free summits, a substantial percentage of transcontinental goods moved by rail between the West Coast and destinations in the Midwest and East passes through Wyoming. The Southern Powder River Basin (PRB) coal fields, the source of most of the coal traffic hauled by rail in Wyoming, is the largest single source of rail traffic for the Class I network in Wyoming.
The state freight tonnage transported by rail in Wyoming totaled 559.7 million tons, or about 5.8 million carloads, in 2011. Freight ton figures encompass originating, terminating, and through rail traffic. A total of about 3.9 million carloads totaling about 460.5 million tons of freight originated in Wyoming in 2011. Coal from the Southern Powder River Basin is the primary commodity shipped from Wyoming and made up about 96 percent of originated freight tonnage in 2011. Other Wyoming rail freight traffic in 2011 consisted of terminating (25,466 carloads or 2.2 million tons), intrastate (132,023 carloads or about 14.9 million tons), and through (1.8 million carloads or about 82.2 million tons).

The rail industry continues to be a major employer in Wyoming. In 2010, the state’s four railroads employed a total of 2,599 people, and average wage and benefits per employee was $106,860, according to the Association of American Railroads.

**Figure 4-6. Wyoming Rail Network, 2014**
4.2.1 Existing Rail Line Network Inventory

This inventory identifies the following key physical and service characteristics for each active Wyoming rail line segment or railroad subdivision:

- Owner of the line
- Operator of the line
- Use of the line
- Maximum train speeds (passenger and freight trains)
- Track configuration (number of mainline tracks; presence of sidings for train meet-pass events)
- Track condition (Federal Railroad Administration [FRA] class of track on mainline)
- Signal systems (wayside signals used to convey operating authority and/or show occupation of mainline track)
- Operational authority (method or system by which mainline train movements are controlled)
- Trackage rights (authority for one railroad [a tenant] to operate over the line of another [a host])
- Haulage rights (an arrangement whereby one railroad markets service over a route owned by another, but does not operate its own trains over the host railroad)
- Maximum gross weight (loaded railcar weight limitations, as dictated by the condition of mainline bridges and track)
- Clearances (maximum railcar width and height above top of mainline rail that can be handled in regular service without an operating restriction)
- Double-stack capable (route clearance can accommodate intermodal trains carrying shipping containers stacked two high)
- Industrial leads (designated spurs that are used to access rail customers off the mainline)

Railroad employee timetables were used to determine maximum authorized freight train speeds for each segment, which are established at the discretion of the railroad based on operating practices and preferences. There are no regularly scheduled passenger-rail services in Wyoming at present; however, passenger-train speeds are listed to show what the maximum speed could be if such an operation were introduced over the lines as they currently exist. In both cases, these values are often lower than the maximum authorized speed allowed by FRA’s class-of-track regulations.
4.2.1.1 Class I Rail Network in Wyoming

The Surface Transportation Board (STB) designates any railroad with more than $398.7 million in annual carrier operating revenue as a Class I carrier. Wyoming is served by two Class I railroads: BNSF Railway (BNSF) and Union Pacific Railroad (UP). Table 4-7 lists the rail mileage owned and operated (via lease or trackage rights) for each of these railroads as of December 31, 2012.

Table 4-7. Wyoming Class I Rail-Miles Owned and Operated

<table>
<thead>
<tr>
<th>Class I Carrier</th>
<th>Mainline Owned</th>
<th>Lines Leased to Class III</th>
<th>Miles Operated</th>
<th>Trackage Rights</th>
</tr>
</thead>
<tbody>
<tr>
<td>BNSF Railway</td>
<td>965&lt;sup&gt;a&lt;/sup&gt;</td>
<td>0</td>
<td>970&lt;sup&gt;a&lt;/sup&gt;</td>
<td>5</td>
</tr>
<tr>
<td>Union Pacific Railroad</td>
<td>879&lt;sup&gt;a&lt;/sup&gt;</td>
<td>0</td>
<td>879&lt;sup&gt;a&lt;/sup&gt;</td>
<td>0</td>
</tr>
<tr>
<td>Class I total</td>
<td>1,738&lt;sup&gt;a&lt;/sup&gt;</td>
<td>0</td>
<td>1,743&lt;sup&gt;a&lt;/sup&gt;</td>
<td>5</td>
</tr>
</tbody>
</table>

*Source: STB 2013*

<sup>a</sup> Includes 106 miles of jointly owned and operated track in the Southern Powder River Basin coal-production area; 106 miles are accounted for in the individual BNSF and UP figures in the table but are counted once for the total.

**BNSF Railway**

The BNSF Railway is one of the most extensive Class I railroads in North America in terms of track-miles and market share. BNSF is headquartered in Fort Worth, Texas. In 2012, BNSF operated about 32,500 miles of track in 28 states and two Canadian provinces. About 23,191 route-miles are owned by BNSF, with the remainder operated by the railroad pursuant to trackage rights or leases. About 9,266 route-miles of BNSF’s system consist of trackage rights that permit the carrier to operate its trains with its crews over other railroads’ tracks. BNSF handled 9.5 million carloads in 2012, and operating revenue was $20.8 billion. BNSF’s traffic base included the following commodities in 2012: consumer products (33 percent), coal (25 percent), industrial products (24 percent), and agricultural products (18 percent).

BNSF has transfer facilities for rail-to-rail movements as well as intermodal transfer of containers, trailers, and other freight traffic. The transfer facilities include 31 major intermodal hubs located across the system. BNSF owns 22 automotive distribution facilities and serves eight terminal facilities in North America where automobiles are loaded on or unloaded from multilevel rail cars. The railroad has access to more than 40 ports in North America. Table 4-8 lists railroad statistics for BNSF.

Table 4-8. BNSF Railway Statistics

<table>
<thead>
<tr>
<th>Location</th>
<th>Employees</th>
<th>Locomotives</th>
<th>Freight Cars</th>
<th>Passenger Cars</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>40,000</td>
<td>6,869</td>
<td>78,408</td>
<td>91</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Location</th>
<th>Miles Operated</th>
<th>Miles Owned</th>
<th>Miles Leased</th>
<th>Miles Leased to Class IIIs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wyoming</td>
<td>970</td>
<td>965</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>United States</td>
<td>32,514</td>
<td>23,191</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

*Sources: BNSF 2012; STB 2013*
Historically, all of the BNSF routes in Wyoming were part of the Chicago, Burlington & Quincy Railroad (CB&Q), except for the Wendover, Wyoming-Denver, Colorado line controlled by the Colorado & Southern Railway (C&S), which was owned by CB&Q but was operated as a separate entity until 1981. CB&Q and C&S—as well as their predecessors—developed an extensive network that connected remote areas with population centers in Wyoming during the 1886–1915 period and penetrated all but the southwestern quarter of the state. The result of this development was an enormous collection of lines in Wyoming that bridged emerging transcontinental routes and provided a viable transportation option for exploitation of coal, mineral, and timber resources in the central and northern sections of the state.

In 1970, CB&Q merged with the Great Northern, Northern Pacific, and Spokane, Portland & Seattle railways to form a vast Class I network—Burlington Northern Railroad (BN)—stretching from the Midwest to the Pacific Northwest and from Canada to the Gulf Coast. During the 1970s, BN built a new rail line into the Southern Powder River Basin to tap the massive deposits of low-sulfur coal in eastern Wyoming, coal that would ultimately become the single largest source of rail traffic in the state.

The Burlington Northern Santa Fe Railway (now the BNSF Railway) was created on September 22, 1995, from the merger of BN and the Santa Fe Pacific Corporation (parent company of the Atchison, Topeka & Santa Fe Railway), further expanding the reach of Wyoming rail shippers to a greater array of origins and destinations in the larger combined network. Since 2010, BNSF has been a subsidiary of Omaha, Nebraska–based Berkshire Hathaway. Figure 4-7 below shows BNSF routes in Wyoming and their connections to the BNSF system in adjoining states.

BNSF operates numerous facilities and equipment systemwide, including infrastructure, locomotives, and freight cars, to support its network functions. It also owns or leases other equipment, including intermodal containers and vehicles, to support rail operations. Support facilities for rail operations include yard and terminals throughout its rail network (including at Cheyenne, Casper, Gillette, and Guernsey, Wyoming); system locomotive shops to perform locomotive servicing and maintenance; a centralized network operations center for train dispatching and network operations monitoring and management in Fort Worth, Texas; regional dispatching centers, computers, telecommunications equipment, and signal systems; and other support systems.

BNSF owned 965 route-miles in Wyoming in 2013, or just over half of the state’s total rail-miles. Figure 4-8 below shows a map of BNSF operating subdivisions in the state and the continuation of each subdivision to neighboring states and terminals. A general description of the traffic and the physical and operating characteristics for each of BNSF’s 10 subdivisions in Wyoming follows the figure.
Figure 4-7. BNSF Routes in Wyoming, 2015

Source: BNSF 2015a
Figure 4-8. BNSF Subdivisions in Wyoming, 2015

Source: BNSF 2015b
**Front Range Subdivision**

The Front Range Subdivision travels in a north-south direction from Wendover, Wyoming, to Denver, Colorado, via Cheyenne. It is a primary route for intermodal, automotive, and general manifest traffic between Denver; Laurel (near Billings), Montana; and the Pacific Northwest. The line hosts four to six trains per day on average. Table 4-9 lists the physical and operating characteristics of the line.

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Front Range Subdivision (240.8 Miles; 133.9 Miles in Wyoming)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Owner</td>
<td>BNSF Railway</td>
</tr>
<tr>
<td>Operator</td>
<td>BNSF Railway</td>
</tr>
<tr>
<td>Use</td>
<td>Freight only</td>
</tr>
<tr>
<td>Maximum Train Speeds</td>
<td>49-mph passenger / 49-mph freight</td>
</tr>
<tr>
<td>Track Configuration</td>
<td>One-track mainline with sidings: Wendover, Wyoming – Wyoming–Colorado state line – Denver, Colorado</td>
</tr>
<tr>
<td>Track Condition</td>
<td>FRA Track Class 4</td>
</tr>
<tr>
<td>Signal Systems</td>
<td>None</td>
</tr>
<tr>
<td>Operational Authority</td>
<td>Track Warrant Control (TWC)</td>
</tr>
<tr>
<td>Trackage Rights</td>
<td>None</td>
</tr>
<tr>
<td>Haulage Rights</td>
<td>None</td>
</tr>
<tr>
<td>Maximum Gross Weight</td>
<td>286,000-lb. mainline</td>
</tr>
<tr>
<td>Clearances</td>
<td>Unrestricted railcars do not exceed 11 feet in width including protrusions, or 17 feet in height. All others are classified as dimensional loads which require clearance before transport.</td>
</tr>
<tr>
<td>Double-Stack Capable</td>
<td>Yes</td>
</tr>
<tr>
<td>Industrial Leads</td>
<td>Downtown Lead (Cheyenne, Wyoming)</td>
</tr>
</tbody>
</table>
Casper Subdivision

The Casper Subdivision is a long, L-shaped route from Bridger Junction (near Orin), Wyoming, northwest to Laurel (near Billings), Montana, via Douglas, Casper, Thermopolis, Worland, Greybull, and Lovell, Wyoming. The line is used principally to route intermodal, automotive, and general manifest traffic between Denver, Laurel, and the Pacific Northwest around the Southern Powder River Basin coal production area. Carload interchange is conducted with short-line Bighorn Divide & Wyoming Railroad (BDW) at Shobon (near Bonneville) and Bishop (near Casper), Wyoming. BDW has trackage rights over the BNSF network between Lysite and Shobon. The line hosts five to seven BNSF trains per day on average. Table 4-10 lists the physical and operating characteristics of the line.

Table 4-10. BNSF Casper Subdivision Characteristics

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Casper Subdivision (382.3 Miles; 327.89 Miles in Wyoming)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Owner</td>
<td>BNSF Railway</td>
</tr>
<tr>
<td>Operator</td>
<td>BNSF Railway</td>
</tr>
<tr>
<td>Use</td>
<td>Freight only</td>
</tr>
<tr>
<td>Maximum Train Speeds</td>
<td>40-mph passenger / 40-mph freight</td>
</tr>
<tr>
<td>Track Configuration</td>
<td>One-track mainline with sidings: Bridger Junction, Wyoming – Wyoming–Montana state line – Laurel, Montana</td>
</tr>
<tr>
<td>Track Condition</td>
<td>FRA Track Class 3</td>
</tr>
<tr>
<td>Signal Systems</td>
<td>None</td>
</tr>
<tr>
<td>Operational Authority</td>
<td>Track Warrant Control (TWC)</td>
</tr>
<tr>
<td>Trackage Rights</td>
<td>BDW over BNSF (Shobon-Lysite / Lost Cabin, 21 miles)</td>
</tr>
<tr>
<td>Haulage Rights</td>
<td>None</td>
</tr>
<tr>
<td>Maximum Gross Weight</td>
<td>286,000-lb. mainline</td>
</tr>
<tr>
<td>Clearances</td>
<td>Unrestricted railcars do not exceed 11 feet in width including protrusions, or 17 feet in height. All others are classified as dimensional loads which require clearance before transport.</td>
</tr>
<tr>
<td>Double-Stack Capable</td>
<td>Yes</td>
</tr>
<tr>
<td>Industrial Leads</td>
<td>None in Wyoming</td>
</tr>
</tbody>
</table>
Orin Subdivision

The north-south Orin Subdivision between Donkey Creek Junction (near Gillette) and Bridger Junction (near Orin), Wyoming, is jointly owned and operated by BNSF and UP. BNSF operates over the full length of the subdivision, while UP operates only over the West Caballo Junction–Shawnee Junction segment. The Orin Subdivision’s primary purpose is to collect coal from several mines in the Southern Powder River Basin region and funnel it to principal rail routes out of Wyoming. The line hosts 50 to 60 BNSF trains per day on average. Table 4-11 lists the physical and operating characteristics of the line.

Table 4-11. BNSF Orin Subdivision Characteristics

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Orin Subdivision (126.9 Miles in Wyoming)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Owner</td>
<td>· BNSF Railway (Donkey Creek Junction – West Caballo Junction, 14.3 miles)</td>
</tr>
<tr>
<td></td>
<td>· BNSF Railway / Union Pacific Railroad (West Caballo Junction – Shawnee Junction, 102.4 miles)</td>
</tr>
<tr>
<td></td>
<td>· BNSF Railway (Shawnee Junction – Bridger Junction, 10.2 miles)</td>
</tr>
<tr>
<td>Operator</td>
<td>· BNSF Railway (Donkey Creek Junction – West Caballo Junction, 14.3 miles)</td>
</tr>
<tr>
<td></td>
<td>· BNSF Railway / Union Pacific Railroad (West Caballo Junction – Shawnee Junction, 102.4 miles)</td>
</tr>
<tr>
<td></td>
<td>· BNSF Railway (Shawnee Junction – Bridger Junction, 10.2 miles)</td>
</tr>
<tr>
<td>Use</td>
<td>Freight only</td>
</tr>
<tr>
<td>Maximum Train Speeds</td>
<td>50-mph passenger / 50-mph freight</td>
</tr>
<tr>
<td>Track Configuration</td>
<td>Two/three/four-track mainline: Donkey Creek Junction – Bridger Junction, Wyoming</td>
</tr>
<tr>
<td>Track Condition</td>
<td>FRA Track Class 4</td>
</tr>
<tr>
<td>Signal Systems</td>
<td>Centralized Traffic Control (CTC)</td>
</tr>
<tr>
<td>Operational Authority</td>
<td>Wayside signals</td>
</tr>
<tr>
<td>Trackage Rights</td>
<td>None</td>
</tr>
<tr>
<td>Haulage Rights</td>
<td>None</td>
</tr>
<tr>
<td>Maximum Gross Weight</td>
<td>286,000-lb. mainline</td>
</tr>
<tr>
<td>Clearances</td>
<td>Unrestricted railcars do not exceed 11 feet in width including protrusions, or 17 feet in height. All others are classified as dimensional loads which require clearance before transport.</td>
</tr>
<tr>
<td>Double-Stack Capable</td>
<td>Yes</td>
</tr>
</tbody>
</table>
Table 4-11. BNSF Orin Subdivision Characteristics

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Orin Subdivision (126.9 Miles in Wyoming)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industrial Leads to Coal Mines</td>
<td>• North Antelope Spur</td>
</tr>
<tr>
<td></td>
<td>• Antelope Spur</td>
</tr>
<tr>
<td></td>
<td>• Black Thunder Junction to Jacobs Ranch</td>
</tr>
<tr>
<td></td>
<td>• Black Thunder Junction to Orin Subdivision Switches (former BNSF Reno Subdivision, 3.0 miles; joint BNSF/UP ownership)</td>
</tr>
<tr>
<td></td>
<td>• Black Thunder Spur</td>
</tr>
<tr>
<td></td>
<td>• Black Thunder East</td>
</tr>
<tr>
<td></td>
<td>• Black Thunder West Spur</td>
</tr>
<tr>
<td></td>
<td>• Coal Creek Spur</td>
</tr>
<tr>
<td></td>
<td>• Cordero Spur</td>
</tr>
<tr>
<td></td>
<td>• Belle Ayr Spur</td>
</tr>
<tr>
<td></td>
<td>• Caballo Rojo Spur</td>
</tr>
<tr>
<td></td>
<td>• Caballo Spur</td>
</tr>
</tbody>
</table>
Canyon Subdivision

The short, north-south Canyon Subdivision between Bridger Junction (near Orin) and East Guernsey, Wyoming, is situated at the confluence of the BNSF Casper, Orin, Front Range, and Valley Subdivisions and provides a vital link in the state rail network. Coal, intermodal, automobile, and manifest traffic—some of which originated or will terminate in Wyoming—flows over this subdivision and onto principal rail routes into and out of the state. The line hosts 30 to 35 trains per day on average. Table 4-12 lists the physical and operating characteristics of the line.

Table 4-12. BNSF Canyon Subdivision Characteristics

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Canyon Subdivision (42.8 Miles in Wyoming)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Owner</td>
<td>BNSF Railway</td>
</tr>
<tr>
<td>Operator</td>
<td>BNSF Railway</td>
</tr>
<tr>
<td>Use</td>
<td>Freight only</td>
</tr>
<tr>
<td>Maximum Train Speeds</td>
<td>50-mph passenger / 50-mph freight</td>
</tr>
<tr>
<td>Track Configuration</td>
<td>One-track mainline with sidings/two-track mainline: East Guernsey, Wyoming – Bridger Junction, Wyoming</td>
</tr>
<tr>
<td>Track Condition</td>
<td>FRA Track Class 4</td>
</tr>
<tr>
<td>Signal Systems</td>
<td>Centralized Traffic Control (CTC)</td>
</tr>
<tr>
<td>Operational Authority</td>
<td>Wayside signals</td>
</tr>
<tr>
<td>Trackage Rights</td>
<td>None</td>
</tr>
<tr>
<td>Haulage Rights</td>
<td>None</td>
</tr>
<tr>
<td>Maximum Gross Weight</td>
<td>286,000-lb. mainline</td>
</tr>
<tr>
<td>Clearances</td>
<td>Unrestricted railcars do not exceed 11 feet in width including protrusions, or 17 feet in height. All others are classified as dimensional loads which require clearance before transport.</td>
</tr>
<tr>
<td>Double-Stack Capable</td>
<td>Yes</td>
</tr>
<tr>
<td>Industrial Leads</td>
<td>None</td>
</tr>
</tbody>
</table>
Valley Subdivision

The east-west Valley Subdivision between East Guernsey, Wyoming, and Northport, Nebraska, via Torrington, Wyoming, is used primarily to forward Southern Powder River Basin coal to gateways and customers to the south and east. The line hosts 30 to 35 trains per day on average. Table 4-13 lists the physical and operating characteristics of the line.

Table 4-13. BNSF Valley Subdivision Characteristics

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Valley Subdivision (91.2 Miles; 36.32 Miles in Wyoming)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Owner</td>
<td>BNSF Railway</td>
</tr>
<tr>
<td>Operator</td>
<td>BNSF Railway</td>
</tr>
<tr>
<td>Use</td>
<td>Freight only</td>
</tr>
<tr>
<td>Maximum Train Speeds</td>
<td>50-mph passenger / 50-mph freight</td>
</tr>
<tr>
<td>Track Configuration</td>
<td>One-track mainline with sidings/two-track mainline:</td>
</tr>
<tr>
<td></td>
<td>East Guernsey, Wyoming – Wyoming–Nebraska state line –</td>
</tr>
<tr>
<td></td>
<td>Northport, Nebraska</td>
</tr>
<tr>
<td>Track Condition</td>
<td>FRA Track Class 4</td>
</tr>
<tr>
<td>Signal Systems</td>
<td>Centralized Traffic Control (CTC)</td>
</tr>
<tr>
<td>Operational Authority</td>
<td>Wayside signals</td>
</tr>
<tr>
<td>Trackage Rights</td>
<td>None</td>
</tr>
<tr>
<td>Haulage Rights</td>
<td>None</td>
</tr>
<tr>
<td>Maximum Gross Weight</td>
<td>286,000-lb. mainline</td>
</tr>
<tr>
<td>Clearances</td>
<td>Unrestricted railcars do not exceed 11 feet in width</td>
</tr>
<tr>
<td></td>
<td>including protrusions, or 17 feet in height. All others</td>
</tr>
<tr>
<td></td>
<td>are classified as dimensional loads which require</td>
</tr>
<tr>
<td></td>
<td>clearance before transport.</td>
</tr>
<tr>
<td>Double-Stack Capable</td>
<td>Yes</td>
</tr>
<tr>
<td>Industrial Leads</td>
<td>None in Wyoming</td>
</tr>
</tbody>
</table>
Black Hills Subdivision

The Black Hills Subdivision travels in a southeasterly direction from West Gillette, Wyoming, to Edgemont, South Dakota. It is a primary route for coal trains travelling east out of the Southern Powder River Basin coal production area, and it also accommodates manifest and grain traffic. The line hosts 40 to 45 trains per day on average. Table 4-14 lists the physical and operating characteristics of the line.

Table 4-14. BNSF Black Hills Subdivision Characteristics

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Black Hills Subdivision (123.8 Miles; 102.1 Miles in Wyoming)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Owner</td>
<td>BNSF Railway</td>
</tr>
<tr>
<td>Operator</td>
<td>BNSF Railway</td>
</tr>
<tr>
<td>Use</td>
<td>Freight only</td>
</tr>
<tr>
<td>Maximum Train Speeds</td>
<td>60-mph passenger / 60-mph freight</td>
</tr>
<tr>
<td>Track Condition</td>
<td>FRA Track Class 4</td>
</tr>
<tr>
<td>Signal Systems</td>
<td>Centralized Traffic Control (CTC)</td>
</tr>
<tr>
<td>Operational Authority</td>
<td>Wayside signals</td>
</tr>
<tr>
<td>Trackage Rights</td>
<td>None</td>
</tr>
<tr>
<td>Haulage Rights</td>
<td>None</td>
</tr>
<tr>
<td>Maximum Gross Weight</td>
<td>286,000-lb. mainline</td>
</tr>
<tr>
<td>Clearances</td>
<td>Unrestricted railcars do not exceed 11 feet in width including protrusions, or 17 feet in height. All others are classified as dimensional loads which require clearance before transport.</td>
</tr>
<tr>
<td>Double-Stack Capable</td>
<td>Yes</td>
</tr>
<tr>
<td>Industrial Leads</td>
<td>None in Wyoming</td>
</tr>
</tbody>
</table>
**Big Horn Subdivision**

The Big Horn Subdivision between West Gillette, Wyoming, and Huntley (near Billings), Montana, via Sheridan, Wyoming, is a primary route for coal trains travelling north out of the Southern Powder River Basin coal production area, and it also accommodates manifest and grain traffic. The line hosts 20 to 25 trains per day on average. Table 4-15 lists the physical and operating characteristics of the line.

**Table 4-15. BNSF Big Horn Subdivision Characteristics**

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Big Horn Subdivision (229.6 Miles; 127.5 Miles in Wyoming)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Owner</td>
<td>BNSF Railway</td>
</tr>
<tr>
<td>Operator</td>
<td>BNSF Railway</td>
</tr>
<tr>
<td>Use</td>
<td>Freight only</td>
</tr>
<tr>
<td>Maximum Train Speeds</td>
<td>60-mph passenger / 60-mph freight</td>
</tr>
<tr>
<td>Track Configuration</td>
<td>One-track mainline with sidings: West Gillette, Wyoming – Wyoming–Montana state line – Huntley, Montana</td>
</tr>
<tr>
<td>Track Condition</td>
<td>FRA Track Class 4</td>
</tr>
<tr>
<td>Signal Systems</td>
<td>Centralized Traffic Control (CTC)</td>
</tr>
<tr>
<td>Operational Authority</td>
<td>Wayside signals</td>
</tr>
<tr>
<td>Trackage Rights</td>
<td>None</td>
</tr>
<tr>
<td>Haulage Rights</td>
<td>None</td>
</tr>
<tr>
<td>Maximum Gross Weight</td>
<td>286,000-lb. mainline</td>
</tr>
<tr>
<td>Clearances</td>
<td>Unrestricted railcars do not exceed 11 feet in width including protrusions, or 17 feet in height. All others are classified as dimensional loads which require clearance before transport.</td>
</tr>
<tr>
<td>Double-Stack Capable</td>
<td>Yes</td>
</tr>
<tr>
<td>Industrial Leads</td>
<td>None in Wyoming</td>
</tr>
</tbody>
</table>
Campbell Subdivision

The Campbell Subdivision between Campbell and Eagle Butte Junction, Wyoming, is a short branch line used by BNSF to access coal mines immediately north of Gillette, Wyoming. The line hosts an unknown average volume of trains per day. Table 4-16 lists the physical and operating characteristics of the line.

Table 4-16. BNSF Campbell Subdivision Characteristics

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Campbell Subdivision (9.5 Miles in Wyoming)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Owner</td>
<td>BNSF Railway</td>
</tr>
<tr>
<td>Operator</td>
<td>BNSF Railway</td>
</tr>
<tr>
<td>Use</td>
<td>Freight only</td>
</tr>
<tr>
<td>Maximum Train Speeds</td>
<td>35-mph passenger / 35-mph freight</td>
</tr>
<tr>
<td>Track Configuration</td>
<td>One-track mainline with sidings/two-track mainline: Eagle Butte Junction – Campbell, Wyoming</td>
</tr>
<tr>
<td>Track Condition</td>
<td>FRA Track Class 3</td>
</tr>
<tr>
<td>Signal Systems</td>
<td>Centralized Traffic Control (CTC)</td>
</tr>
<tr>
<td>Operational Authority</td>
<td>Wayside signals</td>
</tr>
<tr>
<td>Trackage Rights</td>
<td>None</td>
</tr>
<tr>
<td>Haulage Rights</td>
<td>None</td>
</tr>
<tr>
<td>Maximum Gross Weight</td>
<td>286,000-lb. mainline</td>
</tr>
<tr>
<td>Clearances</td>
<td>Unrestricted railcars do not exceed 11 feet in width including protrusions, or 17 feet in height. All others are classified as dimensional loads which require clearance before transport.</td>
</tr>
<tr>
<td>Double-Stack Capable</td>
<td>No</td>
</tr>
<tr>
<td>Industrial Leads</td>
<td>None</td>
</tr>
</tbody>
</table>
**Dutch Subdivision**

The Dutch Subdivision between Dutch, Wyoming, and Spring Creek, Montana, is a short branch line used by BNSF to access Montana coal mines north of Sheridan, Wyoming. The line hosts six to eight trains per day on average. Table 4-17 lists the physical and operating characteristics of the line.

**Table 4-17. BNSF Dutch Subdivision Characteristics**

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Dutch Subdivision (22.8 Miles; 12.25 Miles in Wyoming)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Owner</td>
<td>BNSF Railway</td>
</tr>
<tr>
<td>Operator</td>
<td>BNSF Railway</td>
</tr>
<tr>
<td>Use</td>
<td>Freight only</td>
</tr>
<tr>
<td>Maximum Train Speeds</td>
<td>30-mph passenger / 30-mph freight</td>
</tr>
<tr>
<td>Track Configuration</td>
<td>One-track mainline with sidings: Dutch, Wyoming –</td>
</tr>
<tr>
<td></td>
<td>Wyoming–Montana state line – Spring Creek, Montana</td>
</tr>
<tr>
<td>Track Condition</td>
<td>FRA Track Class 3</td>
</tr>
<tr>
<td>Signal Systems</td>
<td>Centralized Traffic Control (CTC)</td>
</tr>
<tr>
<td>Operational Authority</td>
<td>Wayside signals</td>
</tr>
<tr>
<td>Trackage Rights</td>
<td>None</td>
</tr>
<tr>
<td>Haulage Rights</td>
<td>None</td>
</tr>
<tr>
<td>Maximum Gross Weight</td>
<td>286,000-lb. mainline</td>
</tr>
<tr>
<td>Clearances</td>
<td>Unrestricted railcars do not exceed 11 feet in width</td>
</tr>
<tr>
<td></td>
<td>including protrusions, or 17 feet in height. All others</td>
</tr>
<tr>
<td></td>
<td>are classified as dimensional loads which require</td>
</tr>
<tr>
<td></td>
<td>clearance before transport.</td>
</tr>
<tr>
<td>Double-Stack Capable</td>
<td>No</td>
</tr>
<tr>
<td>Industrial Leads</td>
<td>None in Wyoming</td>
</tr>
</tbody>
</table>
**Cody Subdivision**

The Cody Subdivision between Frannie and Cody, Wyoming, is a branch line used by BNSF to access agricultural and mineral traffic. The line hosts one train per day on average. Table 4-18 lists the physical and operating characteristics of the line.

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Cody Subdivision (41.8 Miles in Wyoming)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Owner</td>
<td>BNSF Railway</td>
</tr>
<tr>
<td>Operator</td>
<td>BNSF Railway</td>
</tr>
<tr>
<td>Use</td>
<td>Freight only</td>
</tr>
<tr>
<td>Maximum Train Speeds</td>
<td>25-mph passenger / 25-mph freight</td>
</tr>
<tr>
<td>Track Configuration</td>
<td>One-track mainline with sidings: Frannie, Wyoming – Cody, Wyoming</td>
</tr>
<tr>
<td>Track Condition</td>
<td>FRA Track Class 2</td>
</tr>
<tr>
<td>Signal Systems</td>
<td>None</td>
</tr>
<tr>
<td>Operational Authority</td>
<td>Track Warrant Control (TWC)</td>
</tr>
<tr>
<td>Trackage Rights</td>
<td>None</td>
</tr>
<tr>
<td>Haulage Rights</td>
<td>None</td>
</tr>
<tr>
<td>Maximum Gross Weight</td>
<td>286,000-lb. mainline</td>
</tr>
<tr>
<td>Clearances</td>
<td>Unrestricted railcars do not exceed 11 feet in width including protrusions, or 17 feet in height. All others are classified as dimensional loads which require clearance before transport.</td>
</tr>
<tr>
<td>Double-Stack Capable</td>
<td>No</td>
</tr>
<tr>
<td>Industrial Leads</td>
<td>None</td>
</tr>
</tbody>
</table>
Union Pacific Railroad

UP’s North American rail network encompasses 23 states and links Pacific Coast and Gulf Coast ports with gateways in the Midwest and eastern United States. UP also provides several routes to key Mexican and Canadian gateways. The Omaha, Nebraska–based railroad owns a total of 31,868 track-miles, of which 26,020 miles are owned and the balance are operated pursuant to trackage rights or leases. In 2012, UP handled 9.048 million carloads, and operating revenue was at a record high of $20.9 billion. UP’s traffic base included the following commodities in 2012: coal (20 percent), intermodal (20 percent), industrial products (18 percent), agricultural products (17 percent), chemicals (16 percent), and automotive products (9 percent). Table 4-19 lists railroad statistics for UP.

Table 4-19. Union Pacific Railroad Statistics

<table>
<thead>
<tr>
<th>Location</th>
<th>Employees</th>
<th>Locomotives</th>
<th>Freight Cars</th>
<th>Passenger Cars</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>45,928</td>
<td>8,213</td>
<td>74,545</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Location</th>
<th>Miles Operated</th>
<th>Miles Owned</th>
<th>Miles Leased</th>
<th>Miles Leased to Class IIIs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wyoming</td>
<td>879</td>
<td>879</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>United States</td>
<td>31,868</td>
<td>26,020</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

Sources: UP 2012; STB 2013

UP has transfer facilities for rail-to-rail movements as well as intermodal transfer of containers, trailers, and other freight traffic. The transfer facilities include 24 major intermodal hubs located across the system. UP operates or has access to 43 automotive distribution facilities and serves five terminal facilities in North America where automobiles are loaded on or unloaded from multilevel rail cars. The railroad has access to many ports along the West and Gulf Coasts.

Historically, UP was chartered by an act of Congress in 1862 to construct the eastern portion of the first transcontinental rail route. The rail line began at Council Bluffs, Iowa, in 1865 and forged westward in stages, reaching Wyoming in 1867 and joining at Promontory, Utah, in 1869 with the Central Pacific Railroad that had built eastward from Sacramento, California. UP was the first major enterprise to enter the Wyoming Territory, and Euro-American settlement followed its Overland Route across the state. The railroad played a significant role in the territory’s emerging transportation needs and played an even larger role after Wyoming became a state in 1890. The transportation needs involved movement of coal, minerals, and petroleum products to markets nationwide.

Subsequent additions to the system in Wyoming included an additional transcontinental route from the Overland Route at Granger, Wyoming, west to Portland, Oregon, which was developed by UP subsidiary Oregon Short Line during 1881–1884. Additional branch lines to these mainline routes were constructed or acquired from other railroads in the ensuing decades to tap coal and trona deposits, oil fields, timberlands, and emerging pockets of agricultural production statewide.
UP added significantly to its Wyoming route structure and coal market share when it merged with the Chicago & North Western Transportation Company (C&NW) in 1995. C&NW’s predecessors had built westward across the Great Plains, reaching Wyoming in 1886. Ultimately, the C&NW network advanced as far as Lander, Wyoming, by 1906, but plans to extend the line west to Ogden, Utah, to make a transcontinental connection with the Central Pacific Railroad (by that time a subsidiary of Southern Pacific Railroad) were scuttled. Significant portions of the C&NW route across Wyoming were abandoned starting in the 1940s and continuing into the 1990s; UP abandoned an isolated operation on the former C&NW network in Casper after the 1995 merger.

The 1995 transaction provided access to the Southern Powder River Basin coal region via two former C&NW mainline segments: West Caballo Junction–Shawnee Junction, Wyoming (jointly owned and operated with BNSF) and Shawnee Junction, Wyoming–Joyce, Nebraska. These lines resulted from C&NW’s tenacious efforts to break Burlington Northern Railroad’s monopoly on PRB coal. C&NW won a protracted regulatory and court fight in 1983, during which the Interstate Commerce Commission ordered Burlington Northern Railroad to sell a 50-percent share in its Southern Powder River Basin coal line to Western Railroad Properties (owned jointly by UP and C&NW) and to allow a new connection to be built between C&NW and an existing UP line at Joyce, Nebraska. Subsequent to UP’s acquisition of C&NW, UP acquired Southern Pacific Railroad in 1996, thereby expanding UP’s market reach and taking a final step in consolidating Class I carriers in the West. Figure 4-9 is a map of UP routes in Wyoming and the continuation of each route to neighboring states and terminals.

**Figure 4-9. Union Pacific Railroad Routes in Wyoming**

Source: UP data acquired by HDR
UP operates numerous facilities and equipment systemwide, including infrastructure, locomotives, and freight cars, to support its network functions. It also owns or leases other equipment, including intermodal containers and vehicles, to support rail operations. Support facilities for rail operations include yard and terminals throughout its rail network (including at Cheyenne, Laramie, Rawlins, Green River, and Bill, Wyoming); system locomotive shops to perform locomotive servicing and maintenance; a centralized network operations center for train dispatching and network operations monitoring and management in Omaha, Nebraska; regional dispatching centers, computers, telecommunications equipment, and signal systems; and other support systems.

UP operates 879 route-miles of track in Wyoming, which is just under half of the state’s rail system mileage. The Overland Route (Central Corridor) via Cheyenne, Rawlins, Green River, Granger, and Evanston, Wyoming, is the principal artery of UP’s transcontinental system. This route has been the recipient of considerable and perpetual investment for over a century as volume and service needs have grown and as greater operating efficiencies have been identified and achieved. The rail line segment from Cheyenne to Granger is one of the nation’s most heavily used freight routes, moving in excess of 100 million gross tons annually. Routes diverge west of Granger, carrying traffic alternatively to the Los Angeles basin, northern California, or the Pacific Northwest. Figure 4-10 shows a map of UP’s operating subdivisions in Wyoming. A general description of the traffic and the physical and operating characteristics for each of these nine subdivisions follows the figure.

Figure 4-10. Union Pacific Railroad Subdivisions in Wyoming

Source: UP data acquired by HDR
Sidney Subdivision

The east-west Sidney Subdivision between Hinman (west of North Platte), Nebraska, and Cheyenne, Wyoming, is a component of UP’s transcontinental Central Corridor. Trains carrying intermodal, automobile, grain, and manifest traffic, most of which originate or terminate outside Wyoming, run over this subdivision en route between the West Coast/Pacific Northwest and the Midwest and East. Trains off the Yoder Subdivision connection at Egbert, Wyoming, add coal and additional manifest and grain traffic between Egbert and Cheyenne. The Sidney Subdivision connects with the North Platte Terminal on its east end and the Bailey Yard, which is largest and most extensive railcar classification yard on the UP system and in the world. The yard receives and forwards 14,000 cars from 139 trains in each 24-hour period, some of which originate or terminate in nearby Wyoming. The Sidney Subdivision hosts about 70 to 80 trains per day on average. Table 4-20 lists the physical and operating characteristics of the line.

Table 4-20. Union Pacific Railroad Sidney Subdivision Characteristics

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Sidney Subdivision (133.6 Miles; 43.76 Miles in Wyoming)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Owner</td>
<td>Union Pacific Railroad</td>
</tr>
<tr>
<td>Operator</td>
<td>Union Pacific Railroad</td>
</tr>
<tr>
<td>Use</td>
<td>Freight only</td>
</tr>
<tr>
<td>Maximum Train Speeds</td>
<td>79-mph passenger / 70-mph freight</td>
</tr>
<tr>
<td>Track Configuration</td>
<td>Two/three/four-track mainline: Hinman, Nebraska – Wyoming–Nebraska state line – Cheyenne, Wyoming</td>
</tr>
<tr>
<td>Track Condition</td>
<td>FRA Track Class 5</td>
</tr>
<tr>
<td>Signal Systems</td>
<td>Centralized Traffic Control (CTC) / Automatic Cab Signal (ACS)</td>
</tr>
<tr>
<td>Operational Authority</td>
<td>Wayside and cab signals</td>
</tr>
<tr>
<td>Trackage Rights</td>
<td>None</td>
</tr>
<tr>
<td>Haulage Rights</td>
<td>None</td>
</tr>
<tr>
<td>Maximum Gross Weight</td>
<td>315,000-lb. mainline</td>
</tr>
<tr>
<td>Clearances</td>
<td>Unrestricted railcars do not exceed 11 feet in width including protrusions, or 17 feet in height. All others are classified as dimensional loads which require clearance before transport.</td>
</tr>
<tr>
<td>Double-Stack Capable</td>
<td>Yes</td>
</tr>
<tr>
<td>Industrial Leads</td>
<td>None in Wyoming</td>
</tr>
</tbody>
</table>

Laramie Subdivision

The east-west Laramie Subdivision between Cheyenne and Rawlins is a component of UP’s heavily trafficked transcontinental Central Corridor. Trains carrying intermodal, automobile, grain, manifest, and coal traffic, most of which originate or terminate outside Wyoming, run over this subdivision en route between the West Coast/Pacific Northwest and the Midwest and East. Operating challenges facing the railroad over Sherman Hill (the highest point on the UP route between Chicago, Illinois, and Oakland, California) have required the relocation of existing track alignments and the construction of new alignments to create a complex, interrelated network of mainlines and connecting tracks necessary to surmount this escarpment between
Cheyenne and Laramie, Wyoming (each segment is described below). The Rock Creek and Hanna coal fields and oil fields are situated along the line between Laramie and Rawlins and contribute to rail traffic on the line. The Laramie Subdivision hosts about 65 to 75 trains per day on average. Table 4-21 lists the physical and operating characteristics of the line.

Table 4-21. Union Pacific Railroad Laramie Subdivision Characteristics

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Laramie Subdivision (243.2 Miles total in Wyoming, includes the aggregate of all mainline segments)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Owner</td>
<td>Union Pacific Railroad</td>
</tr>
<tr>
<td>Operator</td>
<td>Union Pacific Railroad</td>
</tr>
<tr>
<td>Use</td>
<td>Freight only</td>
</tr>
<tr>
<td>Maximum Train Speeds</td>
<td>79-mph passenger / 70-mph freight</td>
</tr>
<tr>
<td>Track Configuration</td>
<td>Two/three/four-track mainline, Cheyenne – Rawlins, Wyoming:</td>
</tr>
<tr>
<td></td>
<td>• Main Tracks 1/2 (Cheyenne–Rawlins): 173.8 miles</td>
</tr>
<tr>
<td></td>
<td>• Main Tracks 3/4 (Cheyenne–West Speer): 10.2 miles</td>
</tr>
<tr>
<td></td>
<td>• Main Track 3 (Emkay–Dale Junction): 35.8 miles</td>
</tr>
<tr>
<td></td>
<td>• Main Track 3 (Hermosa–Laramie): 23.4 miles</td>
</tr>
<tr>
<td></td>
<td>• Borie Cutoff (connection track between Main Tracks 1/2 at Borie and Main Tracks 3/4 at West Speer)</td>
</tr>
<tr>
<td></td>
<td>Note: Mainlines separate into two alignments between Cheyenne and Dale Junction and between Hermosa and Laramie.</td>
</tr>
<tr>
<td>Track Condition</td>
<td>FRA Track Class 5</td>
</tr>
<tr>
<td>Signal Systems</td>
<td>Centralized Traffic Control (CTC) / Automatic Cab Signal (ACS)</td>
</tr>
<tr>
<td>Operational Authority</td>
<td>Wayside and cab signals</td>
</tr>
<tr>
<td>Trackage Rights</td>
<td>None</td>
</tr>
<tr>
<td>Haulage Rights</td>
<td>None</td>
</tr>
<tr>
<td>Maximum Gross Weight</td>
<td>315,000-lb. mainline; 286,000-lb. industrial leads</td>
</tr>
<tr>
<td>Clearances</td>
<td>Unrestricted railcars do not exceed 11 feet in width including protrusions, or 17 feet in height. All others are classified as dimensional loads which require clearance before transport.</td>
</tr>
<tr>
<td>Double-Stack Capable</td>
<td>Yes</td>
</tr>
<tr>
<td>Industrial Leads</td>
<td>• Ramsey Industrial Lead (4.2 miles): Ramsey, Wyoming</td>
</tr>
<tr>
<td></td>
<td>• Medicine Bow Industrial Lead (13.1 miles): Hanna, Wyoming</td>
</tr>
</tbody>
</table>
Rawlins Subdivision

The east-west Rawlins Subdivision between Rawlins and West Green River, Wyoming, is a component of UP’s heavily trafficked transcontinental Central Corridor. Trains carrying intermodal, automobile, grain, manifest, and coal traffic, most of which originate or terminate outside Wyoming, run over this subdivision en route between the West Coast/Pacific Northwest and the Midwest and East. The Rawlins Subdivision hosts about 65 to 75 trains per day on average. Table 4-22 lists the physical and operating characteristics of the line.

Table 4-22. Union Pacific Railroad Rawlins Subdivision Characteristics

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Rawlins Subdivision (133.6 Miles in Wyoming)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Owner</td>
<td>Union Pacific Railroad</td>
</tr>
<tr>
<td>Operator</td>
<td>Union Pacific Railroad</td>
</tr>
<tr>
<td>Use</td>
<td>Freight only</td>
</tr>
<tr>
<td>Maximum Train Speeds</td>
<td>79-mph passenger / 70-mph freight</td>
</tr>
<tr>
<td>Track Configuration</td>
<td>Two/four-track mainline: Rawlins – West Green River, Wyoming</td>
</tr>
<tr>
<td>Track Condition</td>
<td>FRA Track Class 5</td>
</tr>
<tr>
<td>Signal Systems</td>
<td>Some sections are equipped with Centralized Traffic Control (CTC) / Automatic Cab Signal (ACS); and others are Direct Traffic (DT) equipped with Automatic Block Signal (ABS) / Automatic Cab Signal (ACS)</td>
</tr>
<tr>
<td>Operational Authority</td>
<td>Wayside and cab signals</td>
</tr>
<tr>
<td>Trackage Rights</td>
<td>None</td>
</tr>
<tr>
<td>Haulage Rights</td>
<td>None</td>
</tr>
<tr>
<td>Maximum Gross Weight</td>
<td>315,000-lb. mainline; 286,000-lb. industrial leads</td>
</tr>
<tr>
<td>Clearances</td>
<td>Unrestricted railcars do not exceed 11 feet in width including protrusions, or 17 feet in height. All others are classified as dimensional loads which require clearance before transport.</td>
</tr>
<tr>
<td>Double-Stack Capable</td>
<td>Yes</td>
</tr>
</tbody>
</table>
| Industrial Leads         | • South Pass Industrial Lead (6.5 miles): Rock Springs, Wyoming  
                           | • Jim Bridger Industrial Lead (8.1 miles): Point of Rocks, Wyoming  
                           | • Chevron Industrial Lead (9.0 miles): Rock Springs, Wyoming  |
**Evanston Subdivision**

The east-west Evanston Subdivision between West Green River, Wyoming, and Ogden, Utah, is a component of UP’s heavily trafficked transcontinental Central Corridor. Trains carrying intermodal, automobile, grain, manifest, and coal traffic, most of which originate or terminate outside Wyoming, run over this subdivision en route between the West Coast/Pacific Northwest and the Midwest and East. Coal and trona deposits in the region contribute to rail traffic on the route. The Evanston Subdivision hosts about 65 to 75 trains per day on average. Table 4-23 lists the physical and operating characteristics of the line.

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Evanston Subdivision (188.9 Miles; 105.53 Miles in Wyoming)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Owner</td>
<td>Union Pacific Railroad</td>
</tr>
<tr>
<td>Operator</td>
<td>Union Pacific Railroad</td>
</tr>
<tr>
<td>Use</td>
<td>Freight only</td>
</tr>
<tr>
<td>Maximum Train Speeds</td>
<td>79-mph passenger / 70-mph freight</td>
</tr>
<tr>
<td>Track Configuration</td>
<td>Two/three/four-track mainline: West Green River, Wyoming – Wyoming–Utah state line – Ogden (Cecil Junction), Utah</td>
</tr>
<tr>
<td>Track Condition</td>
<td>FRA Track Class 5</td>
</tr>
<tr>
<td>Signal Systems</td>
<td>Some sections are equipped with Centralized Traffic Control (CTC) / Automatic Cab Signal (ACS); and others are Direct Traffic (DT) equipped with Automatic Block Signal (ABS) / Automatic Cab Signal (ACS)</td>
</tr>
<tr>
<td>Operational Authority</td>
<td>Wayside and cab signals</td>
</tr>
<tr>
<td>Trackage Rights</td>
<td>None</td>
</tr>
<tr>
<td>Haulage Rights</td>
<td>None</td>
</tr>
<tr>
<td>Maximum Gross Weight</td>
<td>315,000-lb. mainline; 286,000-lb. industrial leads</td>
</tr>
<tr>
<td>Clearances</td>
<td>Unrestricted railcars do not exceed 11 feet in width including protrusions, or 17 feet in height. All others are classified as dimensional loads which require clearance before transport.</td>
</tr>
<tr>
<td>Double-Stack Capable</td>
<td>Yes</td>
</tr>
<tr>
<td>Industrial Leads</td>
<td>• Solvay Industrial Lead (9.0 miles): Tenneco, Wyoming</td>
</tr>
<tr>
<td></td>
<td>• Stauffer Industrial Lead (10.2 miles): Stauffer, Wyoming</td>
</tr>
<tr>
<td></td>
<td>• General Chemical Industrial Lead (2.4 miles): Alchem, Wyoming</td>
</tr>
<tr>
<td></td>
<td>• Texas Gulf Soda Industrial Lead (5.2 miles): T.G. Soda, Wyoming</td>
</tr>
</tbody>
</table>
Pocatello Subdivision

The Pocatello Subdivision travels northwesterly from the Evanston Subdivision connection at Granger, Wyoming, to Pocatello, Idaho, and is a component of UP’s heavily trafficked transcontinental route between the Pacific Northwest and the Midwest and East. Trains carrying intermodal, automobile, grain, manifest, and coal traffic, most of which originate or terminate outside Wyoming, run over this subdivision en route between the West Coast/Pacific Northwest and the Midwest and East. The Pocatello Subdivision hosts about 25 to 30 trains per day on average. Table 4-24 lists the physical and operating characteristics of the line.

### Table 4-24. Union Pacific Railroad Pocatello Subdivision Characteristics

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Pocatello Subdivision (214.3 Miles; 92.38 Miles in Wyoming)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Owner</td>
<td>Union Pacific Railroad</td>
</tr>
<tr>
<td>Operator</td>
<td>Union Pacific Railroad</td>
</tr>
<tr>
<td>Use</td>
<td>Freight only</td>
</tr>
<tr>
<td>Maximum Train Speeds</td>
<td>79-mph passenger / 70-mph freight</td>
</tr>
<tr>
<td>Track Configuration</td>
<td>One-track mainline with sidings/two-track mainline: Granger, Wyoming – Wyoming–Idaho state line – Pocatello, Idaho</td>
</tr>
<tr>
<td>Track Condition</td>
<td>FRA Track Class 5</td>
</tr>
<tr>
<td>Signal Systems</td>
<td>Centralized Traffic Control (CTC)</td>
</tr>
<tr>
<td>Operational Authority</td>
<td>Wayside signals</td>
</tr>
<tr>
<td>Trackage Rights</td>
<td>None</td>
</tr>
<tr>
<td>Haulage Rights</td>
<td>None</td>
</tr>
<tr>
<td>Maximum Gross Weight</td>
<td>315,000-lb. mainline; 286,000-lb. industrial leads</td>
</tr>
<tr>
<td>Clearances</td>
<td>Unrestricted railcars do not exceed 11 feet in width including protrusions, or 17 feet in height. All others are classified as dimensional loads which require clearance before transport.</td>
</tr>
<tr>
<td>Double-Stack Capable</td>
<td>Yes</td>
</tr>
<tr>
<td>Industrial Leads</td>
<td>• Exxon Industrial Lead (3.5 miles): Shute Creek, Wyoming</td>
</tr>
<tr>
<td></td>
<td>• Cumberland Industrial Lead (10.9 miles): Kemmerer, Wyoming</td>
</tr>
<tr>
<td></td>
<td>• Elkol Industrial Lead (3.3 miles): Kemmerer, Wyoming</td>
</tr>
</tbody>
</table>
**Powder River Subdivision**

The mostly north-south Powder River Subdivision is UP’s conduit for transporting coal out of the Southern Powder River Basin to markets nationwide. It was built for the Chicago & North Western Transportation Company (C&NW) in 1984 and combined new line construction from an existing UP line at Joyce, Nebraska, to Crandall, Wyoming (a junction west of Van Tassell, Wyoming) with a rehabilitated and realigned existing C&NW route between Crandall and Shawnee, Wyoming. Subsequent capacity improvements came in response to an increased demand for coal and the resulting boost in traffic and included double-tracking in segments, which was completed in 2001. The line hosts 60 to 70 trains per day on average. Table 4-25 lists the physical and operating characteristics of the subdivision.

### Table 4-25. Union Pacific Railroad Powder River Subdivision Characteristics

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Powder River Subdivision (214.3 Miles; 93.64 Miles in Wyoming)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Owner</td>
<td>Union Pacific Railroad</td>
</tr>
<tr>
<td>Operator</td>
<td>Union Pacific Railroad</td>
</tr>
<tr>
<td>Use</td>
<td>Freight only</td>
</tr>
<tr>
<td>Maximum Train Speeds</td>
<td>70-mph passenger / 60-mph freight</td>
</tr>
<tr>
<td>Track Configuration</td>
<td>Two-track mainline: Horse Creek, Nebraska – Wyoming–Nebraska state line –Shawnee Junction, Wyoming</td>
</tr>
<tr>
<td>Track Condition</td>
<td>FRA Track Class 4</td>
</tr>
<tr>
<td>Signal Systems</td>
<td>Centralized Traffic Control (CTC)</td>
</tr>
<tr>
<td>Operational Authority</td>
<td>Wayside signals</td>
</tr>
<tr>
<td>Trackage Rights</td>
<td>None</td>
</tr>
<tr>
<td>Haulage Rights</td>
<td>None</td>
</tr>
<tr>
<td>Maximum Gross Weight</td>
<td>315,000-lb. mainline; 263,000–286,000-lb. industrial leads</td>
</tr>
<tr>
<td>Clearances</td>
<td>Unrestricted railcars do not exceed 11 feet in width including protrusions, or 17 feet in height. All others are classified as dimensional loads which require clearance before transport.</td>
</tr>
<tr>
<td>Double-Stack Capable</td>
<td>Yes</td>
</tr>
<tr>
<td>Industrial Leads</td>
<td>None</td>
</tr>
</tbody>
</table>

**Orin Subdivision**

The north-south Orin Subdivision runs between Donkey Creek Junction (near Gillette) and Bridger Junction (near Orin), Wyoming. Its primary purpose is to collect coal from several mines in the Southern Powder River Basin region and funnel it to principal rail routes out of Wyoming. Two line segments in the Southern Powder River Basin coal region are jointly owned and operated by BNSF and UP: the Orin Subdivision between West Caballo Junction (south of Donkey Creek Junction) and Shawnee Junction, Wyoming (102.4 miles) and the connecting Reno Lead between Orin Sub Switches and Black Thunder Junction, Wyoming (3 miles). UP maintains a yard facility and office at the intermediate point of Bill, Wyoming, where coal trains can be staged and railcars repaired, but BNSF manages control of all train movements on these segments. The line hosts about 60 to 70 UP trains per day on average. Table 4-26 below lists the characteristics of the line.
### Table 4-26. BNSF (Union Pacific Railroad) Orin Subdivision Characteristics

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Orin Subdivision (126.9 Miles in Wyoming)</th>
</tr>
</thead>
</table>
| **Owner**       | • BNSF Railway (Donkey Creek Junction – West Caballo Junction, 14.3 miles)  
                  • BNSF Railway/Union Pacific Railroad (West Caballo Junction – Shawnee Junction, 102.4 miles)  
                  • BNSF Railway (Shawnee Junction – Bridger Junction, 10.2 miles) |
| **Operator**    | • BNSF Railway (Donkey Creek Junction – West Caballo Junction, 14.3 miles)  
                  • BNSF Railway/Union Pacific Railroad (West Caballo Junction – Shawnee Junction, 102.4 miles)  
                  • BNSF Railway (Shawnee Junction – Bridger Junction, 10.2 miles) |
| **Use**         | Freight only                              |
| **Maximum Train Speeds** | 50-mph passenger / 50-mph freight          |
| **Track Configuration** | Two/three/four-track mainline with sidings: Donkey Creek Junction – Bridger Junction, Wyoming |
| **Track Condition** | FRA Track Class 4                        |
| **Signal Systems** | Centralized Traffic Control (CTC)        |
| **Operational Authority** | Wayside signals                          |
| **Trackage Rights** | None                                     |
| **Haulage Rights** | None                                     |
| **Maximum Gross Weight** | 286,000-lb. mainline                     |
| **Clearances**  | Unrestricted railcars do not exceed 11 feet in width including protrusions, or 17 feet in height. All others are classified as dimensional loads which require clearance before transport. |
| **Double-Stack Capable** | Yes                                      |
| **Industrial Leads to Coal Mines** | • North Antelope Spur  
                                        • Antelope Spur  
                                        • Black Thunder Junction to Jacobs Ranch  
                                        • Black Thunder Junction to Orin Sub Switches (former BNSF Reno Subdivision, 3.0 miles; joint BNSF/UP ownership and operation)  
                                        • Black Thunder Spur  
                                        • Black Thunder East  
                                        • Black Thunder West Spur  
                                        • Coal Creek Spur  
                                        • Cordero Spur  
                                        • Belle Ayr Spur  
                                        • Caballo Rojo Spur  
                                        • Caballo Spur |
**Yoder Subdivision**

The north-south Yoder Subdivision in eastern Wyoming connects to the Powder River Subdivision at Horse Creek, Nebraska. It provides an outlet for routing PRB coal to destinations on the UP network in the western United States via Cheyenne and also contributes agricultural traffic. The line hosts about four to six trains per day on average. Table 4-27 lists the physical and operating characteristics of the subdivision.

Table 4-27. Union Pacific Railroad Yoder Subdivision Characteristics

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Yoder Subdivision (79.9 Miles; 74.9 Miles in Wyoming)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Owner</td>
<td>Union Pacific Railroad</td>
</tr>
<tr>
<td>Operator</td>
<td>Union Pacific Railroad</td>
</tr>
<tr>
<td>Use</td>
<td>Freight only</td>
</tr>
<tr>
<td>Maximum Train Speeds</td>
<td>59-mph passenger / 49-mph freight</td>
</tr>
<tr>
<td>Track Configuration</td>
<td>One-track mainline with sidings: Egbert, Wyoming – Wyoming–Nebraska state line – Horse Creek, Nebraska</td>
</tr>
<tr>
<td>Track Condition</td>
<td>FRA Track Class 4</td>
</tr>
<tr>
<td>Signal Systems</td>
<td>None</td>
</tr>
<tr>
<td>Operational Authority</td>
<td>Track Warrant Control (TWC)</td>
</tr>
<tr>
<td>Trackage Rights</td>
<td>None</td>
</tr>
<tr>
<td>Haulage Rights</td>
<td>None</td>
</tr>
<tr>
<td>Maximum Gross Weight</td>
<td>286,000-lb. mainline</td>
</tr>
<tr>
<td>Clearances</td>
<td>Unrestricted railcars do not exceed 11 feet in width including protrusions, or 17 feet in height. All others are classified as dimensional loads which require clearance before transport.</td>
</tr>
<tr>
<td>Double-Stack Capable</td>
<td>Yes</td>
</tr>
<tr>
<td>Industrial Leads</td>
<td>South Torrington Industrial Lead (18.6 miles): Yoder, Wyoming</td>
</tr>
</tbody>
</table>
**Greeley Subdivision**

The north-south Greeley Subdivision between Speer (southwest of Cheyenne), Wyoming, and Denver, Colorado, provides a link between UP’s transcontinental Overland Route and the Denver hub, where routes diverge east to Kansas City west to Salt Lake City, Utah, and south to Texas and the Gulf Coast. Trains carrying intermodal, automotive, grain, manifest, and coal traffic, most of which originate or terminate outside Wyoming, run over this subdivision. The Greeley Subdivision hosts about 15 to 20 trains per day on average. Table 4-28 lists the physical and operating characteristics of the line.

### Table 4-28. Union Pacific Railroad Greeley Subdivision Characteristics

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Greeley Subdivision (98.6 Miles; 4.95 Miles in Wyoming)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Owner</td>
<td>Union Pacific Railroad</td>
</tr>
<tr>
<td>Operator</td>
<td>Union Pacific Railroad</td>
</tr>
<tr>
<td>Use</td>
<td>Freight only</td>
</tr>
<tr>
<td>Maximum Train Speeds</td>
<td>70-mph passenger / 60-mph freight</td>
</tr>
<tr>
<td>Track Configuration</td>
<td>One-track mainline with sidings: Speer, Wyoming – Wyoming–Colorado state line – Denver, Colorado</td>
</tr>
<tr>
<td>Track Condition</td>
<td>FRA Track Class 4</td>
</tr>
<tr>
<td>Signal Systems</td>
<td>Centralized Traffic Control (CTC)</td>
</tr>
<tr>
<td>Operational Authority</td>
<td>Wayside signals</td>
</tr>
<tr>
<td>Trackage Rights</td>
<td>BNSF over UP (Speer, Wyoming – Wyoming–Colorado state line, 5 miles)</td>
</tr>
<tr>
<td>Haulage Rights</td>
<td>None</td>
</tr>
<tr>
<td>Maximum Gross Weight</td>
<td>315,000-lb. mainline</td>
</tr>
<tr>
<td>Clearances</td>
<td>Unrestricted railcars do not exceed 11 feet in width including protrusions, or 17 feet in height. All others are classified as dimensional loads which require clearance before transport.</td>
</tr>
<tr>
<td>Double-Stack Capable</td>
<td>Yes</td>
</tr>
<tr>
<td>Industrial Leads</td>
<td>None in Wyoming</td>
</tr>
</tbody>
</table>
4.2.1.2  Class III Rail Network in Wyoming

STB designates any railroad with less than $31.9 million of annual carrier operating revenue as a Class III carrier. Many states have an array of Class III (short-line) carriers, many of which were formed for the most part from trackage divested by Class I carriers during the last 35 years as a strategy to reduce operating and maintenance costs and to direct capital to long-haul mainline routes. Wyoming has three short-line railroads.

**Bighorn Divide & Wyoming Railroad**

The Bighorn Divide & Wyoming Railroad (BDW) had its genesis in the Bad Water Line, a railroad operation launched by Bonneville Transloaders, Inc., of Riverton, Wyoming. The Bad Water Line saved former Chicago & North Western Transportation Company (C&NW) trackage from abandonment between Riverton and Shoshoni, Wyoming, in 1988. The Bad Water Line subsequently retreated to a short segment between Shoshoni and Bonneville, became the Bad Water Railway in 2000, expanded operations to a new isolated line built between Lysite and Lost Cabin, Wyoming, to the east of Shoshoni in 2001, was acquired by Shoshoni-based BDW in 2002, and began operations at the Casper Logistics Hub in 2009 (this latter segment is not contiguous to the rest of the BDW network).

BDW handled 9,016 carloads in 2012. The mainstay of its business is transloading (truck to rail and vice versa) and transporting bulk products to BNSF interchanges for furtherance to destinations nationwide. A significant transloading infrastructure is maintained on the property, including ground space and silos for storage, conveyors and belts for movement of material, and rail and truck scales. Principal outbound commodities are molten sulfur and soda ash (truck in from the Green River, Wyoming, area); petroleum products; inbound frac sand and barite for use by local drilling interests; pipe; shingles; lumber; and urea. Bonneville Transloaders opened a new railcar shop and repair facility adjacent to the BDW at Shoshoni in 2006.

Table 4-29 lists railroad statistics for BDW.

**Table 4-29. Bighorn Divide & Wyoming Railroad Statistics**

<table>
<thead>
<tr>
<th>Location</th>
<th>Employees</th>
<th>Locomotives</th>
<th>Freight Cars</th>
<th>Passenger Cars</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>35</td>
<td>4</td>
<td>20</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Location</th>
<th>Miles Operated</th>
<th>Miles Owned</th>
<th>Miles Leased</th>
<th>Miles Leased to Class IIIs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wyoming</td>
<td>11.5</td>
<td>14</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>United States</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

*Source: 2013 data obtained from BDW by HDR*
In 2013, BDW operations consisted of the following components:

- **Bonneville Rail Yard (Bonneville, Wyoming):** A transloading and storage facility. The 125-acre facility features 25,436 total feet of track (14,000 feet for transloading purposes) and 215 railcar spots. The facility can accommodate petroleum products, soda ash, molten sulfur, frac sand, pipe, and lumber.

- **Shoshoni Rail Yard (Shoshoni, Wyoming):** A transloading and storage facility. The 125-acre facility features 17,217 total feet of track, all of which can be used for transloading purposes, and 265 railcar spots. The facility can accommodate petroleum products, frac sand, cement, pipe, and lumber.

- **Shobon Line (Shoshoni, Wyoming):** A 4.2-mile line connecting the Bonneville Rail Yard and Shoshoni Rail Yard. The line features an additional 3,000 feet of track for transloading and storage purposes as well as 45 railcar spots. The line serves propane and scrap iron facilities.

- **Casper Logistics Hub (CLH)/CTRAN (Casper, Wyoming):** A transloading, trucking, erecting, storage, and warehousing facility 7 miles northwest of Casper that is managed by CTRAN and operated by BDW. The 700-acre facility features 41,200 feet of track (32,700 feet for transloading purposes) and 500 railcar spots. The facility can accommodate lumber, petroleum products, frac sand, casing, coated pipe, cement, soda ash, and wind turbines. CLH is the largest transload facility along the BNSF network between Denver, Colorado, and Billings, Montana, and it offers strategic access to the Casper–Natrona County International Airport, the Foreign Trade Zone, and principal U.S. and interstate highways.

- **Lost Cabin Line:** A 4-mile line between Lysite and Lost Cabin, Wyoming, to access a ConocoPhillips gas plant at Lost Cabin. BDW accesses the isolated line via 21 miles of trackage rights over BNSF’s Casper Subdivision between Shobon (Bonneville) and Lysite. BDW transloads molten sulfur at the ConocoPhillips gas plant and assembles unit trains at the Bonneville Rail Yard for BNSF.
Figure 4-11 is a map of BDW routes in the state.

Figure 4-11. Bighorn Divide & Wyoming Railroad Routes in Wyoming, 2013

The maximum allowable gross weight for railcars on the BDW network is 286,000 lb. Carload interchange with BNSF occurs at Shobon (Bonneville) and Bishop (Casper). In BDW’s operation involving customer and yard switching, train movements are made not to exceed 10 mph. The maximum authorized speed on the BNSF Casper Subdivision over which the BDW has trackage rights is 40 mph.

**Rapid City, Pierre & Eastern Railroad**

The Rapid City, Pierre & Eastern (RCP&E) Railroad is a new Class III railroad that began operation on June 1, 2014, when it acquired the west end of the former Dakota, Minnesota & Eastern (DM&E) rail line from Canadian Pacific Railway (CP).

The Sioux Falls, South Dakota–based DM&E was initially formed in 1986 from about 825 miles of former Chicago & North Western Transportation Company (C&NW) trackage in Minnesota and South Dakota. DM&E gained access to Wyoming via the 1996 acquisition from UP of the 203-mile ex-C&NW Colony Line between Bentonite (Colony), Wyoming; Rapid City, South Dakota; and Crawford and Chadron, Nebraska. The Colony Line connected the then-existing west end of the DM&E network at Rapid City with the BNSF network at Crawford (UP accessed this isolated line via trackage rights on the BNSF network).
In 1998, DM&E filed with STB to build about 260 miles of new rail line from its existing mainline near Wasta, South Dakota, west into eastern Wyoming to gain an entrance to the Southern Powder River Basin coal fields, which until then were the exclusive domain of Class I railroads BNSF and UP. DM&E subsequently attracted considerable public interest and gained environmental approval for the project.

DM&E further expanded in 2003 when it gained control of another Class II: the 1,400-mile Iowa, Chicago & Eastern Railroad. This transaction provided DM&E with access to principal markets and gateways in Chicago, Kansas City, Minneapolis–St. Paul, and the Quad Cities terminals of Davenport, Iowa, and Rock Island, Illinois.

In 2006, STB granted DM&E authority to construct and operate 282 miles of new rail lines to serve coal originating in Wyoming’s Powder River Basin. Wyoming Dakota Railroad Properties was established as a construction subsidiary for the Powder River Basin extension.

In 2007, CP acquired DM&E. DM&E reported in 2007 that it was pursuing the process of right-of-way acquisition and that it needed to execute operational agreements with coal mines and obtain sufficient contractual commitments from prospective coal shippers before moving forward with the Powder River Basin extension. CP announced in late 2012 that it planned to defer its option to construct the Powder River Basin extension indefinitely due to ongoing deterioration in the domestic coal market.

On January 2, 2014, CP announced that it would sell the DM&E trackage to short-line railroad conglomerate Genesee & Wyoming Inc. (G&W) of Darien, Connecticut, for $210 million. RCP&E operates as a subsidiary to G&W.

RCP&E’s only route in Wyoming is between Bentonite (Colony), Wyoming, and Dakota Junction, Nebraska, via Rapid City, South Dakota. This branch line contributes considerable bentonite traffic and hosts one train per day, 6 days per week.

Table 4-30 lists railroad statistics for RCP&E.

<table>
<thead>
<tr>
<th>Location</th>
<th>Employees</th>
<th>Locomotives</th>
<th>Freight Cars</th>
<th>Passenger Cars</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>177</td>
<td>50</td>
<td>3,000</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Location</th>
<th>Miles Operated</th>
<th>Miles Owned</th>
<th>Miles Leased</th>
<th>Miles Leased to Class IIIs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wyoming</td>
<td>7</td>
<td>7</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>United States</td>
<td>670</td>
<td>670</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

Source: G&W 2014

Figure 4-12 below is a map of the RCP&E network in Wyoming and its continuation to the neighboring states of South Dakota and Nebraska.
Figure 4-12. Rapid City, Pierre & Eastern Railroad Routes in Wyoming, 2014
Swan Ranch Railroad

The Swan Ranch Railroad (SRRR) of Cheyenne, Wyoming, began operations on December 28, 2011, and is a subsidiary of short-line and regional railroad conglomerate Watco Transportation Services of Pittsburg, Kansas. SRRR operates on 17,192 feet of track and switches the Cheyenne Logistics Hub, which is the first phase of Granite Peak Development’s 7,200-acre SWAN Ranch Industrial Park situated near the intersection of the BNSF and UP networks and I-25 and I-80 on the southwest side of Cheyenne. The park contains transloading facilities as well as sites for energy companies and manufacturers. The railroad’s traffic is primarily crude oil and asphalt oil. SRRR handled about 450 carloads in 2012, and it anticipated an increase in traffic during 2013 and 2014.

Table 4-31 lists railroad statistics for SRRR.

<table>
<thead>
<tr>
<th>Location</th>
<th>Employees</th>
<th>Locomotives</th>
<th>Freight Cars</th>
<th>Passenger Cars</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Location</th>
<th>Miles Operated</th>
<th>Miles Owned</th>
<th>Miles Leased</th>
<th>Miles Leased to Class IIIs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wyoming</td>
<td>3</td>
<td>3</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>United States</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Source: 2013 data obtained from SRRR by HDR

The maximum allowable gross weight for railcars on the SRRR network is 286,000 lb. Carload interchange with BNSF occurs at Speer, Wyoming, southwest of Cheyenne. A track connection to the UP network at Speer is under development, which will ultimately provide SRRR customers with access to two Class I carriers. In SRRR’s operation involving customer and yard switching, train movements are made not to exceed 10 mph.

Figure 4-13 below is a map of SRRR’s route in the state. Figure 4-14 below is a detailed map of SRRR’s network.
Figure 4-13. Swan Ranch Railroad Route in Wyoming, 2013
Industrial Railroads

Industrial railroads exist in Wyoming to provide intraplant and interplant rail switching service to industrial and manufacturing customers and to coordinate and facilitate carload interchange with Class I railroads. These small carriers typically operate over private track on company property; they can be owned and operated by the company that they serve or can be operated under a contract agreement with an outside party.

Rail Link, a division of regional and short-line railroad conglomerate Genesee and Wyoming, offers a full range of rail-related contract services to industrial customers nationwide, services including switching, track and locomotive maintenance, railcar repairs, train tracking and monitoring, and in-plant trailer and container drayage. Included in its network is an extensive array of rail switching operations on privately owned trackage to coal mines throughout the Powder River Basin coal-production area. As part of this service, Rail Link provides unit train loading and inspections and coordinates all train movements into and out of the mines with BNSF and UP through BNSF’s dispatching center in Fort Worth, Texas. Rail Link reported in 2014 that its employees load more than 300 million tons of PRB coal each year. Table 4-32 lists the locations where Rail Link provides contract services for coal-loading operations in the PRB production area.
Progress Rail Services is a subsidiary of heavy-equipment manufacturer Caterpillar and provides switching services to an industrial park at Rock Springs, Wyoming, and for BNSF near Bill, Wyoming.


Other industrial plants across the state have similar rail operations. For example, Pacific Power & Light operates its own 16-mile industrial rail line to shuttle coal from a strip mine south to the Dave Johnston Power Plant near Glenrock, Wyoming.

### Table 4-32. Rail Link Industrial Rail Operations in Wyoming

<table>
<thead>
<tr>
<th>Location</th>
<th>Company</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eagle Butte</td>
<td>Alpha Natural Resources</td>
</tr>
<tr>
<td>Rawhide Mine</td>
<td>Peabody Energy</td>
</tr>
<tr>
<td>Buckskin Mine</td>
<td>Kiewit</td>
</tr>
<tr>
<td>Caballo Mine</td>
<td>Peabody Energy</td>
</tr>
<tr>
<td>Belle Ayr</td>
<td>Alpha Natural Resources</td>
</tr>
<tr>
<td>Cordero Rojo Mine</td>
<td>Cloud Peak Energy</td>
</tr>
<tr>
<td>Coal Creek Mine</td>
<td>Arch Coal</td>
</tr>
<tr>
<td>Black Thunder East</td>
<td>Arch Coal</td>
</tr>
<tr>
<td>Black Thunder West</td>
<td>Arch Coal</td>
</tr>
<tr>
<td>Black Thunder</td>
<td>Arch Coal</td>
</tr>
<tr>
<td>North Antelope Rochelle Mine</td>
<td>Peabody Energy</td>
</tr>
<tr>
<td>South Antelope Mine</td>
<td>Cloud Peak Energy</td>
</tr>
</tbody>
</table>

*Source: Rail Link 2013*
4.2.2  Strategic Rail Corridor Network

The Strategic Rail Corridor Network (STRACNET) is a 38,800-mile interconnected network of the rail lines that are most important to national defense, as identified by the U.S. Military Surface Deployment and Distribution Command’s Transportation Engineering Agency. Key rail lines throughout Wyoming are included in STRACNET, including the following segments:

- **UP**: Nebraska–Wyoming border at Pine Bluff, Wyoming, to the Wyoming–Utah border at Evanston, Wyoming (via Cheyenne, Laramie, Rawlins, and Green River)
- **UP**: Granger, Wyoming, to the Wyoming–Idaho border at Border, Wyoming (via Kemmerer)
- **UP**: Borie, Wyoming (near Cheyenne) to the Wyoming–Colorado border near Gleason, Wyoming

In addition to providing mainline routes for defense purposes, these lines also provide access to major defense contractors and logistics sites that are critical to national defense activities.

4.2.3  Abandoned and Railbanked Lines

Abandonments

Wyoming has largely avoided the network rationalization issues that have plagued other states, since the state’s rail system consists almost entirely of high-density mainline trackage. Rail abandonments in Wyoming have therefore been minimal and limited only to low-density, marginal operations where the demand for service simply did not exist. Wyoming is an anomaly considering that its rail abandonments have been offset significantly by the mileage of new track constructed into the Southern Powder River Basin during the 1970s and 1980s. Wyoming’s statewide rail network totaled 1,931 miles in 1920 but did not reach its peak of 2,065 miles until 1995. The longest continual loss of rail mileage in the state’s history was the former Chicago & North Western Transportation Company (C&NW) line from Lander, Casper, and Douglas, Wyoming, to Chadron, Nebraska, most of which was abandoned in segments starting in the early 1940s and continuing into the 1990s.

Today, rail line abandonment applications made by railroads are reviewed and approved for abandonment by the federal STB. About 25 miles of rail have been abandoned in Wyoming since the release of the previous Wyoming Statewide Rail Plan in 2004.

The Wyoming and Colorado Railroad (WYCO), a Class III carrier, acquired two branch lines from UP in 1987, both of which have been subsequently abandoned. WYCO filed to abandon its 24.3-mile Encampment Branch from a connection with the UP network at Walcott Junction south to Saratoga in 2004 in response to the loss of its single source of traffic, a Louisiana Pacific mill at Saratoga. STB gave final authority to abandon the line in 2006.

The 107.5-mile Coalmont Branch between Laramie and Hebron, Colorado (67.7 miles in Wyoming) was abandoned in stages starting in 1996. The remainder of the last 1.12-mile segment at Laramie was removed in 2013.
BNSF abandoned 0.11 mile of its Cody Subdivision in Cody, Wyoming, in 2006.

**Railbanked Lines**

Recognizing that abandoned rail lines are typically lost for future transportation uses, some rail right-of-way has been proactively railbanked in Wyoming. These segments could hold value as future transportation corridors. Wyoming DOT reviews all potential rail abandonments in the state for suitability as recreational corridors under the federal Rails to Trails legislation.

About 21,000 miles of open rails-to-trails corridors exist nationwide, with nearly 50 of those miles in Wyoming. The following four abandoned rail line segments have been converted to rail trails for interim recreational use in the state:

- **Wyoming Heritage Trail**: 22 miles of the former Chicago & North Western Transportation Company (C&NW)/Bighorn Divide & Wyoming Railroad (BDW) line between Shoshoni and Riverton, Wyoming
- **Medicine Bow Rail Trail**: 21 miles of the former UP/Wyoming and Colorado Railroad (WYCO) Coalmont Branch between Albany and near Wyocolo, Wyoming, which opened in 2007
- **Casper Rail Trail**: 3 miles of the former C&NW/UP line in Casper, Wyoming, which will eventually extend 6 miles east to Edness Kimball Wilkins State Park
- **Al’s Way Pathway**: 2.5 miles of the former C&NW line in Glenrock, Wyoming

**4.2.4 Wyoming Grade Crossings**

Wyoming has 1,085 active at-grade highway-rail crossings, also called grade crossings. There are 380 public and 705 private grade crossings in Wyoming. A public grade crossing is a location where a public highway, road, or street, including associated sidewalks or pathways, crosses one or more rail tracks at grade. If a public authority maintains the roadway on both sides of the crossing, the crossing is considered a public crossing, whereas a private crossing is a highway-rail grade crossing that is not a public grade crossing.

Further information regarding public and private grade crossings is provided in Appendix B, Wyoming Public and Private Grade Crossing Inventory, of the 2015 Statewide Rail Plan.
4.2.5  Freight Terminals

4.2.5.1  Freight Terminals

**BNSF Railway**

BNSF’s rail stations and main activities in Wyoming are listed in Table 4-33.

**Table 4-33. BNSF Rail Stations in Wyoming**

<table>
<thead>
<tr>
<th>City</th>
<th>Terminal</th>
<th>Intermodal</th>
<th>Transload</th>
<th>Coal</th>
<th>Grain</th>
<th>Automotive</th>
<th>Manifest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bonneville, WY</td>
<td>Bighorn Divide &amp; Wyoming Railroad (BDW)</td>
<td></td>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Casper, WY</td>
<td>BNSF Yard</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>Casper, WY</td>
<td>Casper Logistics Hub (served by BDW)</td>
<td></td>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cheyenne, WY</td>
<td>BNSF Yard</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>Donkey Creek, WY</td>
<td>BNSF Yard</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>Gillette, WY</td>
<td>BNSF Yard</td>
<td></td>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>Greybull, WY</td>
<td>BNSF Yard</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>Guernsey, WY</td>
<td>BNSF Yard</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>Sheridan, WY</td>
<td>BNSF Yard</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>Shoshoni, WY</td>
<td>BDW</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>Upton, WY</td>
<td>Tiger Transfer</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Yes</td>
</tr>
</tbody>
</table>

*Source: Data provided by BNSF*

*a* Indicates a BNSF Premier Transload Network facility; one is served by BNSF directly, and the other three are served by short-line partner BDW.

General carload (manifest) traffic is handled at switching yards. BNSF does not have any automotive or intermodal terminals in Wyoming, but traffic of both kinds flows through the state. Carload interchange in Wyoming occurs with the UP network at Cheyenne, with the Swan Ranch Railroad (SRRR) network at Speer (south of Cheyenne), and with the BDW network at Shobon (Bonneville) and Bishop (Casper).
Union Pacific Railroad

UP’s rail stations and main activities in Wyoming are listed in Table 4-34.

Table 4-34. Union Pacific Railroad Rail Stations in Wyoming

<table>
<thead>
<tr>
<th>City</th>
<th>Terminal</th>
<th>Intermodal</th>
<th>Transload</th>
<th>Coal</th>
<th>Grain</th>
<th>Automotive</th>
<th>Manifest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bill, WY</td>
<td>UP Yard</td>
<td></td>
<td></td>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cheyenne, WY</td>
<td>UP Yard</td>
<td></td>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>Green River, WY</td>
<td>UP Yard</td>
<td></td>
<td></td>
<td>Yes</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kemmerer, WY</td>
<td>UP Yard</td>
<td></td>
<td></td>
<td>Yes</td>
<td></td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>Laramie, WY</td>
<td>UP Yard</td>
<td></td>
<td></td>
<td>Yes</td>
<td></td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>Rawlins, WY</td>
<td>UP Yard</td>
<td></td>
<td></td>
<td>Yes</td>
<td></td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>Rock Springs, WY</td>
<td>UP Yard</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Yes</td>
</tr>
</tbody>
</table>

*Source: Data provided by UP*

General carload (manifest) traffic is handled at switching yards. UP does not have any automotive or intermodal terminals in Wyoming. Carload interchange in Wyoming occurs with the BNSF network at Cheyenne.
4.2.5.2 Grain Elevators

The state’s modest yields do not produce the consistent, heavy-volume grain shipment opportunities required to support shuttle-train loading facilities. These facilities are common in the Midwestern states and can rapidly assemble a full unit train for delivery to a single destination.

Rail-served elevators with more-traditional loading capacities and operations are clustered predominantly in the eastern part of the state. Table 4-35 lists all such facilities in Wyoming.

Table 4-35. Wyoming Grain Elevator Facilities

<table>
<thead>
<tr>
<th>Location</th>
<th>Operator</th>
<th>Railcar Capacity</th>
<th>Rail Carrier</th>
</tr>
</thead>
<tbody>
<tr>
<td>Albin, WY</td>
<td>Champ LLC</td>
<td>25</td>
<td>UP</td>
</tr>
<tr>
<td>Basin, WY</td>
<td>Big Horn Cooperative Marketing Association</td>
<td>8</td>
<td>BNSF</td>
</tr>
<tr>
<td>Burns, WY</td>
<td>Farmers Elevator Company</td>
<td>25</td>
<td>UP</td>
</tr>
<tr>
<td>Coors Spur, WY</td>
<td>Adolph Coors</td>
<td>21</td>
<td>BNSF</td>
</tr>
<tr>
<td>Garland, WY</td>
<td>ADM Edible Bean Specialties</td>
<td>3</td>
<td>BNSF</td>
</tr>
<tr>
<td>Gillette, WY</td>
<td>Farmers Coop Association</td>
<td>10</td>
<td>BNSF</td>
</tr>
<tr>
<td>Lindbergh, WY</td>
<td>Farmers Elevator Company</td>
<td>4</td>
<td>UP</td>
</tr>
<tr>
<td>Lingle, WY</td>
<td>Elevator</td>
<td>2</td>
<td>BNSF</td>
</tr>
<tr>
<td>Lovell, WY</td>
<td>Western Sugar</td>
<td>48</td>
<td>BNSF</td>
</tr>
<tr>
<td>Manderson, WY</td>
<td>Yellowstone Bean Company</td>
<td>5</td>
<td>BNSF</td>
</tr>
<tr>
<td>Pine Bluffs, WY</td>
<td>Farmers Elevator Company</td>
<td>50</td>
<td>UP</td>
</tr>
<tr>
<td>Pine Bluffs, WY</td>
<td>Pine Bluffs Feed and Grain</td>
<td>5</td>
<td>UP</td>
</tr>
<tr>
<td>Powell, WY</td>
<td>Big Horn Cooperative Marketing Association</td>
<td>12</td>
<td>BNSF</td>
</tr>
<tr>
<td>Powell, WY</td>
<td>Treasure Valley Seed Company</td>
<td>12</td>
<td>BNSF</td>
</tr>
<tr>
<td>Ralston, WY</td>
<td>Riverland Ag Corp.</td>
<td>26</td>
<td>BNSF</td>
</tr>
<tr>
<td>South Torrington, WY</td>
<td>Yoder Wyoming Grain</td>
<td>10</td>
<td>UP</td>
</tr>
<tr>
<td>Torrington, WY</td>
<td>Kelley Bean Company</td>
<td>5</td>
<td>BNSF</td>
</tr>
<tr>
<td>Torrington, WY</td>
<td>Panhandle Co-Op</td>
<td>4</td>
<td>BNSF</td>
</tr>
<tr>
<td>Torrington, WY</td>
<td>Western Sugar</td>
<td>4</td>
<td>BNSF</td>
</tr>
<tr>
<td>Worland, WY</td>
<td>Adolph Coors</td>
<td>15</td>
<td>BNSF</td>
</tr>
</tbody>
</table>

Sources: Data provided by BNSF, UP, Wyoming Business Council, and Yoder Wyoming Grain
4.3 Highways

4.3.1 Wyoming’s Highway Network

4.3.1.1 Highway Designations

National Highway System

The National Highway System includes a series of roads that are deemed to be important to the nation's economy, defense, and mobility. The National Highway System (NHS) includes the following subsystems of roadways:

- **Interstate**: The Eisenhower-era Interstate System of highways.
- **Other Principal Arterials**: Highways in rural and urban areas that provide access between an arterial and a major port, airport, or other public transportation facility.
- **Strategic Highway Network (STRAHNET)**: Highways important to the United States' strategic defense policy and that provide defense access, continuity, and emergency capabilities for defense purposes.
- **Major Strategic Highway Network Connectors**: Highways that provide access between major military installations and highways that are part of the Strategic Highway Network.
- **Intermodal Connectors**: Highways that provide access between major intermodal facilities and the other four subsystems making up the NHS. There are no NHS Intermodal Connectors currently designated in Wyoming.

The NHS is under the jurisdiction of state departments of transportation with oversight by FHWA. In Wyoming, the NHS comprises the entire interstate and U.S. highway system along with several state highway corridors (2,021 centerline miles, or 4,499 lane-miles). As shown in Figure 4-15 below, these facilities include:

- Interstate 25 (I-25)
- Interstate 80 (I-80)
- Interstate 90 (I-90)
- U.S. Highway 14 (US 14)
- U.S. Highway 16 (US 16)
- U.S. Highway 18 (US 20)
- U.S. Highway 20 (US 20)
- U.S. Highway 26 (US 26)
- U.S. Highway 30 (US 30)
- U.S. Highway 85 (US 85)
- U.S. Highway 87 (US 87)
- U.S. Highway 89 (US 89)
- U.S. Highway 20191 (US 191)
- U.S. Highway 212 (US 212)
- U.S. Highway 287 (US 287)
- U.S. Highway 310 (US 310)
- State Highway 59 (SH 59)
- State Highway 69 (SH 69)
- State Highway 89 (SH 89)
- State Highway 114 (SH 114)
- State Highway 120 (SH 120)
- State Highway 220 (SH 220)
- State Highway 789 (SH 789)
National Freight Network

MAP-21 directed the Secretary of Transportation to establish a national freight network with the objective of strategically directing resources to improve freight performance on the highway network. The national freight network as designated by MAP-21 consists of the primary freight network, sections of the Interstate subsystem not designated as part of the primary freight network, and critical rural freight corridors.

Primary Freight Network

MAP-21 identified that the national primary freight network will comprise not more than 27,000 centerline miles of existing roads but that maximum may be extended by a further 3,000 miles that the Secretary deems critical to efficient freight movement.

FHWA initially identified 41,518 interconnected, centerline miles, including 37,436 centerline miles of interstate and 4,082 centerline miles of non-interstate roads as important to freight movement based on eight methodology criteria. However, since MAP-21 limited the primary freight network to 27,000 centerline miles, those segments with the highest average annual daily truck traffic (AADTT) flows were designated as the draft highway primary freight network. Within Wyoming the draft primary freight network consists of 367.11 centerline miles. Wyoming’s component of the 41,518-mile network is made up of 621.04 miles. At the time this SFP was written, the primary freight network was still designated as draft.
The draft primary freight network in Wyoming is shown in Figure 4-16.

**Figure 4-16. Draft Primary Freight Network in Wyoming**

**MAP-21 Critical Rural Freight Corridors**

For a road to be designated a critical rural freight corridor, it must meet one of the following three criteria (FHWA 2012):

15. The road is a rural principal arterial road and has a minimum of 25 percent of the annual average daily traffic (AADT) of the road measured in passenger-vehicle equivalent units from trucks (FHWA vehicle classes 8 to 13);

16. The road provides access to energy exploration, development, installation, or production areas; or

17. The road connects the primary freight network, a road described in paragraphs (1) or (2), or interstate system to facilities that handle more than:
   a. 50,000 20-foot equivalent units per year; or
   b. 500,000 tons per year of bulk commodities.
HDR performed a data analysis to determine which roads in Wyoming qualify as critical rural freight corridors. The overall AADT and AADTT were provided by Wyoming DOT for this data analysis. These data were used to determine which corridors had a truck percentage higher than 25 percent in Wyoming. According to HDR’s analysis, these corridors are:

- I-80 (milepost [MP] 0 – MP 402)
- I-25 (MP 3 – MP 14, MP 182 – MP 190, MP 280 – MP 291)
- US 30 (MP 30 – MP 40)
- US 20 (MP 62 – MP 63)
- WY 220 (MP 44 – MP 57)

HDR determined where petroleum refineries and petroleum product terminals are located in Wyoming. Most are located on I-80, which has a high truck percentage. Besides I-80, refineries or product terminals are located in the following areas around the state:

- In Newcastle near US 85
- South of Gillette on SH 59
- North of Douglas on SH 59
- In Casper on I-25
- South of Sheridan on I-90

HDR also identified the location and production volumes of the coal mines around Wyoming using mine information from the Wyoming State Geological Survey (WSGS 2015). Grass Creek Mine did not exceed 500,000 tons per year of bulk commodities. In 2013, Grass Creek Mine produced only 26,587 tons of coal. Corridors around this mine were removed from the list of critical rural freight corridors. Oil and gas production fields and well locations were also identified, in addition to future production development areas using data from WSGS. Figure 4-17 below shows the critical rural freight corridors in Wyoming.
Figure 4-17. MAP-21 Critical Rural Freight Corridors in Wyoming
**Congressional High-Priority Corridors**

From a broader regional perspective, I-25 is designated a high-priority corridor on the NHS (Figure 4-18). This designation is established by the U.S. Department of Transportation (USDOT) under the provisions of SAFETEA-LU (the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users; Public Law 109-59) in the Rocky Mountain region. According to the FHWA website, the only criterion for being a Congressionally designated High Priority Corridor is that it is what Congress designates.

**Figure 4-18. Congressional High-Priority Corridors on the U.S. National Highway System**
**Wyoming Key Freight Corridors**

As shown in Figure 4-19, 13 corridors have been categorized by Wyoming DOT as Wyoming’s key freight corridors. These corridors have been designated key corridors due to a range of factors that include the volume of truck traffic on that particular route and access to major freight generators and population centers.

- I-90 (MP 0 – MP 207)
- I-80 (MP 0 – MP 402)
- I-25 (MP 0 – MP 300)
- US 30 (MP 0 – MP 100)
- US 191 (MP 0 – MP 110)
- US 287 (MP 0 – MP 44)
- US 20 – WY 789 (MP 100 – MP 257)
- US 20 – US 26 (MP 0 – MP 100)
- US 26 – WY 789 (MP 104 – MP 127)
- WY 220 (MP 44 – MP 117)
- WY 59 (MP 0 – MP 112)
- US 85 (MP 17 – MP 230)
- US 26 (MP 0 – MP 38, MP 48 – MP 56)

**Figure 4-19. Key Freight Corridors in Wyoming**
4.3.2 Annual Average Daily Truck Traffic

Figure 4-20 shows the truck percentage of the average daily traffic (ADT) volumes for all of the roads in Wyoming for 2014. I-80 carries the most truck volume of all the interstates in Wyoming, with trucks amounting to more than 50 percent of the traffic volume on I-80 between Rock Springs and Cheyenne. US 30 also has a truck volume percentage of 50 percent or higher.

Figure 4-21 below shows the Wyoming DOT projected truck percentage of the ADT volumes for Wyoming roads in 2034.

Figure 4-20. Truck Percentage of ADT for Wyoming, 2014
4.3.3 Truck Routes and Hazardous Materials

Freight trucking is subject to regulations related to the size, weight, and commodities being carried. Consequently, identified and designated truck routes are a critical aspect of freight trucking. In particular, trucks over a certain size are limited or prohibited on some highway routes, and transporting hazardous materials can also be restricted on highway segments.

Hazardous materials are defined as any substance or material that could adversely affect the safety of the public, handlers, or carriers during transportation. Improper transportation of hazardous materials (hazmat) such as explosive, flammable, or oxidizing material can cause explosions and fires if they are accidentally released. Also, some hazardous materials, such as radioactive, toxic, corrosive, or infectious materials, can have short- or long-term effects on humans and the environment.

The Wyoming State Highway Patrol has the primary responsibility for minimizing the threat of releases of these substances on highways. The transport and handling of hazardous materials must comply with
49 CFR 171–180. The federal hazardous materials regulations give guidance regarding how individual States should restrict routes for hazmat transportation by avoiding populated areas, places where crowds assemble, and narrow streets or alleys.

According to the Federal Register, Vol. 70, No. 134, dated July 14, 2014 (Department of Transportation, Federal Motor Carrier Safety Administration, National Hazardous Materials Route Registry), there are no restricted or designated hazardous material routes in Wyoming. The only restrictions noted in the register are in the city of Cheyenne, for which city ordinance states:

Hazardous materials and radioactive materials may not be transported by motor vehicle within the city of Cheyenne except for the purpose of making pickups and/or deliveries within the city, unless such routing is consistent with 49 CFR 397.7 or 49 CFR 177.825. Motor vehicles carrying hazardous and/or radioactive materials which are making local pickups and/or deliveries must be operated over the safest and most direct route to and from the origination and destination point. Such routes shall not pass through residential areas unless there is no practical alternative.

4.3.4 Truck Terminals and Distribution Facilities

Trucking in Wyoming is vital to the economic well-being of the state and surrounding region and serves many businesses with door-to-door services. Several factors make Wyoming an attractive location for warehousing/distribution and logistics facilities, including proximity to this sizeable consumer market as well as land availability, labor availability, low energy costs, and good access to rail and highway networks. Trucking also provides the “last mile” link for intermodal shipments, connecting rail and air with the customer. Key components of this trucking system are the trucking terminals and distribution facilities that provide interfacing, warehousing, and connectivity to ultimate shippers and receivers.

Both Lowe’s and Walmart have established major distribution facilities in the Cheyenne area for these previously mentioned reasons. In addition to the Lowe’s and Walmart facilities, a number of industrial and business parks are establishing themselves as hubs for logistic activities and developments throughout the region. Examples include:

- Casper Logistics Hub, which consists of 700 acres of industrial land and the CTRAN rail yard. It is adjacent to BNSF Railway’s Class I rail line and I-25.
- The Salt Creek Heights Business Park, a 135-acre industrial location outside Casper.
- Swan Ranch Rail Park, a 550-acre industrial facility near the I-80/I-25 interchange south of Cheyenne. The rail park has access to both the BNSF and UP rail lines.

Not surprisingly, these industrial parks are also attracting companies that support the oil and gas industry. Examples include suppliers and manufacturers of oil and gas equipment, chemicals, pipes, and steel tubing. Access to the rail network is considered important in these companies’ site-selection process because some elements of their supply chain rely on rail, whether used for inbound or outbound movements.
4.3.5 Truck Parking and Fueling Facilities

Truck stops and rest areas are important elements of the highway system. These facilities contribute to the safety and efficiency of trucking operations in Wyoming. Truck stops and fueling stations for commercial vehicles are designed to have multiple fueling positions and provide increased maneuverability for larger vehicles to access the fueling pumps. In addition to vehicle services, many also provide truck driver amenities such as restrooms, showers, restaurants, and lodging. Besides the typical diesel fueling positions, many fueling stations have begun providing compressed natural gas fueling positions. Figure 4-22 illustrates the existing commercial vehicle fueling facilities and the type of gas included at each facility along the key freight corridors.

Figure 4-22. Existing Commercial Vehicle Fueling Facilities, 2015

Truck parking facilities provide opportunities for commercial vehicle operators to rest and park during road closures and inclement weather. Figure 4-23 below illustrates the existing truck parking facilities along Wyoming’s interstate highways.
According to the U.S. Department of Energy’s Alternative Fuels Data Center (2015), two truck stops in Wyoming provide electrical connections for trucks. Electrical connections at truck stops allow drivers to operate in-cab electrical equipment such as heaters and air conditioners without having to run the truck engine. This saves fuel and reduces local air pollutant emissions. The Eastgate Travel Plaza at Evansville provides 24 truck bays with electrical connections, and the Little America Travel Center provides 36 bays and also has electrical connections for refrigerated trailers. According to Shorepower Technologies, a provider of truck stop electrical installations, more than 20 percent of long-haul, heavy-duty trucks are factory equipped with electrical connections (ShorePower Technologies 2015).
4.3.6 Ports of Entry

Port-of-entry (POE) facilities help regulate commercial vehicle activity by regulating registrations, overweight/oversize permits, and hazardous materials permits and endorsements. POEs also play an important role in maintaining safety, security, and a state of good repair for important freight corridors in Wyoming. Figure 4-24 shows the locations of all 14 POEs in the state (blue dots), each strategically placed along one or more important freight corridors (red lines).

POEs often cause a small amount of congestion on highways and freeways because most trucks traveling at highway speeds must slow down and exit the highway or freeway to access the POE. This is also inconvenient for truck drivers who are trying to make deliveries as quickly as possible. In order to help mitigate this problem, some POEs have weigh-in-motion (WIM) sensors installed. WIM allows trucks to drive past POEs while still providing the weight of their vehicle. All WIM locations (as of January 2014) are shown in Figure 4-24 (red dots). In 2013, 1,400,794 vehicles were weighed using WIM sensors, and 709,244 were weighed using fixed weighing platforms (Wyoming DOT 2014).

Figure 4-24. Ports of Entry in Wyoming, 2014
4.4 **Pipelines**

Even though pipelines are mostly invisible and are buried out of sight, they are a critical part of the Wyoming freight transport system. Pipelines carry 12 percent of Wyoming’s freight, or 78,513,000 tons of material. Nationally, pipelines carry 17 percent of all U.S. freight but account for only 2 percent of the nation’s freight transportation costs (Phillips 66 2012).

Pipelines form the network through which energy products flow. They link oil and gas producers with their refining and processing counterparts and eventually with the end user and consumer. There are over 38,600 miles of pipelines in Wyoming (Wyoming Petroleum Association 2014), which are used to carry mainly the following products:

- Natural gas
- Carbon dioxide
- Natural gas liquids
- Crude oil
- Refined petroleum products

4.4.1 **Pipeline Ownership**

Pipelines are typically owned by private entities, but their development, pricing, and safety are overseen by various state and federal authorities or bodies. The Federal Energy Regulatory Commission (FERC) regulates the transportation tariffs for interstate shipments on refined-product pipelines, and state regulatory agencies regulate the transportation tariffs for intrastate shipments on pipelines.

4.4.2 **Pipeline Types**

A pipeline network is made of distinct types of pipeline, each of which serves a particular function. The three main types of pipeline are gathering pipelines, transmission pipelines, and distribution pipelines.

4.4.2.1 **Gathering Pipelines**

Gathering pipelines are used to transport crude oil, natural gas, and other bulk gases and liquids from areas of production, such as wellheads and production facilities, to processing and refining facilities. At these facilities, the raw materials are stored, treated, and processed before being transported by pipeline, rail, or truck. The gathering pipeline networks are comprehensive, since these pipelines will converge with other pipelines from other wells and fields before reaching the processing centers.

4.4.2.2 **Transmission Pipelines**

Transmission pipelines are typically longer-distance pipelines used to transport crude oil, natural gas, and refined products from refinery and processing centers to distribution terminals or even directly to large industrial users and power-generating centers. These pipelines consist of larger-diameter, high-pressure lines. Lateral pipelines might branch off from the main transmission line to serve groups or individual users. One example of large users of liquid products is airports, which require large volumes of jet fuel.
4.4.2.3 Distribution Pipelines

Distribution pipelines typically transport products from storage facilities or terminals to the end user. The majority of distribution pipeline networks are used to transport gases. Natural gas distribution pipelines are used to transport products from storage locations directly to residential and industrial customers through small-bore and low-pressure networks. Liquids are typically delivered to the end user, such as gas stations, by tanker truck from distribution terminals that are served by transmission pipelines or other forms of transport such as barge or rail.

4.4.2.4 Storage

Storage systems are a vital part of the pipeline system. The demand for products, especially natural gas, fluctuates from day to day and from season to season, particularly during the peak winter heating period. Producers will often not be able to match production capacity with demand, so storage facilities are needed to balance this mismatch.

4.4.3 Natural Gas Pipelines

4.4.3.1 Natural Gas–Gathering Networks

Examples of natural gas–gathering pipeline networks in Wyoming include:

- **Fort Union Gas-Gathering System:** This high-pressure gas-gathering system in Converse and Campbell Counties gathers coal bed methane from the Powder River Basin. The system consists of three parallel 24-inch, 106-mile lines that run south from the Deadhorse area of Wyoming to a terminus near Glenrock. At Glenrock, the system delivers into the three interstate pipeline systems of Wyoming Interstate, Colorado Interstate, and Tallgrass Energy.

- **Bighorn Gas-Gathering System:** This 273-mile system gathers gas produced from coal bed methane wells in the Powder River Basin in Campbell, Johnson, and Sheridan Counties.

- **Granger Gas-Gathering System:** This 857-mile system located in Sweetwater County is supplied by the Moxa Arch, Jonah, and Pinedale anticline fields.

4.4.3.2 Gas Transmission Pipelines

Figure 4-25 below identifies the routes that natural gas takes to the various export markets outside Wyoming. Several pipelines converge at Opal, Wyoming, creating a major interstate natural gas trading hub. As Figure 4-25 shows, the majority of Wyoming’s natural gas was exported to the west in September 2013.
Figure 4-25. Natural Gas Flow out of the Central Rockies, September 15, 2013

Source: Wyoming Pipeline Authority 2013
Table 4-36 and Table 4-37 below list the capacity of the different pipelines and also how that capacity has changed over time. Most notable are the Bison and Ruby pipelines, which came on-stream in 2011.

**Table 4-36. Natural Gas Pipeline Capacity from Wyoming to Other States, 2007–2013**

in millions of cubic feet per day (MMcf/d)

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*Source: EIA 2014*
Table 4-37. Natural Gas Pipeline Capacity to Wyoming from Other States, 2007–2013

in millions of cubic feet per day (MMcf/d)

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Source: EIA 2014

4.4.4 Crude Oil Pipelines

The first oil pipeline in Wyoming was constructed in 1911, but the majority of oil infrastructure in the Rockies was implemented in the 1940s and 1950s. Wyoming has an extensive network of pipelines, including both gathering and transmission pipelines, serving the crude oil sector.

4.4.4.1 Gathering Pipeline Networks

The gathering pipeline networks are located throughout the oil-producing counties. These typically consist of a series of gathering lines from 1 to 40 miles long that connect oil wells and receipt points to a gathering station for onward transport by multiple modes, including transport to other pipeline networks. Examples of gathering systems include:

- Byron-Garland Gathering System
- Circle Ridge–Maverick Gathering System
- Oregon Basin Gathering System
- Belle Fourche Gathering System (Figure 4-26 below)
Figure 4-26. Belle Fourche Gathering System

Source: True Companies 2014
4.4.4.2 Transmission Pipelines

The interconnectivity of the Wyoming crude oil transmission pipeline network serves a number of different functions, including:

- Inter-regional movements of crude, in which crude flows through Wyoming but originates in a different region and is processed in another region
- The export of crude from Wyoming to other regions
- The export of crude from Wyoming to refining facilities in neighboring states
- The movement of crude produced in Wyoming to Wyoming’s refineries
- The movement of crude from outside Wyoming to Wyoming’s refineries

4.4.4.3 Examples of Wyoming’s Crude Transmission Pipelines

Figure 4-27 illustrates some of the key crude transmission pipelines in Wyoming.

- The 1,717-mile Express-Platte System is one of three major pipelines that link western Canada to U.S. refining markets. The Express Pipeline is a 24-inch, 785-mile pipeline that links Hardisty, Alberta, with Casper, Wyoming, and the Platte Pipeline is a 20-inch pipeline running 932 miles from Casper to Wood River, Illinois.
- The Rocky Mountain Crude Pipeline runs from Guernsey, Wyoming, to Denver, Colorado.
- The Centennial Pipeline is a 137-mile, 12-inch pipeline running from Guernsey to Cheyenne.
- The 103-mile Pathfinder Sinclair System links Casper to the Sinclair refinery.
- The Butte Pipeline is a 16-inch pipeline system running from Baker, Montana, to Ft. Laramie and Guernsey, Wyoming.

Figure 4-27. Wyoming Crude Oil Transmission Pipelines

Source: Wyoming Pipeline Authority 2010
4.4.5 Refined Product Distribution

Once crude oil has been refined into its various products, pipelines remain a cost-effective way of distributing large volumes of product to market and consumers. Products typically carried by pipeline include gasoline, jet fuel (both military JP4 and commercial JFA), and fuel oil. Examples of refined product pipelines in Wyoming include the following:

- The 335-mile Seminoe Pipeline runs from a refinery in Billings, Montana, to Sinclair, Wyoming, and is capable of moving 46,000 barrels per day. Product can also flow to the Pioneer Pipeline, which extends 305 miles from Sinclair to North Salt Lake, Utah.
- The Rocky Mountain Pipeline System is approximately 550 miles of common carrier pipeline that distributes refined petroleum products in Colorado, South Dakota, and Wyoming.

4.4.6 Carbon Dioxide Pipelines

Carbon dioxide (CO\(_2\)) is increasingly being used in depleted oil fields, where it is injected into the ground to enhance oil recovery. Currently, CO\(_2\) is being used in five Wyoming fields to help recover additional oil. A number of CO\(_2\) pipelines are operational within Wyoming, including a recently constructed 232-mile pipeline linking a gas plant at Lost Cabin, Wyoming, to the Bell Creek oil field in southeastern Montana. Additional CO\(_2\) pipelines are shown in Figure 4-28.

As part of the Wyoming Energy Plan, a streamlined permitting process has been proposed which would establish 1,150 miles of pipeline corridors across Wyoming for planning and constructing CO\(_2\) pipelines (Figure 4-29 below).

![Figure 4-28. Carbon Dioxide Pipelines, 2013](source: WSGS 2013)
Figure 4-29. Wyoming Pipeline Corridor Initiative

Source: Wyoming Pipeline Authority 2014
4.4.7 Natural Gas Liquid Pipelines

Natural gas liquids (NGLs) include ethane, propane, butane, isobutane, and pentane. These products are used in many industrial, commercial, and residential sectors. For example, propane is used extensively as a residential and commercial heating fuel, including use in small stoves and barbecues.

The NGL pipeline network in Wyoming is not as extensive as the crude oil and natural gas networks. The NGL pipeline network includes the following pipelines:

- The Overland Pass Pipeline, a 760-mile pipeline from Opal, Wyoming, to the Mid Continent NGL market center in Conway, Kansas
- The 695-mile Phillips 66 Powder River Pipeline linking Douglas, Wyoming, to NGL processing facilities in Borger, Texas
- The 108-mile Thunder Creek Pipeline, which began operations in January 2015; this pipeline serves the Powder River Basin and connects to the Phillips 66 Powder River Pipeline (Figure 4-30)
- A planned extension of the Thunder Creek Pipeline that would eventually connect the Powder River Basin to the Overland Pass Pipeline near the Colorado–Wyoming border and the Front Range NGL pipeline near Lucerne, Colorado (Figure 4-30)

4.5 Water

Wyoming has a network of rivers and canals, but their primary purposes are for drainage and irrigation. Though logs were floated down the North Platte River in the 1860s to support construction of rail lines, the river network in Wyoming is not suited for significant freight movements. This is largely due to the inadequate depth and width of rivers, a lack of connectivity to industry, and competition from existing modes of transportation such as truck and rail.
4.6 References

Air Cargo Management Group

BNSF Railway
2012 BNSF Railway Fact Sheet.

Casper Airport Board
2010 Air Cargo Study.

[EIA] U.S. Energy Information Administration

[FHWA] Federal Highway Administration
2012 Title 23 United States Code Section 167(e), National Freight Policy.


Meritage Midstream

Phillips 66

Rail Link
Shorepower Technologies

[STB] Surface Transportation Board

True Companies

U.S. Department of Energy, Alternative Fuels Data Center

[UP] Union Pacific Railroad

[USDOT] U.S. Department of Transportation, Bureau of Transportation Statistics


[Wyoming DOT] Wyoming Department of Transportation
2014 Port of entry data.

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2010 Crude Oil Update.
2014 Wyoming Pipeline Corridor Initiative, Plan of Development. May.
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Chapter 5. Conditions and Performance of the State’s Freight Transportation System

This chapter of the SFP includes an analysis of the conditions and performance of the state’s freight transportation system including any constraints associated with each mode of transportation. The chapter also discusses safety issues and concerns associated with the main modes of transportation.

5.1 Conditions and Performance by Mode

5.1.1 Aviation

The main issue associated with Wyoming’s aviation operations is weather. Low visibility, snow, and extreme wind can all affect aviation operations, whether an aircraft is carrying cargo or passengers. Airports adopt various measures, such as airport approach aids, snow clearance, and de-icing equipment, to mitigate these effects, and many airports in Wyoming that handle air cargo have some or all these measures. Feedback from the aviation industry suggests that weather conditions affect aircraft operations in Wyoming 20 to 30 days each year (pers. comm. with Glenn Januska, October 9, 2014).

The 2010 Casper–Natrona County International Airport Air Cargo Study (Casper Airport Board 2010) identified a number of condition issues associated with the airport’s express sortation facility. The building was originally developed as a military hanger during World War II, is not designed for modern air cargo operations, and is coming to the end of its useful life. The study also identified that the building is 30 percent to 50 percent undersized and allows no room for growth.

5.1.2 Rail

5.1.2.1 Class I Railroads

Investment in rail infrastructure in the state of Wyoming by the Class I railroads—BNSF Railway (BNSF) and Union Pacific Railroad (UP)—has been robust and continuous since the opening of the Southern Powder River Basin coal-production area and transportation of coal by rail in the 1970s. Historically, most projects were aimed at developing the capacity necessary to efficiently handle the surge of coal shipments out of Wyoming. These efforts spawned full upgrades to and multiple-tracking of existing mainlines, construction of new lines, and expansion and creation of new terminal facilities.

In 2012, BNSF invested an additional $60 million on rail capacity and maintenance projects in Wyoming, which included surfacing and undercutting 1,115 miles of track and replacing 31 miles of rail and 36,000 ties.
Funds are budgeted by the Class I railroads each year to facilitate ongoing capital investment in the state’s rail network. Systemwide capital expenditure budgets for BNSF and UP in 2013 were $4.1 billion and $3.6 billion, respectively. The Class I railroads did not identify how much of this funding was used specifically for rail projects in Wyoming.

The Class I railroads have continued to invest heavily in their networks during the last 5 years in order to solve ongoing factors constraining the capacity, efficiency, and velocity of the high volumes of through traffic and coal shipments in Wyoming; to eliminate or mitigate operational chokepoints; to handle various upgrades associated with maintenance and safety (including implementation of federally mandated positive train control [PTC] systems, which reduce the likelihood of train overspeed incidents and collisions between trains); and to accommodate routine infrastructure renewal. Class I needs were discussed with each of the carriers during the stakeholder outreach process of the 2014 Statewide Rail Plan.

BNSF Railway

Between 2008 and 2011, BNSF invested about $335 million for capacity expansion and maintenance in Wyoming, which included triple- and quadruple-tracking BNSF’s Orin Subdivision (joint with UP between West Caballo Junction and Shawnee Junction) in the Southern Powder River Basin coal-production area. As a result, the Orin Subdivision is now triple-track between Donkey Creek Junction (east of Gillette) and Shawnee Junction and quadruple-track between Milepost (MP) 59.7 and West Bill, for a total of 117 miles of multiple tracks. Also completed during that timeframe were additional double-tracking projects on single-track lines to improve the velocity of the network leading into and out of the Powder River Basin.

In 2012, BNSF invested an additional $60 million in rail capacity and maintenance projects in Wyoming, which included surfacing and undercutting 1,115 miles of track and replacing 31 miles of rail and 36,000 ties.

BNSF did not identify any ongoing projects or any specific operational bottlenecks or constraints in Wyoming in 2013.

Union Pacific Railroad

This section identifies the UP infrastructure projects in Wyoming funded by capital expenditure and completed during the last 5 years.

Rawlins Subdivision Renewal. In 2008, UP invested $3.9 million on the Rawlins Subdivision between Bitter Creek and Green River to install 29,300 new ties and 11,700 tons of crushed-rock ballast to stabilize the roadbed. As part of the project, the surfacing at 32 highway-rail grade crossings was replaced.

In 2012, UP invested $10 million to further renew the Rawlins Subdivision between Green River and Rawlins. The project involved replacing more than 2 miles of rail in curves and 75,000 ties, installing 34,600 tons of crushed-rock ballast, and renewing surfaces at 11 highway-rail grade crossings.

Sidney Subdivision and Powder River Subdivision Renewal. In 2011, UP invested $17 million to renew the Sidney Subdivision between Egbert, Wyoming, and Hershey, Nebraska. The Wyoming portion of this project involved replacing about 66,000 ties, installing about 44,800 tons of ballast, and renewing 62 crossing surfaces. UP also approved an additional expenditure of about $31 million to replace rail and three switches,
install 75,000 concrete ties, and renew the surfacing at seven highway-rail grade crossings on the Powder River Subdivision between Lusk and Shawnee.

**Ongoing UP Capital Projects.** Ongoing UP capital projects for Wyoming include the Laramie Subdivision Renewal and the Pocatello Subdivision Upgrade.

**Laramie Subdivision Renewal.** This $12-million project involves replacing about 5 miles of rail in curves and 69,000 ties, installing 27,000 tons of crushed-rock ballast, and renewing the surfaces at 26 highway-rail grade crossings on the line segment between Rawlins and Granite. The project began in April 2013 and was completed at the end of 2013.

**Pocatello Subdivision Upgrade.** UP completed an extension to the siding at Pixley (near Cokeville) in 2013 to improve operational capacity and efficiency.

UP did not identify any current specific operational bottlenecks or constraints in Wyoming.

### 5.1.2.2 Class III Railroads

Class III railroads, or short-line railroads, face a different set of challenges to meet their needs, since they do not have the capital and technical resources, operating capacity and flexibility, or modern infrastructure of the larger Class I railroads. Typically, the largest constraints on U.S. short-line railroads involve accommodating railcars with a 286,000-pound (lb.) maximum gross weight (these heavier car loadings are an advancement over lighter cars and are fast becoming the industry standard) and operational chokepoints caused by insufficient operating capacity.

Railcars with larger loading capacity provide greater operating efficiency by reducing labor, fuel, and maintenance costs while increasing capacity and synergy for rail operations and rail shippers. Most Class III railroads have a legacy infrastructure suited to low-density operations and railcars of lighter weight (263,000-lb. and 268,000-lb. gross weight capacity). In order to accommodate the 286,000-lb. cars, short-line railroads must make upgrades to the track structure and substructure (that is, rail, switches, ties, and ballast section) and bridges to handle the additional stress caused by transporting the heavier cars. Short-line railroads that are unable to make the appropriate upgrades might lose business to transportation competitors, namely trucks or other nearby railroads that are capable of handling the 286,000-lb. cars.

Chokepoints on the short-line railroads' networks are often attributed to legacy infrastructure tailored to historical railroad practice, which can limit capacity and hamper efficient modern operations. Such factors include yard capacity that is insufficient for building trains; switching; and staging cars and sidings that are of inadequate number, length, or location to accommodate the demands of present-day train operations and schedules. Some short-line railroads are further constrained by delays that stem from interchanging railcars with another carrier or having to use trackage rights to access an isolated segment of their network. These deficiencies not only compromise rail transit times and operations safety and cause mainline and yard congestion, but they have the unintended consequence of affecting the quality of life for adjacent communities. Among other things, this condition can lead to protracted delays for motorists and emergency vehicles at highway-rail grade crossings.
Wyoming’s short-line railroads were queried during the stakeholder outreach process about the specific challenges they face now and for the next 10 years in terms of capacity constraints, infrastructure needs and upgrades, railroad regulation, and capital funding needs.

**Bighorn Divide & Wyoming Railroad**

BDW can already accept railcars of 286,000-lb. maximum gross weight. Furthermore, it did not report any operational chokepoints.

**Rapid City, Pierre & Eastern Railroad**

In 2013, Canadian Pacific Railway (CP), the previous owner of the Dakota, Minnesota & Eastern Railroad (DM&E), reported that in 2007 it had undertaken a major rehabilitation of the Black Hills Subdivision between Bentonite (Colony), Wyoming, and Rapid City, South Dakota. This rehabilitation involved rail and tie replacement, surfacing, and highway-rail grade crossing improvements. CP also reported that it did not recognize any immediate or near-future infrastructure or capacity needs for the 7 miles of its network in Wyoming. No operational chokepoints were identified by CP.

When DM&E was acquired by Genesee & Wyoming Inc. (G&W) subsidiary Rapid City, Pierre & Eastern Railroad, at the time of the announcement, G&W did not state the need for any future improvements on the CP line in Wyoming.

**Swan Ranch Railroad**

Swan Ranch Railroad (SRRR) said that its concern was constructing infrastructure to accommodate future business growth and full connectivity with the state’s Class I network. Shippers on SRRR will have dual access to the state’s Class I network after completion of an interchange track to the UP network. Additional industrial trackage and customer facilities at the Cheyenne Logistics Hub at Swan Ranch are presently under construction or are projected to be constructed.

SRRR can already accept railcars of 286,000-lb. maximum gross weight. Furthermore, it did not report any operational chokepoints.

### 5.1.3 Pipeline

#### 5.1.3.1 Natural Gas Pipelines

For some commodities, such as natural gas, a pipeline network is the only way to link areas of production with areas of consumption. No alternative, viable modes of transportation are available. However, a key issue in natural gas production, transportation, and consumption is how to balance the volume of natural gas produced with the variation in demand from gas consumers. This demand varies by season, with lower demand in the summer and substantially higher demand in the winter. Increasing pipeline capacity to handle the periods of high demand would be expensive and inefficient. For this reason, natural gas storage areas are built close to consumer markets. These storage areas eliminate bottlenecks in the distribution network and allow the system to balance production volumes with consumption. Industry feedback suggests that there are no bottlenecks in Wyoming’s gas-transmission pipeline system.
5.1.3.2 Crude Oil and Liquids

Prior to the recent oil boom in the U.S. and Canada, the market supporting the pipeline network was predictable and stable. However, with the increase in oil production, a number of bottlenecks have arisen in the overall national pipeline network. One of these is in Wyoming.

The 1,717-mile Express-Platte System is one of three major pipelines that link western Canada to U.S. refining markets. The Express Pipeline is a 24-inch, 785-mile pipeline that links Hardisty, Alberta, with Casper, Wyoming, and the Platte Pipeline is a 20-inch pipeline running 932 miles from Casper to Wood River, Illinois. About 280,000 barrels per day (bpd) flow along the Express Pipeline between Hardisty and Casper, but capacity reduces to 160,000 bpd past Guernsey.

Though some new oil pipeline capacity is being built (the Pony Express Pipeline is an example), the amount of time required to develop a new pipeline, factors associated with funding, and pipeline operators’ requirements for long-term commitments from oil shippers mean that bottlenecks in the pipeline network are being addressed mainly by changing the mode of transport for oil from pipeline to rail. This change is evident in the number of oil-related rail transload depots that are being built in Wyoming. Not only are the additional transload depots alleviating capacity constraints for local producers, but a rail transload facility has been implemented at Casper to trans-ship oil flowing from Canada through the Express Pipeline to the rail network. Although rail transport is operationally more expensive than using pipelines, the capital costs of developing a rail transload facility and connecting it to the rail network are substantially less than the capital costs of developing a pipeline. In addition, building a transload facility is significantly faster than building a pipeline.
5.1.4 Highways

5.1.4.1 Highway System Conditions and Maintenance

Wyoming DOT measures the condition of pavement in Wyoming within three functional classifications: the interstate system, the NHS, and all other non-NHS roads under Wyoming DOT’s jurisdiction. The pavement condition ratings are based on a composite index of the ride quality, rut depth, surface distress cracking, and friction for each section. Highways are classified as excellent, good, fair, or poor based on the index.

Overall, 58 percent of the NHS roads in Wyoming are in excellent or good condition. As shown in Figure 5-1 through Figure 5-3, 82.3 percent of the interstate system in Wyoming is in excellent or good condition. For the non-interstate NHS portion, 62.2 percent is in excellent or good condition, and, for the non-NHS system, 55.7 percent is in excellent or good condition.

Figure 5-1. Condition of Pavement on the Interstate System in Wyoming, 2014
Figure 5-2. Condition of Pavement on the NHS Non-Interstate System in Wyoming, 2014
Figure 5-3. Condition of Pavement on the Non-NHS System in Wyoming, 2014

Non-NHS - 2014

Based on State owned roads included in the Pavement Management System (PMS)

Date: 2014

Source: WYDOT pavement Management System
In 2008, Wyoming DOT changed its management strategy to a pavement-preservation program. The goal of a pavement-preservation program is to maintain existing pavements by rehabilitating them in a timely manner, thereby limiting the number of roads that deteriorate to a poor condition and require costlier repairs.

Repair costs are much lower when repairs are made early in a pavement’s life, and minor repairs are not as effective once a road has deteriorated to a fair or poor condition. Therefore, a blend of strategies optimizes the health of the highway network. Wyoming DOT's pavement-preservation program was developed by analyzing over 300 computer simulations or scenarios in the Pavement Management System (PMS), a software program that predicts the future condition of the highway network. Based on the optimal scenario that provides the best-condition results in future years, the software recommends that each year a minimum number of miles be rehabilitated using the preventive maintenance, minor rehabilitation, and major rehabilitation strategies for each of the three functional classifications.

As part of Wyoming DOT’s asset-management approach, the district maintenance programs perform routine repairs on all Wyoming DOT–maintained roads. The pavement-deterioration models include the effects of the surface maintenance performed by Wyoming DOT, so maintenance is considered a critical component of a pavement’s lifecycle costs. Maintenance work is a combination of work performed by contract and in house and includes sealing cracks, paving short patches (patches less than a pavement-management segment long), sealing chips, and replacing slabs. Without this work, the pavement-deterioration models would show a short pavement life expectancy, so it is critical to maintain the current level of effort in the maintenance budget. Wyoming DOT's in-house maintenance costs are shown below; however Wyoming DOT spends an additional approximate $165 annually in the State Transportation Improvement Program (STIP) for pavement lifecycle program. The current annual maintenance (average lifecycle) costs for pavements in Wyoming are as follows:

- Interstate: $6.2 million
- Non-interstate NHS: $9.1 million
- Non-NHS: $11.6 million
- STIP (varies by year) $165 million

5.1.4.2 Bridge Conditions and Maintenance

Wyoming’s highway bridges are a critical link in the state’s highway infrastructure. Wyoming DOT currently manages and maintains about 2,169 Wyoming DOT–owned bridges (1,459 of which are on the NHS) and in addition inspects all bridges owned by local jurisdictions and other state agencies. In total, 1,152 of these bridges are located on key freight corridors. Figure 5-4 shows the locations of bridges in the state.

For each structure, inspectors measure, assess, and record the required National Bridge Inventory (NBI) items, including dimensions, clearances, alignment, waterway data, and structural conditions. Structural conditions are evaluated using structural elements. Each component of the bridge (girders, deck, railing, columns, piling, etc.) is assigned an element, and the condition of each element is evaluated based on several condition assessments. The structure’s NBI data are then used to determine its Wyoming Bridge Index (WBI).
The WBI was developed by the Wyoming DOT Bridge Program and provides a high-level view for reporting purposes, while individual components help distinguish differences in bridge attributes that might otherwise go unnoticed when using a single rating or index (for example, a sufficiency rating). The WBI uses a 100-point scale that includes the following four component ratings:

- **Structural condition rating (SCR)** – Assessment of structural adequacy
- **Maintenance rating (MR)** – Evaluation of the condition of commonly maintained bridge components
- **Functionality rating (FR)** – Evaluation of how bridge attributes affect the travelling public
- **Risk rating (RR)** – Evaluation of bridge attributes’ vulnerability to failure
Each bridge is given an overall WBI performance category of excellent, good, fair, or poor based on a composite score of the four component ratings. The WBI and performance category bands are shown in Figure 5-5.

Current WBI condition ratings for the three functional classifications (interstate, non-interstate NHS, and non-NHS) are listed in Table 5-38 and shown in Figure 5-6.

Figure 5-5. WBI Bridge Condition Rating Scale

![WBI Bridge Condition Rating Scale](image)

Table 5-38. WBI Classifications of Bridges in Wyoming, 2014

<table>
<thead>
<tr>
<th>Functional Classification</th>
<th>Number of Bridges</th>
<th>Condition</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Excellent</td>
<td>Good</td>
<td>Fair</td>
<td>Poor</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Number</td>
<td>%</td>
<td>Number</td>
<td>%</td>
<td>Number</td>
</tr>
<tr>
<td>Interstate</td>
<td>973</td>
<td>58</td>
<td>6.0</td>
<td>341</td>
<td>35.0</td>
<td>535</td>
</tr>
<tr>
<td>Non-interstate NHS</td>
<td>486</td>
<td>68</td>
<td>14.0</td>
<td>214</td>
<td>44.0</td>
<td>185</td>
</tr>
<tr>
<td>Non-NHS</td>
<td>737</td>
<td>110</td>
<td>15.0</td>
<td>302</td>
<td>41.0</td>
<td>273</td>
</tr>
<tr>
<td>Overall</td>
<td>2,196</td>
<td>236</td>
<td>10.8</td>
<td>857</td>
<td>39.0</td>
<td>993</td>
</tr>
</tbody>
</table>

The Bridge Program publishes an annual Bridge Needs Report. This report documents the WBI classification, structurally deficient (SD) status, and needed work items (preservation, rehabilitation, or replacement) for each State-owned bridge. A designation of SD does not indicate a bridge is in imminent danger of failure, just that it has components that will soon need additional attention. Federal performance measures require that no more than 10 percent of the bridges based on deck area may be designated as SD for all NHS bridges. Wyoming DOT’s goals are to maintain at least 60 percent of the State-owned bridges in good or excellent condition, and, in accordance with FHWA’s performance measures, to have no more than 10 percent of all NHS bridges (based on deck area) designated as SD. Based on the scenarios in the bridge management system, the Bridge Program projects an annual funding shortfall of $30 million to meet these goals.
Table 5-39 summarizes Wyoming DOT–owned deficient bridges, and Figure 5-7 identifies the locations of structurally deficient bridges in the state.


*Based on square feet of deck area*

<table>
<thead>
<tr>
<th>Functional Classification</th>
<th>Total Deck Area (square feet)</th>
<th>Structurally Deficient (square feet)</th>
<th>Functionally Obsolete (square feet)</th>
<th>Percentage Structurally Deficient (%)</th>
<th>Percentage Functionally Obsolete (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>NHS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interstate</td>
<td>5,748,903</td>
<td>909,147</td>
<td>698,984</td>
<td>15.8</td>
<td>12.2</td>
</tr>
<tr>
<td>Non-interstate NHS</td>
<td>3,601,619</td>
<td>602,639</td>
<td>493,188</td>
<td>16.7</td>
<td>13.7</td>
</tr>
<tr>
<td>Total NHS</td>
<td>9,170,893</td>
<td>1,511,788</td>
<td>1,192,174</td>
<td>16.5</td>
<td>13.0</td>
</tr>
<tr>
<td><strong>Non-NHS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>State</td>
<td>3,687,565</td>
<td>565,808</td>
<td>263,334</td>
<td>15.3</td>
<td>7.1</td>
</tr>
<tr>
<td>Total non-NHS</td>
<td>3,687,565</td>
<td>565,808</td>
<td>263,334</td>
<td>15.3</td>
<td>7.1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>12,858,458</strong></td>
<td><strong>2,077,596</strong></td>
<td><strong>1,455,508</strong></td>
<td><strong>16.2</strong></td>
<td><strong>11.3</strong></td>
</tr>
</tbody>
</table>

A functionally obsolete bridge is not structurally deficient but has an outdated design. These bridges might have a lower load-carrying capacity, narrower shoulders, or less clearance than bridges built to current standards.
Figure 5-7. Locations of Structurally Deficient Bridges in Wyoming
Table 5-40 shows the number of deficient bridges on the key freight corridors in Wyoming. The total percentage of deficient bridges on key corridors is 23.7 percent. The majority of the deficient bridges are located on the interstates: I-90, I-25, and I-80.

<table>
<thead>
<tr>
<th>Corridor</th>
<th>Total Number of Deficient Bridges</th>
<th>Total Number of Bridges</th>
<th>Percentage of Deficient Bridges (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I-90</td>
<td>73</td>
<td>285</td>
<td>25.6</td>
</tr>
<tr>
<td>I-25</td>
<td>73</td>
<td>330</td>
<td>22.1</td>
</tr>
<tr>
<td>I-80</td>
<td>102</td>
<td>359</td>
<td>28.4</td>
</tr>
<tr>
<td>US 20 – WY 789</td>
<td>4</td>
<td>39</td>
<td>10.3</td>
</tr>
<tr>
<td>US 26</td>
<td>2</td>
<td>10</td>
<td>20.0</td>
</tr>
<tr>
<td>US 30</td>
<td>3</td>
<td>22</td>
<td>13.6</td>
</tr>
<tr>
<td>US 85</td>
<td>0</td>
<td>28</td>
<td>0.0</td>
</tr>
<tr>
<td>US 191</td>
<td>1</td>
<td>17</td>
<td>5.9</td>
</tr>
<tr>
<td>US 287</td>
<td>1</td>
<td>5</td>
<td>20.0</td>
</tr>
<tr>
<td>WY 59</td>
<td>4</td>
<td>23</td>
<td>17.4</td>
</tr>
<tr>
<td>WY 220</td>
<td>5</td>
<td>16</td>
<td>31.3</td>
</tr>
<tr>
<td>US 26 – WY 789</td>
<td>2</td>
<td>6</td>
<td>33.3</td>
</tr>
<tr>
<td>US 26 – US 20</td>
<td>3</td>
<td>12</td>
<td>25.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>273</strong></td>
<td><strong>1,152</strong></td>
<td><strong>23.7</strong></td>
</tr>
</tbody>
</table>

5.1.4.3 Freight Corridor Height Restrictions and Bridge Strikes

Bridge strikes are an uncommon occurrence on Wyoming highways. A bridge strike occurs when a vehicle attempts to pass under a bridge with inadequate vertical clearance and damages the bridge.

Bridge strike data were obtained from Wyoming DOT for 1974 to 2014 (Wyoming DOT, 2015). The data provided for each bridge strike can vary between entries. There are three columns for dates: impact date, letting date, and date finalized. For most entries, one of these dates was provided, but it wasn’t always the same date.

Figure 5-8 identifies the highway locations in Wyoming with a vertical clearance of less than 16 feet. On interstates, the clear height of structures should not be less than 16 feet. This standard for vertical clearance was adopted for the Interstate System to maintain its integrity for national defense purposes.

Figure 5-9 shows the locations where bridge strikes occurred and the number of strikes, and Figure 5-10 identifies the weight, length, and width restrictions for bridges in Wyoming.

All weight, length, and width restrictions on Wyoming highways are posted on the Wyoming DOT website: [www.dot.state.wy.us/home/trucking_commercial_vehicles/size_weight_restrictions.html](http://www.dot.state.wy.us/home/trucking_commercial_vehicles/size_weight_restrictions.html).
Figure 5-8. Highway Limited Vertical Clearance Locations in Wyoming
Figure 5-9. Frequency and Locations of Bridge Strikes in Wyoming, 1974–2014
Figure 5-10. Weight, Length, and Width Restrictions for Bridges in Wyoming
5.1.4.4 Highway Closures

Commercial-vehicle operators need a safe roadway system as well as a reliable roadway system. The reliability of a roadway system is indicated by the frequency and duration of its closures rather than by the condition of the roadway (which is discussed in Section 5.1.4.1, Highway System Conditions and Maintenance).

In order to represent the most current closure trends on Wyoming’s key freight corridors, closure data were collected from Wyoming DOT and analyzed for the 5-year period from 2009 to 2013.

Closures due to Crashes

Crashes are the most common type of closure for a roadway system as well as the most unpredictable. Because crashes can occur at any time of the day or year, historical trend maps are the best way to analyze areas with high crash frequencies.

As shown in Figure 5-11, of all key corridors in Wyoming, I-80 historically has the highest frequency of closures due to crashes. Fifty-two percent of all recorded crash-related closures during the 5-year period from 2009 to 2013 occurred on I-80. This could be because I-80 is one of the more traveled corridors in the state and therefore has a higher chance of crashes occurring, in addition to experiencing severe weather-related issues. Due to the number of segments along I-80 that experience severe weather-related issues, closures along I-80 are often the result of a combination of weather and crash-related incidents. The area on I-80 with the highest frequency of crash-related closures is between Cheyenne and Laramie (MP 360 to MP 314). Also, where closures are both weather and crash related, the actual reason can be difficult to determine without further additional information and analysis.

Figure 5-12 shows the historical average duration of crash-related closures on each key corridor. The area on I-80 that has the highest crash frequency (MP 360 to MP 314) does not have the highest average closure duration. Four other areas on the key corridors have average closure durations longer than 6 hours. It is important to note that these crash-related closures are also in areas with historic weather-related issues and could be weather related. The closure policies of Wyoming DOT’s districts have minor variations. If a road is closed due to a crash, often the District will keep the road closed until the road conditions improve. This could account for the longer-than-anticipated closure times below related to crashes.

- The first area is west of Kemmerer on US 30 (MP 40 to MP 55). The frequency of crashes in this area is between 1 and 5 during the 5-year period, but the average duration of closure is more than 10 hours.
- The second area is between Rock Springs and Evanston on I-80 (MP 45 to MP 35). The frequency of crashes in this area is 31 to 60 during the 5-year period, but the average duration of closure is more than 10 hours.
- The third area is between Moorcroft and Sundance on I-90 (MP 170 to MP 202). The durations of closures in this area are in the 6-to-8-hour range on average.
- The fourth area is north of Wheatland on I-25 (MP 80 to MP 92). The durations of closures in this area are in the 6-to-8-hour range on average.
Figure 5-11. Crash Closure Frequency for Key Corridors in Wyoming, 2009–2013
Figure 5-12. Average Crash Closure Duration for Key Corridors in Wyoming, 2009–2013

Figure 5-13 shows the historical total overall durations of crash-related closures on each key corridor. This figure correlates with Figure 5-11 in terms of the areas that show the highest total overall duration for closures over the 5-year period. I-80 between Cheyenne and Laramie historically has over 120 hours of total closure during the 5-year period due to crashes.
Closures due to Weather

In addition to closures due to crashes, Wyoming has many closures due to weather. Figure 5-14 shows the historical frequency of closures due to weather for all of the key corridors. Forty percent of all recorded weather-related closures during the 5-year period from 2009 to 2013 occurred on I-80. The area on I-80 that has the highest frequency of weather-related closures is between Cheyenne and Laramie (MP 360 to MP 314). This could be because the highest-elevation point on I-80, Happy Jack Summit, at 8,640 feet is located between these mileposts. Another area that has a high frequency of weather-related closures is on I-80 between Laramie and Rawlins (MP 314 to MP 214). Elk Mountain is located between these two cities and is known for bad weather conditions such as ice and blowing snow. Generally speaking, the I-80 corridor between Cheyenne and Rawlins is very hilly and is known for adverse weather conditions. The last notable area with a high frequency of weather-related closures is on I-25 between Cheyenne and Wheatland (MP 10 to MP 80).
Figure 5-14. Weather Closure Frequency for Key Corridors in Wyoming, 2009–2013

Figure 5-15 shows the historical average duration of weather-related closures on each key corridor. As shown in Error! Reference source not found., it is common for weather-related closures to be 10 hours or longer on average, especially during winter storms. I-25, WY 59, US 85, and US 191 are the few corridors with areas where the average closure duration is less than 10 hours.
Error! Reference source not found. shows the historical total overall durations of weather-related closures on each key corridor. I-80 between Cheyenne and Laramie has the highest total duration for weather-related closures. As mentioned above in the section titled Closures due to Weather, Cheyenne to Rawlins on I-80 as well as Cheyenne to Wheatland on I-25 are high-frequency closure areas and have over 250 hours of total duration for weather-related closures during the 5-year period.
**Light High-Profile Closures**

Light high-profile closures are common on Wyoming roads. Wyoming is known for strong winds throughout the state, and these conditions are especially dangerous during the winter.

Figure 5-15 shows the historical frequency of closures for light high-profile vehicles. For the 3-year period from 2011 to 2013, this type of closure was recorded for only two corridors: I-25 and I-80. I-25 had more recorded closures for light high-profile vehicles than I-80. The area on I-25 that has the highest frequency of light high-profile closures is between Cheyenne and Wheatland (MP 10 to MP 80). The strongest winds on record on I-25 are near Bordeaux (MP 70.5). In addition, the area with the second-highest closure frequency is between the Colorado border and Cheyenne on I-25.

**Figure 5-15. Frequency of Light High-Profile Closures for Key Corridors in Wyoming, 2011–2013**
Figure 5-16 shows the historical average duration of light high-profile vehicle closures. The longest average duration of closure is 4 to 6 hours for these two corridors (I-25 and I-80). Not surprisingly, the I-25 corridor from the Colorado border to Wheatland is within this range. However, the segment of I-80 from Cheyenne to Laramie (MP 360 to MP 314) is within the 4- to 6-hour average closure range, as is the segment of I-80 from Sinclair to Rawlins (MP 220 to MP 214).

Figure 5-16. Average Duration of Light High-Profile Closures for Key Corridors in Wyoming, 2011–2013
Figure 5-17 shows the historical total overall durations of light high-profile vehicle closures. This can be directly correlated with Figure 5-16 and the frequency of these types of closures. Therefore, the area that has the largest total closure duration is from Cheyenne to Wheatland on I-25. Historically, the total duration for light high-profile closures in this area is over 125 hours within the 3-year period.

Figure 5-17. Light High-Profile Closure Duration Totals for Key Corridors in Wyoming, 2011–2013
5.2 Safety

5.2.1 Rail Safety

Rail safety remains a top priority for railroads in the state and for Wyoming DOT. Safety has potential impacts on the efficiency of rail operations and on the public in general. Federal agencies cooperate with the freight railroads to improve rail safety and security in Wyoming. The State cooperates with federal agencies in this regard but has only a minor direct role.

5.2.1.1 Rail Accident History

Table 5-41 summarizes rail accidents and incidents that occurred in Wyoming for a full 11-year period (2004–2014). Accidents are train derailments, collisions, and any accident to a person that occurs on railroad property that results in fatalities, injuries, or property damage exceeding an amount established by FRA. Highway-rail grade-crossing incidents or accidents are included. Non-fatal conditions are reportable injuries that occur to railroad employees or trespassers.

Table 5-41. FRA Reportable Railroad Incidents in Wyoming, 2004–2014

<table>
<thead>
<tr>
<th>Incident Type</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Incidents</td>
<td>120</td>
<td>113</td>
<td>145</td>
<td>138</td>
<td>134</td>
<td>94</td>
<td>87</td>
<td>67</td>
<td>58</td>
<td>54</td>
<td>69</td>
</tr>
<tr>
<td>Deaths</td>
<td>0</td>
<td>4</td>
<td>0</td>
<td>6</td>
<td>1</td>
<td>3</td>
<td>0</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Injuries</td>
<td>74</td>
<td>74</td>
<td>85</td>
<td>92</td>
<td>96</td>
<td>64</td>
<td>55</td>
<td>38</td>
<td>34</td>
<td>27</td>
<td>44</td>
</tr>
<tr>
<td>Train Accidents</td>
<td>48</td>
<td>39</td>
<td>61</td>
<td>47</td>
<td>42</td>
<td>28</td>
<td>39</td>
<td>28</td>
<td>19</td>
<td>25</td>
<td>24</td>
</tr>
<tr>
<td>Deaths</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Injuries</td>
<td>1</td>
<td>0</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>6</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Highway-Rail Incidents</td>
<td>3</td>
<td>1</td>
<td>4</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Deaths</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Injuries</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Other Incidents</td>
<td>69</td>
<td>73</td>
<td>80</td>
<td>88</td>
<td>88</td>
<td>62</td>
<td>47</td>
<td>37</td>
<td>37</td>
<td>25</td>
<td>44</td>
</tr>
<tr>
<td>Deaths</td>
<td>0</td>
<td>4</td>
<td>0</td>
<td>4</td>
<td>1</td>
<td>3</td>
<td>0</td>
<td>1</td>
<td>3</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Injuries</td>
<td>71</td>
<td>73</td>
<td>81</td>
<td>89</td>
<td>93</td>
<td>62</td>
<td>49</td>
<td>36</td>
<td>34</td>
<td>24</td>
<td>44</td>
</tr>
</tbody>
</table>

Source: FRA 2015
5.2.1.2 Rail Safety Regulations

In Wyoming, rail safety requirements are provided mostly by federal law. Most safety-related rules and regulations are under the jurisdiction of FRA as defined in the Rail Safety Act of 1970 and other legislation, including the Rail Safety Improvement Act of 2008. Many of FRA’s safety regulations are codified in 49 CFR 200–299.

Rail safety issues are classified into the following general categories:

- Railroad employee safety
- Inspection and maintenance of track, bridges, signals, and other infrastructure
- Inspection of locomotives and railcars
- Operating rules and operating practices
- Control of the use of drugs, alcohol, and controlled substances by railroad employees
- Radio communications
- Accident and incident reporting
- Rail-highway grade crossing safety
- Movement and handling of hazardous materials
- Development and implementation of new technologies
- Passenger equipment safety standards
- Passenger train emergency preparedness

The primary responsibility for enforcing these federal regulations falls under the jurisdiction of FRA. FRA’s Region 8 (Northwest) administration based in Vancouver, Washington, is responsible for the oversight of railroads in Wyoming. At the state level, Wyoming DOT focuses primarily on grade crossing safety.

5.2.1.3 Other State Agencies and Rail Safety Programs

Hazardous Materials Response

Response to hazardous materials (HAZMAT) emergencies and disasters in Wyoming is the responsibility of local residents and public officials. As described in the State Operations Plan (SOP) issued by the State of Wyoming’s Office of Homeland Security in 2013, the responsibility for securing public safety and welfare rests at the county level in Wyoming with the County Commissioners. The SOP describes coordinating structures for emergency response and identifies immediate actions for saving lives, meeting basic human needs, and protecting property. It explains strategies for providing effective coordination of government agencies at the county, state, and federal levels and private companies and parties and proper utilization of assets necessary to issue an effective response. That response to HAZMAT incidents on Wyoming’s rail network is facilitated quickly and effectively and in cooperation with the state’s freight railroads, which have their own local management and systemwide HAZMAT coordination and education teams.

The shipper or originator of hazardous materials is often responsible for the costs of the HAZMAT response and remediation. Most HAZMAT clean-up efforts are handled by private contractors skilled in emergency and HAZMAT response. Any effort in this regard is conducted in coordination with the state’s freight railroads and state and local authorities.
The state’s freight railroads place a heavy emphasis on employee safety training and programs. As part of that commitment, the railroads provide their field personnel with HAZMAT training, which includes compliance with rules for the safe transportation of HAZMAT commodities (loaded cars and empty cars containing residue) and the proper response in case of a HAZMAT incident. This training takes into account USDOT and FRA regulations and all applicable railroad safety rules and special instructions regarding the proper handling of HAZMAT commodities.

**Wyoming Operation Lifesaver**

A UP employee who was troubled by the number of crashes, injuries, and fatalities at highway-rail grade crossings worked with Idaho communities in 1972 to establish a statewide public education program, called Operation Lifesaver, aimed at reducing the number of such tragedies. By the end of the year, Idaho’s fatality rate dropped 39 percent, and the same program reduced that number by 46 percent in Nebraska in 1973. In 2015, the nonprofit Operation Lifesaver initiative is a robust cooperative program between railroads, public safety officials, and volunteers, and it has contingents in 49 U.S. states and parts of Canada.

Wyoming Operation Lifesaver (WYOL) is a chapter of the national Operation Lifesaver program. As the organization states, “Wyoming Operation Lifesaver is a free public-service education program dedicated to preventing and reducing fatalities and injuries at highway-rail grade crossings and along railroad rights-of-way in Wyoming.” WYOL uses presenters and car crash displays to educate the public about grade crossing safety and the dangers of trespassing on railroad property. Further, WYOL is involved in engineering efforts aimed at improving and maintaining crossings, and it works with local law enforcement agencies to ensure safety compliance at crossings. Representatives from Wyoming’s DOT and Highway Patrol are on the WYOL board.

**Positive Train Control**

Positive Train Control (PTC) is an emerging rail safety technology intended to stop a train and prevent the following types of accidents:

- Collisions between trains
- Derailments caused by excessive speed or by trains operating through switches left in the wrong position
- Trains operating beyond the limits of authority provided by dispatcher or wayside signal

PTC technology is an overlay that will be integrated with existing wayside Centralized Traffic Control (CTC) systems. PTC is designed to determine the location and speed of trains, warn locomotive engineers of potential problems, and take action if engineers do not respond to a warning in the time prescribed.

The Rail Safety Improvement Act of 2008 requires U.S. railroads to install PTC systems by December 31, 2015, on Class I rail routes carrying over 5 million gross ton-miles of freight per mile with commuter or intercity passenger operations or any amount of toxic or poison-by-inhalation hazardous materials. PTC requirements currently exclude Class II (regional) or Class III (short-line) railroads that do not provide passenger service. However, Class II and III railroad trains that operate over PTC-equipped Class I lines are also required to be PTC-equipped.
The rail industry considers the December 31, 2015, PTC implementation deadline generally unattainable, because about 60,000 miles of rail line nationwide will be affected over a 20-year period and at an estimated cost of about $12 billion. Despite any possible extension of the deadline, UP and BNSF are currently developing PTC systems for their respective networks, which would include implementing PTC on principal lines in Wyoming.

PTC’s near-term implementation complies with federal law and would achieve the desired safety benefits. UP and BNSF anticipate that, in the long term, PTC technology will provide them with benefits in Wyoming, including the potential for increased line capacity and reduced operating costs.

### 5.2.2 Pipeline Safety

Minimum pipeline safety standards are established in 49 CFR 190–199. The Office of Pipeline Safety (OPS) within USDOT’s Pipeline and Hazardous Materials Safety Administration (PHMSA) has overall regulatory responsibility for hazardous-liquid and gas pipelines under its jurisdiction in the United States. OPS inspects and enforces the pipeline safety regulations for interstate gas pipelines as well as interstate and intrastate hazardous-liquid pipeline operators in Wyoming. The Facility Engineering Section of the Wyoming Public Service Commission inspects and enforces the pipeline safety regulations for intrastate gas pipeline operators in Wyoming.

Table 5-42 identifies the number of pipeline incidents in Wyoming from 1994 to 2013 as reported to PHMSA. An incident associated with gas distribution, gas gathering, gas transmission, or liquefied natural gas (LNG) facilities is defined as an event that involves a release of gas from a pipeline, or of LNG, liquefied petroleum gas, refrigerant gas, or gas from a LNG facility, and that results in one or more of the following consequences:

- A death or personal injury requiring in-patient hospitalization;
- Estimated property damage of $50,000 or more, including loss to the operator and others, or both, but excluding the cost of gas lost; and/or
- Unintentional estimated gas loss of 3 million cubic feet or more.

A hazardous-liquid or carbon dioxide incident is defined as a failure in a pipeline system in which there is a release of the hazardous liquid or carbon dioxide transported resulting in any of the following:

- Explosion or fire not intentionally set by the operator;
- Release of 5 gallons or more of hazardous liquid or carbon dioxide;
- Death of any person;
- Personal injury requiring hospitalization; and/or
- Estimated property damage, including cost of clean-up and recovery, value of lost product, and damage to the property of the operator or others, or both, exceeding $50,000.
A significant issue associated with pipeline safety is older pipelines, specifically the condition of the pipelines, the material they are made of, and the method used to join the pipeline lengths together. Since 2011, PHMSA has sought to accelerate the repair, rehabilitation, and replacement of the highest-risk pipelines. Pipelines made of cast iron, wrought iron, or bare (uncoated) steel are among those that pose the highest risk.

Bare steel pipe was used extensively in natural gas and hazardous-liquid pipelines until the 1960s. In 2013, bare steel accounted for 90.52 miles of gas transmission pipeline (1.3 percent of total gas transmission pipeline miles) in Wyoming. Unfortunately, the PHMSA data for hazardous-liquid pipelines do not include data at the state level for the miles of bare steel pipeline, since only the national number is reported. Nationally, bare steel accounts for 1.77 percent (3,396 miles) of all hazardous-liquid pipelines (PHMSMA 2014).
5.2.3 Highway Safety

In 2013, 32,719 people died in motor vehicle crashes in the United States. Of these, 3,964 crashes (12 percent) involved large trucks. Seventeen percent of the fatalities involving a large truck were the truck occupants, 71 percent were occupants of other vehicles, and 11 percent were not in a vehicle (NHTSA 2014). Nationally, in 2012, trucks were involved in 5.6 percent of all traffic crashes and incidents (NHTSA 2014). However, a recent analysis of crash records in Wyoming over a 10-year period from 2002 to 2011 found that heavy trucks were involved in 13,273 crashes, which is 8.3 percent of the total crashes (TRB 2014).

The American Transportation Research Institute has recently analyzed large-truck rollovers across the United States and found that 1,728 truck rollovers occurred in Wyoming between 2001 and 2009. These rollovers resulted in 57 fatalities, and the majority of these incidents occurred on I-25 or I-80 (ATRI 2012). Figure 5-18 identifies the top rollover locations in Wyoming.

**Figure 5-18. Wyoming Truck Rollover Locations**

![Wyoming Top Rollover Locations](image)

Source: ATRI 2012
Table 5-43 summarizes truck crash data for the key highway corridors in Wyoming.

**Table 5-43. Truck Crash Counts for Key Freight Corridors in Wyoming, 2009–2013**

<table>
<thead>
<tr>
<th>Corridor</th>
<th>Number of Crashes by Type of Crash</th>
<th>Total Crashes per Corridor</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fatal</td>
<td>Injury</td>
</tr>
<tr>
<td>I-90</td>
<td>3</td>
<td>25</td>
</tr>
<tr>
<td>I-25</td>
<td>7</td>
<td>116</td>
</tr>
<tr>
<td>I-80</td>
<td>35</td>
<td>588</td>
</tr>
<tr>
<td>US 20 – WY 789</td>
<td>5</td>
<td>17</td>
</tr>
<tr>
<td>US 26</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>US 30</td>
<td>4</td>
<td>11</td>
</tr>
<tr>
<td>US 85</td>
<td>0</td>
<td>15</td>
</tr>
<tr>
<td>US 191</td>
<td>1</td>
<td>13</td>
</tr>
<tr>
<td>US 287</td>
<td>1</td>
<td>13</td>
</tr>
<tr>
<td>WY 59</td>
<td>2</td>
<td>28</td>
</tr>
<tr>
<td>WY 220</td>
<td>0</td>
<td>18</td>
</tr>
<tr>
<td>US 26 – WY 789</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>US 26 – US 20</td>
<td>0</td>
<td>16</td>
</tr>
<tr>
<td><strong>Total crashes by type</strong></td>
<td><strong>59</strong></td>
<td><strong>874</strong></td>
</tr>
</tbody>
</table>
Wyoming’s weather also contributes to truck-related accidents. Figure 5-19 through Figure 5-22 compare crashes in Wyoming involving and not involving trucks and the weather and road conditions at the time of the crash. These statistics are taken from statewide crash data from 2002–2011. These figures show that weather is a greater contributing factor in truck crashes than in non-truck crashes, with conditions such as snow, severe wind, and icy roads more likely to be present at the time of truck crashes.

**Figure 5-19. Weather Conditions during Crashes That Involved Trucks**

```
<table>
<thead>
<tr>
<th>Condition</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clear</td>
<td>58%</td>
</tr>
<tr>
<td>Snowing</td>
<td>15%</td>
</tr>
<tr>
<td>Raining</td>
<td>2%</td>
</tr>
<tr>
<td>Severe Wind</td>
<td>6%</td>
</tr>
<tr>
<td>Blizzard</td>
<td>4%</td>
</tr>
<tr>
<td>Blowing Snow</td>
<td>2%</td>
</tr>
<tr>
<td>Other</td>
<td>42%</td>
</tr>
<tr>
<td>Unknown</td>
<td>11%</td>
</tr>
</tbody>
</table>
```

**Figure 5-20. Weather Conditions during Crashes That Did Not Involve Trucks**

```
<table>
<thead>
<tr>
<th>Condition</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clear</td>
<td>77%</td>
</tr>
<tr>
<td>Snowing</td>
<td>9%</td>
</tr>
<tr>
<td>Raining</td>
<td>3%</td>
</tr>
<tr>
<td>Severe Wind</td>
<td>1%</td>
</tr>
<tr>
<td>Blizzard</td>
<td>1%</td>
</tr>
<tr>
<td>Blowing Snow</td>
<td>0%</td>
</tr>
<tr>
<td>Other</td>
<td>23%</td>
</tr>
<tr>
<td>Unknown</td>
<td>7%</td>
</tr>
</tbody>
</table>
```

**Figure 5-21. Road Conditions during Crashes That Involved Trucks**

```
<table>
<thead>
<tr>
<th>Condition</th>
<th>Percentage</th>
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</thead>
<tbody>
<tr>
<td>Dry</td>
<td>51%</td>
</tr>
<tr>
<td>Wet</td>
<td>4%</td>
</tr>
<tr>
<td>Snow</td>
<td>2%</td>
</tr>
<tr>
<td>Other</td>
<td>21%</td>
</tr>
<tr>
<td>Ice/Frost</td>
<td>28%</td>
</tr>
<tr>
<td>Unknown</td>
<td>11%</td>
</tr>
</tbody>
</table>
```

**Figure 5-22. Road Conditions during Crashes That Did Not Involve Trucks**

```
<table>
<thead>
<tr>
<th>Condition</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dry</td>
<td>67%</td>
</tr>
<tr>
<td>Wet</td>
<td>5%</td>
</tr>
<tr>
<td>Snow</td>
<td>5%</td>
</tr>
<tr>
<td>Other</td>
<td>2%</td>
</tr>
<tr>
<td>Ice/Frost</td>
<td>15%</td>
</tr>
<tr>
<td>Unknown</td>
<td>6%</td>
</tr>
</tbody>
</table>
```

*Source: TRB 2014*
A recent report from the Mountain-Plains Consortium focused on truck crashes on I-80. Their analysis of truck crashes between 2000 and 2009 found that the majority of truck accidents occurred during the winter months, as illustrated in Figure 5-23 (MPC 2014).

**Figure 5-23. Average Number of Truck Crashes by Month on I-80 in Wyoming**

![Graph showing average number of truck crashes by month on I-80 in Wyoming](source: MPC 2014)
5.3 References

[ATRI] American Transportation Research Institute

Casper Airport Board
2010 Air Cargo Study.

[FRA] Federal Railroad Administration, Office of Safety Analysis

[MPC] Mountain-Plains Consortium

[NHTSA] National Highway Traffic Safety Administration

[PHMSA] Pipeline and Hazardous Materials Safety Administration

[TRB] Transportation Research Board
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Chapter 6. Freight Forecast

6.1 Introduction

Chapter 2, Economic Context of Freight Transportation Planning, provides detailed information regarding the key industries and current freight movements in Wyoming. Freight-dependent industries have been, and are expected to continue to be, important drivers of the Wyoming economy. According to the Wyoming Department of Workforce Services (2012), the relative share of freight-dependent industry employment is expected to remain unchanged through 2022, and total jobs are expected to increase by about 12 percent. This is slightly lower than the overall employment growth in Wyoming, which is expected to increase by 12.9 percent over the same period. This chapter provides an overview of forecasted freight movements.

6.2 Freight Movement Forecast

The FAF database (FHWA 2007) provides a modal forecast by commodity for the movement of goods through 2040 by each mode. This forecast accounts for only movements that have an origin, destination, or both within Wyoming. Since the forecast is based on the 2007 CFS, minor updates were made to the forecast for particular commodities of interest—coal and crude oil—based on EIA’s Annual Energy Outlook 2014 (EIA 2014). These adjustments were made to account for the increased ability to extract oil from shale and to incorporate the EIA market trends described in Appendix B, EIA 2014 Summary Notes of Interest.

Although natural gas is another key resource for Wyoming, the FAF groups it with multiple other commodities, so the overall modal forecast for natural gas was not adjusted. However, a discussion of the trends in natural gas is included in Section 6.2.2.4, Through Traffic Forecast. Data from the FAF forecast are used for all other commodities. Through traffic is forecasted separately and is discussed in Section 6.2.2.4.

Note that projections are not statements of what will happen but rather are statements of what might happen, given the assumptions and methodologies used in the particular forecasted case. These forecasts are a function of the projected relevant growth rates by well-recognized and widely used sources, but these sources are incapable of foreseeing unpredictable factors that might have either a positive or negative influence on the projected freight flows. The models used to generate the projections are simplified representations of reality and cannot account for the random and unanticipated events that might happen nor any of the many uncertainties of the future, such as demographics, technology changes, resources, climate change, acts of terrorism, natural disasters, or any other such factors that could alter the projections that have been estimated in this report.
6.2.1  Overall Freight Forecast – All Modes, All Directions

Table 6-1 summarizes the total tonnage moving to, from, and within Wyoming in 2011 as well as the projected totals for 2025 and 2035. The vast majority of tonnage with an origin, destination, or both in Wyoming is related to mining industries and is moving out of the state. Outbound freight is expected to remain the predominant direction in the future, though the share of movement is expected to decline slightly over time, accounting for nearly 83 percent in 2011 and decreasing to about 80 percent by 2035.

Over the course of the forecast period, shares of both inbound freight and freight moving within Wyoming are expected to increase, with inbound freight growing slightly more than internal freight. According to the Wyoming Department of Administration and Information (2011), based on 2010 U.S. Census data, the population of Wyoming is projected to increase by more than 100,000 people by 2030. The 2010 population was 563,626, and the 2030 forecast is 668,830. This population increase will require additional freight movement to meet the needs of the residents; thus the increase in inbound freight.

<table>
<thead>
<tr>
<th>Direction</th>
<th>2011</th>
<th>2025</th>
<th>2035</th>
</tr>
</thead>
<tbody>
<tr>
<td>To Wyoming</td>
<td>22,181</td>
<td>30,508</td>
<td>35,937</td>
</tr>
<tr>
<td>From Wyoming</td>
<td>524,056</td>
<td>559,940</td>
<td>571,400</td>
</tr>
<tr>
<td>Within Wyoming</td>
<td>86,774</td>
<td>98,025</td>
<td>104,500</td>
</tr>
<tr>
<td>Total</td>
<td>633,010</td>
<td>688,473</td>
<td>711,836</td>
</tr>
</tbody>
</table>

Sources: FHWA FAF 3.4, 2011 provisional data and forecast; HDR calculations based on EIA (2014)

Figure 6-1 and Figure 6-2 show the projected tonnage for each mode by direction in 2025 and 2035, respectively. Outbound rail movements continue to dominate the overall freight picture over the forecast period, as mineral and resource production continues to be Wyoming’s dominant industry. The relative mode share remains somewhat consistent over time, with rail continuing to account for 73 percent of all freight movements with an origin or destination in Wyoming. A slight shift is expected between 2025 and 2035, with truck tonnage increasing from a 10.2-percent share to an 11.2-percent share, and pipeline decreasing from 12.5 percent of tonnage to 11.1 percent in 2035, due a forecasted decline in outbound coal and petroleum products (SCTG 19).
Figure 6-1. Forecasted Tonnage by Mode and Direction in Wyoming in 2025

in thousands of tons

Sources: FHWA FAF 3.4, 2011 provisional data and forecast; HDR calculations based on EIA (2014)

Figure 6-2. Forecasted Tonnage by Mode and Direction in Wyoming in 2035

in thousands of tons

Sources: FHWA FAF 3.4, 2011 provisional data and forecast; HDR calculations based on EIA (2014)
Based on the information in Chapter 2, Economic Context of Freight Transportation Planning, and supported by the FAF forecast and information in EIA’s *Annual Energy Outlook 2014*, compound annual growth rates were calculated for each of the top commodities moving into, out of, or within Wyoming (Table 6-2). To estimate tonnage values for 2025 and 2035, these growth rates were applied to each commodity’s tonnage. In most cases, the growth rates are the same as the FAF rates. The exceptions are the growth rates for coal and crude petroleum that originate in Wyoming. These were adjusted slightly from the FAF forecast based on updated information in EIA’s *Annual Energy Outlook 2014*. The adjustments result in slightly more optimistic forecasts for these commodities, based on the information discussed in Chapter 2, Economic Context of Freight Transportation Planning, and Appendix B, EIA 2014 Summary Notes of Interest.

### Table 6-2. Forecasted Freight Tonnage Compound Annual Growth Rates for Wyoming by Commodity for 2011–2025 and 2025–2035

<table>
<thead>
<tr>
<th>SCTG</th>
<th>Commodity</th>
<th>2011–2025 (%)</th>
<th>2025–2035 (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>Coal</td>
<td>0.34</td>
<td>0.34</td>
</tr>
<tr>
<td>19</td>
<td>Coal and petroleum products</td>
<td>0.46</td>
<td>-1.43</td>
</tr>
<tr>
<td>20</td>
<td>Basic chemicals</td>
<td>1.88</td>
<td>0.49</td>
</tr>
<tr>
<td>16</td>
<td>Crude petroleum</td>
<td>0.73</td>
<td>0.10</td>
</tr>
<tr>
<td>18</td>
<td>Fuel oils</td>
<td>0.85</td>
<td>-0.85</td>
</tr>
<tr>
<td>22</td>
<td>Fertilizers</td>
<td>2.20</td>
<td>-1.02</td>
</tr>
<tr>
<td>2</td>
<td>Cereal grains</td>
<td>1.26</td>
<td>2.02</td>
</tr>
<tr>
<td>31</td>
<td>Nonmetallic min. prods.</td>
<td>3.50</td>
<td>2.65</td>
</tr>
<tr>
<td>17</td>
<td>Gasoline</td>
<td>0.41</td>
<td>-1.03</td>
</tr>
<tr>
<td>12</td>
<td>Gravel</td>
<td>3.35</td>
<td>2.77</td>
</tr>
<tr>
<td></td>
<td>All other commodities</td>
<td>2.77</td>
<td>3.00</td>
</tr>
<tr>
<td></td>
<td>Average all commodities</td>
<td>0.60</td>
<td>0.33</td>
</tr>
</tbody>
</table>

*Sources: FHWA FAF 3.4, 2011 provisional data and forecast; HDR calculations based on EIA (2014)*

Table 6-3, Table 6-4, and Table 6-5 show the overall top commodities moved in Wyoming as well as the tonnage moved by each mode for 2011 and the projected values for 2025 and 2035, respectively. This overall freight movement is heavily dominated by coal and coal and petroleum products and is projected to remain that way throughout the forecast period. Rail is projected to continue to be the largest freight-moving mode in Wyoming into the foreseeable future due to its efficiency in moving resource-based freight. Pipeline is projected to be the second-largest mode through 2025, but several factors lead to truck surpassing pipeline as the second-largest mode serving Wyoming by 2035. These factors include a decrease in coal and petroleum products moved via pipeline between 2025 and 2035, an increase in food-related products to serve Wyoming’s increasing population, and growth in nonmetallic mineral products.

The ranking of the top commodities is also projected to change over time. Although coal and coal and petroleum products are projected to remain the predominant goods moved out of and within Wyoming, and basic chemicals are projected to continue to remain third in terms of all directional movements, nonmetallic
minerals are projected to increase to become the fifth-largest share of tonnage by 2035. The relative shares of cereal grains and gravel are also projected to increase over time.

Table 6-3. Top Commodities in 2011 by Mode
in thousands of tons

<table>
<thead>
<tr>
<th>SCTG</th>
<th>Commodity</th>
<th>Truck</th>
<th>Rail</th>
<th>Air</th>
<th>Multiple</th>
<th>Pipeline</th>
<th>Other</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>Coal</td>
<td>8,825.1</td>
<td>448,464.1</td>
<td>0.0</td>
<td>5,782.8</td>
<td>0.0</td>
<td>17,218.9</td>
<td>480,290.9</td>
</tr>
<tr>
<td>19</td>
<td>Coal &amp; petroleum products</td>
<td>3,475.7</td>
<td>2,827.1</td>
<td>0.0</td>
<td>212.1</td>
<td>54,078.0</td>
<td>10.2</td>
<td>60,603.0</td>
</tr>
<tr>
<td>20</td>
<td>Basic chemicals</td>
<td>2,769.2</td>
<td>14,900.1</td>
<td>0.0</td>
<td>44.1</td>
<td>10,209.5</td>
<td>0.9</td>
<td>27,923.8</td>
</tr>
<tr>
<td>16</td>
<td>Crude petroleum</td>
<td>1,208.4</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>10,723.6</td>
<td>0.0</td>
<td>11,932.0</td>
</tr>
<tr>
<td>18</td>
<td>Fuel oils</td>
<td>5,908.2</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>3,159.6</td>
<td>0.7</td>
<td>9,261.5</td>
</tr>
<tr>
<td>22</td>
<td>Fertilizers</td>
<td>3,460.0</td>
<td>3,255.0</td>
<td>0.0</td>
<td>20.5</td>
<td>0.0</td>
<td>1.2</td>
<td>6,736.7</td>
</tr>
<tr>
<td>2</td>
<td>Cereal grains</td>
<td>5,872.2</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.2</td>
<td>5,872.4</td>
</tr>
<tr>
<td>31</td>
<td>Nonmetallic min. prods.</td>
<td>5,138.5</td>
<td>651.4</td>
<td>0.0</td>
<td>7.5</td>
<td>0.0</td>
<td>0.5</td>
<td>5,797.9</td>
</tr>
<tr>
<td>17</td>
<td>Gasoline</td>
<td>3,338.6</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>342.6</td>
<td>0.0</td>
<td>3,681.3</td>
</tr>
<tr>
<td>12</td>
<td>Gravel</td>
<td>2,375.1</td>
<td>0.0</td>
<td>3.1</td>
<td>1,487.2</td>
<td>0.0</td>
<td>1,951.4</td>
<td>17,851.2</td>
</tr>
<tr>
<td>All other commodities</td>
<td>12,797.0</td>
<td>1,612.6</td>
<td>3.1</td>
<td>1,487.2</td>
<td>0.0</td>
<td>1,951.4</td>
<td>17,851.2</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>55,168.1</strong></td>
<td><strong>472,572.0</strong></td>
<td><strong>3.1</strong></td>
<td><strong>7,554.1</strong></td>
<td><strong>78,513.3</strong></td>
<td><strong>19,199.7</strong></td>
<td><strong>633,010.2</strong></td>
</tr>
</tbody>
</table>

Sources: FHWA FAF 3.4, 2011 provisional data and forecast; HDR calculations based on EIA (2014)

Table 6-4. Projected Volumes in 2025 for Top Commodities in 2011 by Mode
in thousands of tons

<table>
<thead>
<tr>
<th>SCTG</th>
<th>Commodity</th>
<th>Truck</th>
<th>Rail</th>
<th>Air</th>
<th>Multiple</th>
<th>Pipeline</th>
<th>Other</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>Coal</td>
<td>9,109.3</td>
<td>470,289.2</td>
<td>0.0</td>
<td>6,064.2</td>
<td>0.0</td>
<td>18,056.9</td>
<td>503,519.6</td>
</tr>
<tr>
<td>19</td>
<td>Coal &amp; petroleum products</td>
<td>3,725.2</td>
<td>3,086.8</td>
<td>0.0</td>
<td>219.2</td>
<td>57,581.2</td>
<td>10.8</td>
<td>64,623.2</td>
</tr>
<tr>
<td>20</td>
<td>Basic chemicals</td>
<td>3,585.8</td>
<td>19,886.9</td>
<td>0.0</td>
<td>54.7</td>
<td>12,716.5</td>
<td>3.2</td>
<td>36,247.1</td>
</tr>
<tr>
<td>16</td>
<td>Crude petroleum</td>
<td>1,392.2</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>11,812.9</td>
<td>0.0</td>
<td>13,205.2</td>
</tr>
<tr>
<td>18</td>
<td>Fuel oils</td>
<td>6,764.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>3,416.9</td>
<td>0.8</td>
<td>10,430.4</td>
</tr>
<tr>
<td>22</td>
<td>Fertilizers</td>
<td>4,779.6</td>
<td>4,322.5</td>
<td>0.0</td>
<td>31.2</td>
<td>0.0</td>
<td>1.9</td>
<td>9,135.2</td>
</tr>
<tr>
<td>2</td>
<td>Cereal grains</td>
<td>6,997.9</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.2</td>
<td>6,998.1</td>
</tr>
<tr>
<td>31</td>
<td>Nonmetallic min. prods.</td>
<td>8,308.7</td>
<td>1,059.3</td>
<td>0.0</td>
<td>12.1</td>
<td>0.0</td>
<td>0.6</td>
<td>9,380.8</td>
</tr>
<tr>
<td>17</td>
<td>Gasoline</td>
<td>3,570.4</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>327.0</td>
<td>0.0</td>
<td>3,897.4</td>
</tr>
<tr>
<td>12</td>
<td>Gravel</td>
<td>3,764.3</td>
<td>1,066.4</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>25.2</td>
<td>4,855.9</td>
</tr>
<tr>
<td>All other commodities</td>
<td>18,175.9</td>
<td>2,336.2</td>
<td>6.5</td>
<td>2,322.8</td>
<td>0.0</td>
<td>3,338.7</td>
<td>26,180.2</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>70,173.4</strong></td>
<td><strong>502,296.0</strong></td>
<td><strong>6.5</strong></td>
<td><strong>8,704.2</strong></td>
<td><strong>85,854.6</strong></td>
<td><strong>21,438.2</strong></td>
<td><strong>688,473.0</strong></td>
</tr>
</tbody>
</table>

Sources: FHWA FAF 3.4, 2011 provisional data and forecast; HDR calculations based on EIA (2014)

---

11 For a listing of example commodities included in each SCTG category, see Appendix A, SCTG Commodity Categories and Definitions.
Table 6-5. Projected Volumes in 2035 for Top Commodities in 2011 by Mode
in thousands of tons

<table>
<thead>
<tr>
<th>SCTG</th>
<th>Commodity</th>
<th>Truck</th>
<th>Rail</th>
<th>Air</th>
<th>Multiple</th>
<th>Pipeline</th>
<th>Other</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>Coal</td>
<td>9,336.1</td>
<td>486,525.9</td>
<td>0.0</td>
<td>6,273.6</td>
<td>0.0</td>
<td>18,680.3</td>
<td>520,815.9</td>
</tr>
<tr>
<td>19</td>
<td>Coal &amp; petroleum products</td>
<td>3,264.5</td>
<td>2,775.1</td>
<td>0.0</td>
<td>186.1</td>
<td>49,745.9</td>
<td>9.3</td>
<td>55,980.9</td>
</tr>
<tr>
<td>20</td>
<td>Basic chemicals</td>
<td>3,634.3</td>
<td>20,782.8</td>
<td>0.0</td>
<td>55.9</td>
<td>13,582.9</td>
<td>6.6</td>
<td>38,062.4</td>
</tr>
<tr>
<td>16</td>
<td>Crude petroleum</td>
<td>1,392.7</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>11,945.0</td>
<td>0.0</td>
<td>13,337.7</td>
</tr>
<tr>
<td>18</td>
<td>Fuel oils</td>
<td>6,207.0</td>
<td>262.1</td>
<td>0.0</td>
<td>0.0</td>
<td>3,103.7</td>
<td>0.7</td>
<td>9,573.5</td>
</tr>
<tr>
<td>22</td>
<td>Fertilizers</td>
<td>4,479.4</td>
<td>3,732.4</td>
<td>0.0</td>
<td>27.7</td>
<td>0.0</td>
<td>1.8</td>
<td>8,241.4</td>
</tr>
<tr>
<td>2</td>
<td>Cereal grains</td>
<td>8,548.5</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.2</td>
<td>8,548.7</td>
</tr>
<tr>
<td>31</td>
<td>Nonmetallic min. prods.</td>
<td>10,758.7</td>
<td>1,409.3</td>
<td>0.0</td>
<td>13.2</td>
<td>0.0</td>
<td>0.7</td>
<td>12,181.9</td>
</tr>
<tr>
<td>17</td>
<td>Gasoline</td>
<td>3,215.7</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>297.8</td>
<td>0.0</td>
<td>3,513.4</td>
</tr>
<tr>
<td>12</td>
<td>Gravel</td>
<td>4,978.2</td>
<td>1,373.8</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>32.4</td>
<td>6,384.5</td>
</tr>
<tr>
<td></td>
<td>All other commodities</td>
<td>24,097.2</td>
<td>2,766.6</td>
<td>12.0</td>
<td>2,987.7</td>
<td>0.0</td>
<td>5,332.5</td>
<td>35,195.9</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>79,912.3</td>
<td>519,628.0</td>
<td>12.0</td>
<td>9,544.3</td>
<td>78,675.3</td>
<td>24,064.4</td>
<td>711,836.3</td>
</tr>
</tbody>
</table>

Sources: FHWA FAF 3.4, 2011 provisional data and forecast; HDR calculations based on EIA (2014)

6.2.2 Direction-Specific Wyoming Freight Forecast

6.2.2.1 Inbound Tonnage Forecast

As is the case with 2011 tonnage, truck is projected to be the dominant mode for freight originating outside of Wyoming and terminating within the state, accounting for about 51 percent of all inbound freight movements in both 2025 and 2035. The largest truck commodity is projected to be cereal grains, followed by nonmetallic mineral products and fuel oils. Pipeline is projected to be the second-most-used mode for inbound freight, accounting for 17 percent in 2025 and 14 percent in 2035, or about 5.2 million tons and 5.0 million tons, respectively.

Four commodities are projected to enter the state via pipeline. In descending order of tonnage, they are crude petroleum, coal and petroleum products, fuel oils, and gasoline. Rail is projected to move the third-largest share of goods, with basic chemicals comprising the majority of the inbound rail freight. The majority of the “other” freight is projected to be mixed shipments, and the few commodities that move by air are projected to be low-weight, high-value commodities such as machinery and precision instruments (Figure 6-3).
As shown by the 2011 data, the commodity mix for inbound freight is relatively even, with no clearly dominant commodity. This holds true in the forecast period, though the mix of inbound freight is projected to change slightly from 2011 to 2025 and from 2025 to 2035. The largest share of freight in the forecast period is projected to be miscellaneous mixed freight at more than 3 million tons in 2025 and 5 million tons in 2035, followed by cereal grains in both future periods at 3 million tons and 4 million tons, respectively. In 2025, the next three largest inbound commodities are projected to be crude petroleum, accounting for 2.8 million tons; basic chemicals at 2.7 million tons; and fuel oils at 2.5 million tons. This mix is projected to shift slightly in 2035, with the third- through fifth-largest commodities being natural sands, basic chemicals, and crude petroleum, each with about 2.7 million tons of the 36 million total tons.

Sources: FHWA FAF 3.4, 2011 provisional data and forecast; HDR calculations based on EIA (2014)
### 6.2.2.2 Outbound Tonnage Forecast

The relative modal share of outbound freight is projected to remain relatively consistent through the forecast period. Rail is currently the dominant mode, and this is projected to be the case for the foreseeable future. Rail freight is projected to account for 84 percent of all tonnage in 2025 and 85 percent in 2035, or 469 million tons and 485 million tons, respectively. Pipeline is projected to remain the second-largest mode, accounting for about 12 percent of outbound freight, or 66 million tons, in 2025 and 10 percent of outbound freight, or 59 million tons, in 2035. Though it currently accounts for a small portion of all freight movements, the truck freight mode share is projected to increase, from about 2.7 percent in 2011 to 3.2 percent in 2025 and 3.6 percent in 2035 (Figure 6-4).

#### Figure 6-4. Forecasted Outbound Tonnage from Wyoming by Mode in 2025 and 2035

in thousands of tons

![Graph showing forecasted outbound tonnage by mode in 2025 and 2035.]

*Sources: FHWA FAF 3.4, 2011 provisional data and forecast; HDR calculations based on EIA (2014)*

The dominant outbound commodities are projected to remain relatively consistent among 2011, 2025, and 2035, with coal continuing to account for the majority of all outbound freight tonnage and remaining between 80 percent and 82 percent through the forecast period. Coal and petroleum products are projected to remain the second-largest outbound commodity, accounting for almost 11 percent in 2025 and more than 9 percent in 2035, or 60 million and 52 million tons, respectively. The majority of coal is projected to be moved by rail, and the majority of coal and petroleum products are projected to be moved by pipeline. Other top outbound commodities are projected to include basic chemicals, moved primarily by rail; crude petroleum, moved primarily by pipeline; and fertilizers, moved primarily by truck.
6.2.2.3 Internal Tonnage Forecast

Freight moving within Wyoming is more evenly spread across the various modes than are either inbound or outbound freight. Truck currently accounts for the largest share of internal freight tonnage and is projected to be 37 percent in 2025, growing to 39 percent in 2035. This equates to about 37 million truck-tons in 2025 and 41 million truck-tons in 2035. Rail is projected to be the second-largest mode of internal freight movement, accounting for 29.4 percent of freight movements in 2025 and 28.8 percent in 2035. Other and unknown modes are projected to account for about 18 percent of freight tonnage in the future years, and pipeline is projected to account for between 14 percent and 15 percent (Figure 6-5).

**Figure 6-5. Forecasted Internal Tonnage in Wyoming by Mode in 2025 and 2035**

![Bar chart showing forecasted internal tonnage by mode in 2025 and 2035](Image)

*Sources: FHWA FAF 3.4, 2011 provisional data and forecast; HDR calculations based on EIA (2014)*

The largest commodity moved within Wyoming is coal, which is predominantly moved by rail from the mine to the processing and power plants within the state. Coal accounted for 58 percent of all internal freight in 2011. Though the total tonnage of coal moved within the state is projected to increase over time, from 50 million tons in 2011 to 54 million tons in 2035, its relative share of tonnage is projected to decrease to 52 percent over the same period. The second-largest commodity moving within the state is projected to be basic chemicals, accounting for about 11.5 percent of all internal tonnage. These goods are projected to move primarily by pipeline and account for the vast majority of internal pipeline movements. Fuel oils, moved by both truck and pipeline, are projected to account for about 6 percent of all freight tonnage moved by 2035. Overall, the commodity mix moving within the state is projected to become slightly more diverse, with smaller shares of a greater number of commodities moving throughout the state.
6.2.2.4 Through Traffic Forecast

The FAF predicts that truck freight with an origin and/or destination in Wyoming will increase from 55.2 million tons to 79.9 million tons (an increase of nearly 25 million tons, or 45 percent) between 2011 and 2035. This is a significant increase that will tax the highway infrastructure, but it is only part of the picture. This increase does not account for traffic that passes through the state but does not stop. This through traffic has very little direct benefit to the people of Wyoming but does tax the infrastructure that the State is responsible for maintaining. This is particularly true of Interstate 80 (I-80), which is identified as a major truck route on the National Highway System.

Due to the limitations of the CFS and the FAF database, detailed information about through traffic is difficult to obtain. Although the FAF does allow examining flows to and from various regions, it does not provide trip data, so it is difficult to determine the route of travel for through traffic. Because of the data limitations for through traffic patterns on all roads in Wyoming, this discussion of through traffic is based on information available for I-80. I-80 is the largest truck route in Wyoming and is a major connector for the West Coast and Midwest/East regions.

The Interstate 80 Freight Corridor Analysis study (R&S Consulting and others 2008) provides the basis for this discussion of through traffic in Wyoming, with updated projections based on population trends since the completion of the study. The study used information from three primary sources: (1) the FAF, (2) a 2006 study by Tomasini and Young (R&S Consulting and others 2006) that forecasted I-80 traffic based on a regression model using Wyoming DOT data on vehicle-miles traveled (VMT), and (3) a survey of truck drivers who use I-80 that was conducted in order to gauge the level of traffic on I-80 and assess the future level of investment required by Wyoming DOT to maintain the highway in a state of good repair.

The Interstate 80 Freight Corridor Analysis study showed that, of the freight moving on I-80, almost 70 percent of eastbound freight and 88 percent of westbound freight did not originate or terminate in Wyoming. The study identified concentrations of origins for eastbound freight in Salt Lake City, Utah; Reno, Nevada; Los Angeles, California; Oakland, California; Portland, Oregon; and Seattle/Tacoma, Washington. Origins for westbound freight included Chicago, Iowa, Nebraska, and Indiana. The concentration in Salt Lake City is due in part to the location of a major hub that funnels freight along I-80. In the future, this hub and its connection to Wyoming will continue to be important as the population in the western United States continues to grow. The study also found that the primary commodities being moved through Wyoming by truck were food products, building materials, heavy equipment, general freight, paper products, and household-related products.

When the study was conducted, there were an average of 6,000 trucks per day traveling on I-80 and an anticipated truck growth rate of 4.4 percent. The slowdown in growth due to the economic downturn of the late 2000s was not accounted for in this study, though the study did consider scenarios involving major changes to the transportation network and modal switches from truck to rail. These alternative scenarios were not expected to decrease overall truck volume; instead, they were projected to reduce the rate of truck volume growth to about 2.2 percent per year over a 30-year period. This slower growth is more consistent with the FAF’s current expectations for growth between 2011 and 2035.

Truck freight in Wyoming is relatively evenly distributed among commodities. As a result, it is reasonable to assume that the overall growth pattern for freight with an origin, destination, or both in Wyoming will mirror
the growth pattern of freight passing through Wyoming. To account for uncertainty associated with this simplifying assumption, high and low estimates of truck through traffic were generated based on the relative share of all truck traffic that is through traffic. The low estimate assumes that 30 percent of all truck traffic is through traffic, and the high estimate assumes that 70 percent\(^\text{12}\) of all truck traffic is through traffic.

Applying these assumptions to the FAF data leads to the results presented in Table 6-6 for 2025 and 2035. The result is a total of between about 34 million and 186 million tons passing through Wyoming in 2035 and about 114 million to 266 million total tons of truck freight using Wyoming’s infrastructure in 2035.

Table 6-6. Forecasted Truck Tonnage through Wyoming in 2011, 2025, and 2035

<table>
<thead>
<tr>
<th>Estimate</th>
<th>2011</th>
<th>2025</th>
<th>2035</th>
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</thead>
<tbody>
<tr>
<td><strong>Through Tonnage</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>23,643.5</td>
<td>30,074.3</td>
<td>34,248.1</td>
</tr>
<tr>
<td>High</td>
<td>128,725.6</td>
<td>163,738.0</td>
<td>186,462.1</td>
</tr>
<tr>
<td><strong>Total Truck Tonnage</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>78,811.6</td>
<td>100,247.7</td>
<td>114,160.5</td>
</tr>
<tr>
<td>High</td>
<td>183,893.7</td>
<td>233,911.4</td>
<td>266,374.5</td>
</tr>
</tbody>
</table>

*Source: HDR calculation*

\(^\text{12}\) This is the low end of the finding for I-80 from the *Interstate 80 Freight Corridor Analysis* study (R&S Consulting and others 2008). It is possible that the level of tonnage traveling through Wyoming is higher.
6.3 References

[EIA] U.S. Energy Information Administration


[FHWA] Federal Highway Administration


R&S Consulting, Federal Highway Administration, and Wyoming Department of Transportation


R&S Consulting, Federal Highway Administration, Wyoming Department of Transportation, and University of Wyoming


Wyoming Department of Administration and Information


Wyoming Department of Workforce Services

Chapter 7. Trends, Needs, and Issues

7.1 Introduction

This chapter of the SFP identifies trends and market dynamics that could affect the demand for freight-related infrastructure throughout Wyoming or could have implications for freight planning within the state. These trends and market dynamics are:

- Panama Canal expansion
- Power generation energy markets
- Crude oil rail movements
- Warehousing and distribution centers
- Truck tractor and semi-trailer regulations

7.2 Panama Canal Expansion

In 2007, construction began on a project to expand the capacity of the Panama Canal to allow transit by larger ships. It might be surprising that a landlocked state such as Wyoming could be affected by a maritime transportation infrastructure project in Central America. Nonetheless, this section identifies some potential effects of the canal expansion project on U.S. import and export cargoes.

7.2.1 Overview

The Panama Canal allows ships to travel between the Atlantic and Pacific Oceans. Because of the size of the locks on the canal, only ships carrying about 5,000 TEUs (twenty-foot equivalent)\(^\text{13}\) or 85,000 deadweight tons (dwt) of capacity (carrying up to 62,000 metric tons of bulk cargo at a 40-foot draft) can transit the canal (MARAD 2013).

The canal expansion project will allow ships carrying 13,000 TEU and ships up to 180,000 dwt through the canal (MARAD 2013). The third set of lock gates and other capacity enhancements will also allow 12 to 14 additional vessels to transit through the canal system. The canal is expected to be open for larger ships in 2016.

Figure 7-1 shows a typical container-carrying vessel using the Panama Canal.

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\(^{13}\) Twenty-foot equivalent is the standard unit for describing a ship’s carrying capacity for shipping containers. Containers are typically 20 or 40 feet long.
7.2.2 Import Cargoes

The *Panama Canal Expansion Study* (MARAD 2013) found that the Panama Canal expansion could change the way some import cargoes are transported to their final destination. Cargo shipped from countries in Asia arrives on both U.S. coasts. Some of the cargo destined for the central and eastern regions is landed at West Coast ports and transported by rail or truck through Wyoming. Due to the economies of scale and resulting lower costs from using larger ships, some shippers might use the sea route instead of the overland route.

However, the full effect of the canal expansion is difficult to determine. Many factors affect how shippers route their cargo, including port calls and vessel scheduling, transit times (Figure 7-2), shipping charges and rates, the ability of ports to accommodate the larger Panama-sized ships, port handling costs, overland rail and truck costs (including the ability of railroads to respond to this competition), and overall system reliability. Indications suggest that any decrease in imported freight traveling through Wyoming as a result of the canal expansion project is likely to be modest.

The *Panama Canal Expansion Study* (MARAD 2013) analyzed the effect of the Panama Canal expansion on freight transit times from northeast Asia to Chicago, Memphis, and Dallas (Figure 7-2). Figure 7-2 shows that the overall transit times using East Coast ports rather than West Coast ports will be 5, 7, and 9 days longer to Dallas, Memphis, and Chicago, respectively. If a cargo’s speed of transit is more important than cost, it is likely to keep coming into the West Coast ports. However, if cargo is not time critical and its transportation costs are lower using the East Coast as the port of entry, the cargo might be transferred away from the West Coast.
7.2.3 Export Cargoes

From the perspective of a Wyoming coal shipper, the optimum export port location for reaching the Asian coal market is on the northwest U.S. coast. This is due to the presence of existing rail infrastructure that links coal-producing areas with accessible ports that can handle large bulk ships, the distance from Wyoming to the northwest ports, and the short shipping distances from the northwest ports to foreign coal markets. These factors have led to a number of coal-handling terminals being proposed for the northwest U.S. coast.

However, if port capacity isn’t available in the Northwest, would the Panama Canal expansion provide an option for Wyoming coal exporters? This is a question of economics: can coal be mined and processed, transported by rail to the Gulf Coast (where coal terminals already exist), loaded on a ship that then transits the Panama Canal, and shipped across the Pacific Ocean at a lower total cost than what the Asian coal customer could get from another supplier?

The Panama Canal expansion will allow larger bulk carrier ships to serve Asia from the Gulf Coast. By using larger vessels, shipping costs can be reduced by 25 percent to 30 percent (Gateway Pacific Terminal 2015). If this transportation route is economically viable and there are no options on the northwest coast, then an increasing number of coal trains might depart Wyoming for the Gulf Coast.
7.3 Power Generation Energy Markets

Because Wyoming’s freight activity is very much driven by energy markets, this SFP identifies what the energy market might look like in the future and whether the future energy market would affect Wyoming’s freight infrastructure. The source for this information is the Annual Energy Outlook 2014 (AEO2014) prepared by the U.S. Energy Information Administration (EIA). AEO2014 presents long-term annual projections of energy supply, demand, and prices focused on the United States through 2040 based on EIA’s National Energy Modeling System.

Although the analysis in AEO2014 focuses on five primary cases, for the purpose of this SFP, the Reference case in AEO2014 is the typical case that is discussed in this section. This Reference case projection is “a business-as-usual trend estimate, given known technology and technological and demographic trends” (EIA 2014).

7.3.1 Coal

Coal-fired power generation has steadily declined in the overall U.S. power generation mix due to lower natural gas prices and low growth in electricity demand. Additionally, coal-fired power plants are required to abide by stringent environmental regulations including the Mercury and Air Toxics Standards (MATS), which will apply beginning in 2016. MATS sets standards for all hazardous air pollutants emitted by coal- and oil-fired generating units with a capacity of 25 megawatts or greater.

Older power stations would be required to implement control technologies such as installing flue gas desulfurization systems or scrubbers on coal plants. The cost of these technologies and the cost-competitiveness of other fuel sources such as natural gas could lead some power companies to decommission their older and less-efficient coal-fired power-generating facilities.

AEO2014 identifies four cases that forecast different mixes in power generation. These cases are mainly associated with retirements in coal and nuclear generating capacity and the increase in natural gas and renewables (Figure 7-3). It is apparent from these projections that coal is still expected to play a significant role in future electricity generation. The outlook trend in future power generation mix by fuel type is shown in Figure 7-4.

As coal production has declined, so has the number of railcars carrying coal. According to the Association of American Railroads, in 2013, Class I railroads originated 5.95 million carloads of coal, down 4.1 percent from 2012’s 6.20 million carloads and down 22.8 percent from the peak of 7.71 million carloads in 2008 (AAR 2014a). This is the lowest number of carloads since 1993.
Figure 7-3. Electricity Generation by Fuel in Four AEO2014 Cases, 2040
in billions of kilowatt-hours

Source: EIA 2014

Figure 7-4. Electricity Generation by Fuel in the AEO2014
Reference Case, 1990–2040
in trillions of kilowatt-hours

Source: EIA 2014
7.3.2 Natural Gas

As Figure 7-3 and Figure 7-4 above illustrate, natural gas is projected to generate a greater proportion of U.S. power. In the AEO2014 Reference case, natural gas consumption is projected to increase from 25.6 trillion cubic feet (Tcf) in 2012 to 31.6 Tcf in 2040, with significant increases projected for use in industrial and electric power generation (Figure 7-5).

**Figure 7-5. Natural Gas Consumption by Sector in the AEO2014 Reference Case, 1990–2040**

in trillions of cubic feet

![Natural Gas Consumption Graph](source: EIA 2014)

It is interesting to note where the extra natural gas is likely to be consumed. Figure 7-6 identifies natural gas–fired generation in the electric power sector by North American Electricity Region (NERC) (Figure 7-7). The increase is projected to be mainly in those regions where coal-fired power plants are likely to be retired. These regions include the SERC Reliability Corporation (SERC) and Reliability First Corporation (RFC) regions. The Western Electricity Coordinating Council (WECC) and the Texas Reliability Entity (TRE) are not projected to experience many retirements of coal-fired power plants but rather to experience an overall growth in electricity demand (EIA 2014). The WECC region, which includes Wyoming, is already supplied by Wyoming’s natural gas pipelines.
Figure 7-6. Natural Gas–Fired Generation in the Electric Power Sector by NERC Region in the AEO2014 Reference Case, 2005–2040

in billions of kilowatt-hours

Source: EIA 2014

Figure 7-7. Regional Entities within NERC

Source: NERC 2014
7.4 Crude Oil Rail Movements

Since 2008, the U.S. rail system has moved an ever-increasing number of railcars carrying crude oil. In 2008, U.S. Class I railroads originated 9,500 carloads. By 2013, this had increased to 407,761 carloads (AAR 2014b). This increase is illustrated in Figure 7-8.

![Figure 7-8. Originated Carloads of Crude Oil versus Terminated Carloads of Crude Oil on the U.S. Class I Rail Network](source:AAR 2014b)

There are several reasons why rail movements carrying crude oil have increased.

- New oil production has occurred in areas not typically associated with large-volume oil production. These areas are typically distant from refineries.

- U.S. refining operations are focused on either refining oil close to traditional oil-producing regions or refining oil in coastal areas (Figure 7-9). These coastal areas receive crude oil via tanker and include ports on the Gulf, California, northwest, and New England coasts. Forty-four percent (nearly 7.7 million barrels per day) of U.S. refining capacity is located along the Gulf Coast (EIA 2014).
The pipeline network is established mainly to transport crude oil from Gulf Coast ports and the Texas production areas to inland refineries. This network does not link all oil-producing areas with the refineries that can process the surge in domestic oil production.

Planning and constructing new pipelines is a lengthy and capital-intensive process. Pipeline operators and investors will typically demand long-term contracts with shippers and refineries before constructing new pipelines. For new producing areas, this can be a problem, because historical production records might not be sufficient to guarantee investment.

Rail networks already exist, and many refineries are already connected to the rail network. Implementing rail transload facilities in the new production areas can be undertaken relatively quickly.

Multimodal solutions, including pipeline to rail and rail to barge, give flexible options to oil producers for accessing refining markets and avoiding pipeline bottlenecks such as the connection in Casper between the Express and Platte Pipelines.

As a transport mode for crude oil, rail has been used by oil companies to move their product to refineries and markets where pipeline capacity does not exist. This occurs despite the cost, since moving oil by pipeline is typically cheaper than by rail. Figure 7-10 illustrates some typical Wyoming crude oil markets and the relationship between rail lines and pipelines serving those markets.
To facilitate the expansion of domestic oil production, the number of rail transload facilities across the United States has increased. Seven rail transloading facilities within Wyoming are in either development or operation. The majority of these facilities support local producers but some also ship onto the rail network Canadian crude oil that flows into Wyoming via the Express Pipeline.

Wyoming’s rail transload facilities have an estimated planned capacity of 535,000 barrels per day (Table 2-13).

<table>
<thead>
<tr>
<th>Rail Transload Facility and Location</th>
<th>Planned Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRBIC, Douglas</td>
<td>60,000</td>
</tr>
<tr>
<td>Eighty Eight, Guernsey</td>
<td>80,000</td>
</tr>
<tr>
<td>Meritage (Black Thunder), Wright</td>
<td>120,000</td>
</tr>
<tr>
<td>Pronghorn, Casper</td>
<td>60,000</td>
</tr>
<tr>
<td>Granite Peak/Cogent, Casper</td>
<td>140,000</td>
</tr>
<tr>
<td>Granite Peak/Cogent, Cheyenne</td>
<td>35,000</td>
</tr>
<tr>
<td>Tiger Transfer, Upton</td>
<td>40,000</td>
</tr>
</tbody>
</table>

Source: Crestwood Midstream Partners 2014

Figure 7-11 illustrates the capacity of Wyoming’s rail network and its pipeline and refining capacity in relation to pipeline imports into Wyoming and production from the Powder River Basin. This analysis suggests that there is sufficient transportation capacity, whether by rail or pipeline, and refining capacity to process and move Wyoming-produced crude oil as well as oil from other producing regions.
Figure 7-11. Wyoming Crude Oil Transportation and Refining Capacity

7.5 Warehousing and Distribution Centers

In the decade from 2000 to 2010, two large warehousing developments were built in Wyoming, leading Lowe’s and Walmart to establish regional distribution centers in Cheyenne. These centers take advantage of Wyoming’s low labor costs, land availability for large warehouses, and access to highway networks. However, as attractive as these local advantages might be, a company also considers the following broader factors associated with the company’s warehouse network design:

- Transportation costs inbound to the warehouse
- Transportation costs outbound from the warehouse
- Inventory cost (increasing the number of warehouses typically increases inventory held by an organization)
- Speed and access to customer markets

Other issues, such as supply-chain emissions, increased fuel costs, and driver labor shortages, also influence warehouse network design.
Table 7-2 identifies the optimal location for warehouses based on transit lead times to the U.S. population. As soon as a company with a national network needs to have eight warehouses, one of those would ideally be located in Aurora or Denver. However, a company might decide that the 100-mile, 2-hour trip difference between Denver and Cheyenne is offset by the local advantages described previously in this section. Economic incentives might also factor in the company’s decision-making.

Although most of Wyoming’s logistical activity supports mineral and energy operations, there is a role for Wyoming, and in particular Cheyenne, in supporting regional distribution centers.

Table 7-2. Ten Best Warehouse Locations

<table>
<thead>
<tr>
<th>Number of Warehouses in a Company’s Network</th>
<th>Average Distance to Customers (miles)</th>
<th>Average Lead Time to Customers (days)</th>
<th>Best Warehouse Locations (Percent Throughput)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>819</td>
<td>2.31</td>
<td>Vincennes IN (100)</td>
</tr>
<tr>
<td>2</td>
<td>506</td>
<td>1.53</td>
<td>Ashland KY (76)</td>
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<td></td>
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<td></td>
<td>Denver CO (5)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Pasadena CA (10)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Bonney Lake WA (5)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Oakland CA (5)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>San Juan PR (1)</td>
</tr>
</tbody>
</table>

Source: Chicago Consulting 2013

Red shading indicates warehouse locations in Colorado.
7.6  Truck Tractor and Semi-trailer Regulations

7.6.1  Introduction

This section examines whether the regulations of Wyoming’s neighboring states with regard to truck tractors and semi-trailers are inconsistent with Wyoming’s regulations, since such inconsistency could cause freight movement issues.

Federal regulations relating to the dimensions of commercial vehicles are restricted to width and length. Height is regulated by States. The maximum width of commercial vehicles using the national highway network is 102 inches, though this is interpreted as 102.36 inches to reflect the international standard of 2.6 meters.

7.6.2  Comparison of Truck Tractor and Semi-trailer Dimensions

Table 7-3 lists the different dimensions in the regulations of Wyoming and its neighboring states related to truck tractors and semi-trailers.

<table>
<thead>
<tr>
<th>State</th>
<th>Maximum Height</th>
<th>Maximum Overall Length of Semi-trailer Excluding Truck Tractor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colorado</td>
<td>13 feet (^a)</td>
<td>57 feet 4 inches</td>
</tr>
<tr>
<td>Idaho</td>
<td>14 feet</td>
<td>53 feet</td>
</tr>
<tr>
<td>Montana</td>
<td>14 feet</td>
<td>53 feet</td>
</tr>
<tr>
<td>Nebraska</td>
<td>14 feet 6 inches</td>
<td>53 feet</td>
</tr>
<tr>
<td>South Dakota</td>
<td>14 feet</td>
<td>53 feet</td>
</tr>
<tr>
<td>Utah</td>
<td>14 feet</td>
<td>53 feet</td>
</tr>
<tr>
<td>Wyoming</td>
<td>14 feet</td>
<td>60 feet</td>
</tr>
</tbody>
</table>

\(^a\) Except where designated 14 feet 6 inches by the Colorado Department of Transportation

Even though Wyoming allows 60-foot-long trailers, the majority of its neighboring states don’t. Therefore, any interstate movements using a truck tractor and semi-trailer combination will be required to use 53-foot-long trailers. Loads that exceed each State’s statutory dimension and weight limits can still be moved, but those movements are regulated under each State’s permitting system. The vast majority of loads moved will fall within the State’s statutory dimensions.

Height is not considered to be an issue, since Wyoming’s height limit is consistent with that of the majority of its neighboring states.
7.6.3 **Gross Vehicle Weights**

The application of a gross vehicle weight maximum appears to significantly vary across Wyoming and its neighboring states. Although Wyoming has a legal maximum gross vehicle weight of 117,000 pounds, other States specify this differently; for example, in Utah, this maximum is 80,000 pounds for a semi-tractor trailer.

Transport operators are required to comply with the federal bridge gross weight formula, which determines the maximum gross vehicle weight based on the number of axles and the spacing between axles. In Wyoming, a vehicle would need eight or nine axles and the appropriate axle spacing to carry the maximum gross vehicle weight of 117,000 pounds.

7.6.4 **Longer Combination Vehicles**

The Intermodal Surface Transportation Efficiency Act (ISTEA) froze the maximum allowed weights of truck tractors with two or more trailing units operating above 80,000 pounds on the federal-aid highway system at the weight limits in effect for such vehicles in a state on June 1, 1991. The maximum length of the cargo-carrying units was also frozen. Longer combination vehicles (LCVs) can be categorized as follows (Figure 7-12):

- Combination consisting of a truck tractor and two trailing units
- Combination consisting of a truck tractor and three trailing units
- Combinations with two or more cargo-carrying units not included in either of the above

**Figure 7-12. Longer Combination Vehicles**

![Longer Combination Vehicles Diagram](image)

*Source: FHWA 2004a*

Table 7-4 lists the length and weight restrictions for Wyoming and neighboring states with regard to LCVs.
Table 7-4. Longer Vehicle Combination Dimensions

<table>
<thead>
<tr>
<th>State</th>
<th>Truck Tractor and Two Trailing Units</th>
<th>Truck Tractor and Three Trailing Units</th>
<th>Other Combinations a</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Maximum Cargo Carrying Length (ft)</td>
<td>Maximum Gross Vehicle Weight (1,000 lb)</td>
<td>Maximum Cargo Carrying Length (ft)</td>
</tr>
<tr>
<td>Colorado</td>
<td>111</td>
<td>110</td>
<td>115.5</td>
</tr>
<tr>
<td>Idaho</td>
<td>95</td>
<td>105.5</td>
<td>95</td>
</tr>
<tr>
<td>Montana</td>
<td>93</td>
<td>137.8</td>
<td>100</td>
</tr>
<tr>
<td>Nebraska</td>
<td>95 c</td>
<td>95</td>
<td>95 c</td>
</tr>
<tr>
<td>South Dakota</td>
<td>100</td>
<td>129</td>
<td>100</td>
</tr>
<tr>
<td>Utah</td>
<td>95</td>
<td>129</td>
<td>95</td>
</tr>
<tr>
<td>Wyoming</td>
<td>81</td>
<td>117</td>
<td>No</td>
</tr>
</tbody>
</table>

Source: FHWA 2004b

a Other vehicles can include a truck towing one trailer or towing a semi-trailer and trailer; an automobile/boat transporter; or a saddlemount combination.

b State submission includes multiple vehicles in this category. The values listed represent the range of cargo-carrying length for the vehicles covered by this regulation. For details on specific vehicle combinations in Wyoming and neighboring states, see Appendix A, which reproduces Appendix C of Code of Federal Regulations Title 23, Part 658: Truck Size and Weight, Route Designations—Length, Width, and Weight Limitations.

c 95 feet is allowed if combination units travel empty. Combination units carrying cargo are allowed 65 feet, except for those carrying seasonally harvested products, which are allowed a cargo-carrying length of 71.5 feet.

d No maximum weight is established, since this vehicle combination is not considered a “longer combination vehicle” per the ISTEA definition. In Nebraska, a truck trailer with three trailing units is not allowed to exceed 80,000 pounds.

The notable differences in Wyoming’s regulations compared to other States (Figure 7-13) are that Wyoming doesn’t allow a combination of a tractor trailer and three trailing units, and it has the shortest allowed overall length of a tractor trailer and two trailing units (12 feet shorter than Montana). This type of arrangement is known as a Rocky Mountain Double (RMD), while the longer two-trailing-units combination is a Turnpike Double. However, Wyoming’s gross vehicle weight limit is higher than that of three other states.
Figure 7-13. Map of State Regulations of Longer Combination Vehicles

Source: U.S. Department of Energy 2006

Note that the States that allow LCVs with three trailing units require certain conditions to be met (for example, special driver training) and in some cases regulate time-of-day and day-of-week operations and/or regulate operating in certain weather conditions. Only 17 States allow combinations with a tractor trailer and three trailing units.
7.7 References

[AAR] Association of American Railroads

BTU Analytics

Chicago Consulting

Crestwood Midstream Partners

[FHWA] Federal Highway Administration

[EIA] U.S. Energy Information Administration

Gateway Pacific Terminal

[MARAD] U.S. Department of Transportation, Maritime Administration
[NERC] North American Electric Reliability Corporation


Wyoming Pipeline Authority
Chapter 8. Strengths and Challenges of the State’s Freight Transport System

8.1 Introduction

This chapter identifies notable strengths and challenges associated with the state’s freight system and how these strengths and challenges affect achieving the goals of this SFP. Figure 8-1 identifies how these strengths and challenges pertain to the four modes of freight transportation. These strengths and challenges are discussed in detail in the remainder of this chapter.

Figure 8-1. Summary of Strengths and Challenges by Transportation Mode for Achieving the Goals of This SFP

<table>
<thead>
<tr>
<th>GOALS</th>
<th>Highway</th>
<th>Rail</th>
<th>Pipeline</th>
<th>Aviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety</td>
<td><img src="image" alt="Safety" /></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Economy</td>
<td></td>
<td><img src="image" alt="Economy" /></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mobility</td>
<td><img src="image" alt="Mobility" /></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maintenance</td>
<td><img src="image" alt="Maintenance" /></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Environmental</td>
<td><img src="image" alt="Environmental" /></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reliability</td>
<td><img src="image" alt="Reliability" /></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

8.2 Highway

8.2.1 Safety Goal

As described in Chapter 5, Conditions and Performance of the State’s Freight Transportation System, trucks were involved in 5.6 percent of all U.S. traffic accidents and in 2012. In contrast, in Wyoming over a 10-year period from 2002 to 2011, heavy trucks were involved in 8.3 percent of total accidents (13,273 accidents). Of the 3,958 truck-involved accidents in Wyoming between 2009 and 2013, 73 percent occurred on I-80, and I-80 also accounted for 59 percent of all truck-involved fatalities. The Mountain-Plains Consortium (MPC 2014) identified that the majority of truck accidents occur during the winter months. The American Transportation Research Institute (ATRI 2012) also identified a total of 1,728 truck rollovers that occurred in Wyoming between 2001 and 2009. These rollovers resulted in 57 fatalities. The majority of these rollovers occurred along I-25 and I-80.
The number of truck incidents in Wyoming, especially along the heavily traveled truck route of I-80, and the percentage of accidents involving trucks (a percentage that is above the national rate) pose significant challenges to achieving the safety goal of this SFP.

### 8.2.2 Maintenance Goal

As described in Chapter 5, Conditions and Performance of the State’s Freight Transportation System, of the 2,196 bridges in Wyoming, 50.2 percent are rated as Fair or Poor according to the Wyoming Bridge Index. However, on the interstate system in Wyoming, 59 percent are categorized as Fair or Poor. In addition, 16.5 percent of bridges on the NHS in Wyoming are rated as structurally deficient (SD), and 13 percent are considered functionally obsolete. Federal performance measures require that no more than 10 percent of the bridges (based on deck area) may be designated as SD for all NHS bridges. These figures are based on Wyoming DOT’s *Transportation Asset Management Plan (Draft, 2015).*

Wyoming DOT’s goals are to maintain at least 60 percent of the State-owned bridges in good or excellent condition, and, in accordance with FHWA’s performance measures, to have no more than 10 percent of all NHS bridges (based on deck area) designated as SD. Based on the scenarios in its bridge management system, the Wyoming DOT Bridge Program projects an annual funding shortfall of $30 million in order to meet these goals.

In terms of pavement condition, 82.3 percent of the interstate system in Wyoming is in excellent or good condition. For the non-interstate NHS portion, 62.2 percent is in excellent or good condition, and, for the non-NHS system, 55.7 percent is in excellent or good condition. However, the boom-and-bust cycle of mineral-extraction activity and the development of extraction sites in areas of previously low travel demand, combined with the number of trucks and the weight of trucks serving these extraction sites, present significant challenges to maintaining and preserving the condition of pavement in Wyoming and thus to achieving the maintenance goal of this SFP.

### 8.2.3 Reliability Goal

The reliability of the freight system is critical for all its users. Shippers need to have their products delivered on time to meet the needs of their customers. Late deliveries have many impacts, including cost penalties and ultimately customers taking their business elsewhere. The reliability of the highway system is therefore critical in meeting the needs of local, regional, and national users of Wyoming’s highway network.

Two primary issues reduce the reliability of the highway network in Wyoming: weather and crashes. Congestion also affects reliability and freight performance, but there are no significant congestion hot spots on the Wyoming highway network that affect freight performance and reliability.

This section provides estimates of the costs of delays associated with weather- and crash-related closures on key corridors in Wyoming.
8.2.3.1 Methodology

The Texas Transportation Institute’s (TTI) *2011 Urban Mobility Report* (TTI 2011) describes a methodology for quantifying the cost of delay due to congestion, including the component costs of wasted time and fuel. Although the methodology described in the TTI report discusses delay to both commercial and personal vehicles, the focus of the analysis in this SFP is solely on commercial vehicles. Though the TTI report is written with a focus on congestion delay, the general methodology can easily and justifiably be translated to weather- or crash-related delay.

Put simply, this methodology evaluates the change in travel time due to delay (in the TTI report, from congestion) as well as the additional fuel consumption due to reduced travel speeds under congested conditions. Though the TTI report focused specifically on congestion, the methodology is widely accepted for valuing time and delay due to any cause. However, one drawback of this methodology is that it can understate the value of cargo and commodities being transported as well as the value of non-closure delays.

With regard to delay to commercial vehicles, this methodology looks at the value of time, average vehicle occupancy, value of commodities, and other factors. The methodology also estimates travel delay and wasted fuel due to congestion. The calculation of wasted fuel is derived from the reduced travel speed or increased idling. This calculation would be applicable to weather delays only if estimates of speed reduction due to inclement weather were available. For the analysis in this SFP, only full closures were evaluated, and Wyoming DOT assumed that trucks waited for the road to reopen before they were able to continue on their journey.

In order to measure the costs of weather- or crash-related closures using this methodology, Wyoming DOT gathered data on closures from 2009 to 2013 for the major corridors under consideration in this SFP. Traffic data were obtained from the Wyoming DOT Vehicle-Miles Book, while the closure information was obtained from Wyoming DOT. The information on average daily truck traffic was applied to the distance of the closure to create the vehicle-miles affected by the delay. This number of vehicle-miles affected was then multiplied by the duration of the closure (in hours) and the average per-hour commercial vehicle operating cost of $94.14.\(^{14}\)

This calculation was applied to each closure instance from 2009 to 2013 to generate the total closure cost on each corridor during each year. These values were then aggregated to generate the total cost of closure during the relevant period as well as the average annual cost due to weather- or crash-related closures.

8.2.3.2 Results

The results of the analysis are presented in Table 8-1 and Table 8-2. The 5-year average annual values reflect the fact that not all corridors had closures during each year. Additionally, crashes that did not close a measureable length of highway were excluded, since their dollar valuations cannot be calculated. The values presented below reflect full closures only. The data did not allow representing the delay associated with lower speeds due to partial closures.

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\(^{14}\) This is the value cited in the Texas Transportation Institute’s *2011 Urban Mobility Report* updated to 2014 dollars.
Table 8-1. Cost of Weather-Related Closures on Key Corridors in Wyoming (2009–2013) in 2014 dollars

<table>
<thead>
<tr>
<th>Corridor</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>Total</th>
<th>Annual Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>I-25 (Colorado state line to Buffalo at I-90)</td>
<td>18,783,759</td>
<td>1,109,687</td>
<td>5,895,752</td>
<td>11,912,768</td>
<td>11,815,397</td>
<td>49,517,363</td>
<td>9,903,473</td>
</tr>
<tr>
<td>I-80 (Utah state line to Nebraska state line)</td>
<td>81,637,933</td>
<td>61,530,799</td>
<td>47,558,265</td>
<td>44,506,834</td>
<td>39,238,092</td>
<td>274,471,923</td>
<td>54,894,385</td>
</tr>
<tr>
<td>I-90 (Montana state line to South Dakota state line)</td>
<td>6,031,226</td>
<td>566,776</td>
<td>815,093</td>
<td>1,044,396</td>
<td>2,893,730</td>
<td>11,351,221</td>
<td>2,270,244</td>
</tr>
<tr>
<td>US 191 (Rock Springs to Pinedale)</td>
<td>0</td>
<td>0</td>
<td>110,139</td>
<td>0</td>
<td>0</td>
<td>110,139</td>
<td>22,028</td>
</tr>
<tr>
<td>US 20/WY 789 (Shoshoni to Montana state line)</td>
<td>1,880,787</td>
<td>403,031</td>
<td>635,226</td>
<td>0</td>
<td>455,644</td>
<td>3,374,688</td>
<td>674,938</td>
</tr>
<tr>
<td>US 20/US 26 (Shoshoni to Casper)</td>
<td>1,807,699</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1,807,699</td>
<td>361,540</td>
</tr>
<tr>
<td>US 26 (Exit 92 at I-25 to Nebraska state line)</td>
<td>0</td>
<td>0</td>
<td>327,458</td>
<td>0</td>
<td>0</td>
<td>327,458</td>
<td>65,492</td>
</tr>
<tr>
<td>US 287 (Rawlins to Muddy Gap)</td>
<td>4,565,655</td>
<td>0</td>
<td>881,958</td>
<td>1,129,870</td>
<td>1,812,025</td>
<td>8,389,507</td>
<td>1,677,901</td>
</tr>
<tr>
<td>US 85 (north of Cheyenne to Newcastle)</td>
<td>3,948,591</td>
<td>170,547</td>
<td>659,373</td>
<td>0</td>
<td>2,046,124</td>
<td>6,824,635</td>
<td>1,364,927</td>
</tr>
<tr>
<td>WY 220 (Muddy Gap to Casper at I-25)</td>
<td>2,032,785</td>
<td>0</td>
<td>711,241</td>
<td>0</td>
<td>1,336,172</td>
<td>4,080,197</td>
<td>816,039</td>
</tr>
<tr>
<td>WY 59 (Douglas to Gillette at I-90)</td>
<td>614,380</td>
<td>0</td>
<td>0</td>
<td>229,025</td>
<td>2,832,928</td>
<td>3,676,332</td>
<td>735,266</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>121,302,814</strong></td>
<td><strong>63,780,839</strong></td>
<td><strong>57,267,047</strong></td>
<td><strong>59,150,350</strong></td>
<td><strong>62,430,111</strong></td>
<td><strong>363,931,161</strong></td>
<td><strong>72,786,232</strong></td>
</tr>
</tbody>
</table>
Table 8-2. Cost of Crash-Related Closures on Key Corridors in Wyoming (2009–2013) in 2014 dollars

<table>
<thead>
<tr>
<th>Corridor</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>Total</th>
<th>Annual Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>I-25 (Colorado state line to Buffalo at I-90)</td>
<td>3,849,718</td>
<td>476,989</td>
<td>1,015,940</td>
<td>708,553</td>
<td>4,895,435</td>
<td>10,946,634</td>
<td>2,189,327</td>
</tr>
<tr>
<td>I-80 (Utah state line to Nebraska state line)</td>
<td>21,326,691</td>
<td>20,165,628</td>
<td>14,193,235</td>
<td>12,986,307</td>
<td>8,863,160</td>
<td>77,535,021</td>
<td>15,507,004</td>
</tr>
<tr>
<td>I-90 (Montana state line to South Dakota state line)</td>
<td>0</td>
<td>46,944</td>
<td>0</td>
<td>0</td>
<td>357,448</td>
<td>404,392</td>
<td>80,878</td>
</tr>
<tr>
<td>US 191 (Rock Springs to Pinedale)</td>
<td>253,425</td>
<td>114,834</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>368,259</td>
<td>73,652</td>
</tr>
<tr>
<td>US 20/WY 789 (Shoshoni to Montana state line)</td>
<td>156,437</td>
<td>0</td>
<td>54,964</td>
<td>0</td>
<td>0</td>
<td>211,402</td>
<td>42,280</td>
</tr>
<tr>
<td>US 20/US 26 (Shoshoni to Casper)</td>
<td>0</td>
<td>0</td>
<td>87,698</td>
<td>85,933</td>
<td>0</td>
<td>173,630</td>
<td>34,726</td>
</tr>
<tr>
<td>US 26 (Exit 92 at I-25 to Nebraska state line)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>21,318</td>
<td>0</td>
<td>21,318</td>
<td>4,264</td>
</tr>
<tr>
<td>US 287 (Rawlins to Muddy Gap)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>US 30 (Utah state line to junction with I-80)</td>
<td>0</td>
<td>452,702</td>
<td>912,475</td>
<td>0</td>
<td>0</td>
<td>1,365,177</td>
<td>273,035</td>
</tr>
<tr>
<td>US 85 (north of Cheyenne to Newcastle)</td>
<td>218,869</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>218,869</td>
<td>43,774</td>
</tr>
<tr>
<td>WY 220 (Muddy Gap to Casper at I-25)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>WY 59 (Douglas to Gillette at I-90)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>416,837</td>
<td>0</td>
<td>416,837</td>
<td>83,367</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>25,805,140</strong></td>
<td><strong>21,257,097</strong></td>
<td><strong>16,264,313</strong></td>
<td><strong>14,218,947</strong></td>
<td><strong>14,116,043</strong></td>
<td><strong>91,661,540</strong></td>
<td><strong>18,332,308</strong></td>
</tr>
</tbody>
</table>
8.2.3.3 Discussion

Table 8-1 and Table 8-2 above show that weather-related closures resulted in $363.9 million in delay costs from 2009 to 2013, while crash-related closures resulted in $91.7 million in delay costs during the same period. Of the key corridors analyzed, I-80 and I-25 had the highest incidence of weather- and crash-related closures. These two interstates, along with I-90, account for the majority of delays associated with weather-related closures in each of the 5 years analyzed. The year with the highest delay costs for both weather- and crash-related closures was 2009, with $121 million in weather-related delay costs and nearly $26 million in crash-related delay costs. Crash-related delay costs have decreased every year since 2009, from nearly $26 million to $14.1 million in 2013. Weather-related delays were particularly costly in 2009, with the associated costs nearly double those in 2013. The severity of the weather can have a dramatic effect on the overall cost of highway freight delay, with the 5-year analysis showing the variability associated with these closures.

Because I-80 serves key national freight flows, any impact on I-80 in Wyoming has wider effects that extend throughout supply chains that rely on trucks using I-80. Weather- and crash-related closures on key corridors in Wyoming pose challenges to achieving the reliability goal of this SFP.

8.3 Rail

8.3.1 Economy Goal

Undoubtedly, the key strength associated with Wyoming’s freight system is the rail network and its ability to move the vast majority of Wyoming’s exports and link Wyoming’s mineral and resources producers with consumers in different states and also with international markets. Wyoming’s rail network therefore contributes greatly to meeting the economy goal of this SFP.

The rail network is a key strength due to a combination of the following factors and attributes:

- Recent capacity and upgrade enhancements, such as triple- and quadruple-tracking, by the Class I railroads that improve the flow and velocity of rail-carried products
- The ability to directly access mines and other resource-production areas with rail facilities, thereby reducing the need for multiple trans-shipments, minimizing the first- and last-mile distance associated with truck movements, and improving the cost competitiveness of Wyoming’s resource exports
- Having land available for developing rail transfer and transloading facilities such as Swan Ranch
- The number of rail transloading facilities in Wyoming
- Flexibility to move different products according to market demand
- Class I and Class III railroads already operating railcars with 286,000-lb maximum gross weights and some elements of the network capable of accommodating 315,000-lb railcars, with no bottlenecks associated with weight constraints
These factors and attributes help prevent bottlenecks in commodity flows. For example, crude-oil shippers use the rail network to overcome limitations in pipeline capacity and coverage and bring their product to refineries. Furthermore, without rail access, transporting some commodities to market would be uneconomical or would require a very large number of trucks, which would lead to increased congestion on and maintenance of the highway network.

8.3.2 Safety Goal

Although Wyoming’s rail network contributes to meeting the economy goal of this SFP, safety issues with the rail network pose challenges to achieving the safety goal. These issues are associated mainly with at-grade rail crossings. There are 1,085 at-grade rail crossings in Wyoming, of which 380 are public crossings. Of these 380 public crossings, 212 are equipped with gates, 50 are classified as other activated crossings, and 118 have passive warnings.

HDR’s analysis of FRA safety data show that, of the nine highway-rail incidents that occurred on Wyoming’s rail network between 2011 and 2014, eight (88 percent) of those occurred at highway crossings, and two were fatal. Although Wyoming’s rail safety record is improving, incidents still occur. In January 2015, a fatal incident occurred at a private rail crossing.

Wyoming DOT receives an average of $1.1 million in Federal Highway Safety Program funds (formerly Section 130 funds) annually. In Wyoming, these funds are used to cover part of the cost to install signals at four to six grade crossings and to upgrade or resurface up to six additional crossings per year.

8.4 Pipeline

8.4.1 Economy and Mobility Goals

Though Wyoming has an extensive pipeline network that carries a variety of commodities, the network has issues that pose challenges to achieving the economy and mobility goals of this SFP. However, these challenges are limited to the crude oil pipeline network; the pipeline networks that carry natural gas and other liquids are considered by shippers and users to be sufficient to meet their needs.

 Pipelines are the optimum method of moving bulk liquids from producer to user or consumer. The U.S. pipeline network is established mainly to transport crude oil from Gulf Coast ports and the Texas production areas to inland refineries. This network does not link all oil-producing areas with the refineries that can process the surge in domestic oil production. Additionally, planning and constructing new pipelines is a lengthy and capital-intensive process. Pipeline operators and investors will typically demand long-term contracts with shippers and refineries prior to construction of new pipelines. For new producing areas and producers, this can be a problem, because historical production records might not be sufficient to guarantee investment.

These factors, plus the bottleneck in capacity associated with the Express-Platte System at Casper, pose a challenge to achieving the economy and mobility goals of this SFP. However, this challenge is not significant,
because the oil industry has adopted a multimodal approach to move crude oil to market, notably the use of rail to provide capacity and to reach refineries that are not accessed by Wyoming’s pipelines.

## 8.5 Aviation

### 8.5.1 Mobility Goal

The express parcel hub at Casper–Natrona County International Airport is an additional strength in Wyoming’s overall freight system that connects Wyoming’s residents and businesses to the wider national and international marketplace. Not only does a hub generate airport-related revenue and jobs, it also supports later collection and earlier delivery times for organizations that use express services. The express parcel hub therefore contributes greatly to achieving the mobility goal of this SFP.

However, the age, condition, and suitability of the express parcel hub to accommodate modern sorting processes put at risk the continued presence of the hub at Casper–Natrona County International Airport and therefore pose challenges to achieving the mobility goal of this SFP.

## 8.6 References

[ATRI] American Transportation Research Institute


[MPC] Mountain-Plains Consortium


[TTI] Texas Transportation Institute


[Wyoming DOT] Wyoming Department of Transportation

2015 Transportation Asset Management Plan, 2015 DRAFT.
9.1 Outreach

A key component associated with this SFP was an outreach strategy that sought to include input, comments, and feedback from different stakeholders and to understand their perspectives about how the freight system performs and the issues and challenges associated with it. In order to fully represent the needs and interests of the various stakeholders throughout the state, a multifaceted approach was developed to allow for input in a way that best suited stakeholder needs throughout the state. This approach is described in the following sections of Section 9.1.

9.1.1 Freight Advisory Committee

A Freight Advisory Committee was formed with representatives from public and private stakeholders representing all geographic regions of the state and major industrial and freight transportation sectors. Members include the Wyoming Trucking Association, FHWA, metropolitan planning associations, airports, the Shoshone and Arapahoe Tribes, and Wyoming DOT. (For a copy of the committee by-laws, see Appendix D, Wyoming State Freight Advisory Committee.)

This Freight Advisory Committee, which meets quarterly or as often as needed, discusses State decisions affecting freight transportation and provides advice and ideas on possible freight program policies and strategies beneficial to Wyoming. The committee helps communicate and coordinate regional priorities with other organizations and promote the sharing of information between the private and public sectors on freight issues. The committee will continue to participate in developing the Statewide Freight Plan.

The initial meeting of the Freight Advisory Committee was held October 9, 2014, in Cheyenne. Attendees included Wyoming DOT staff, the Airport Manager from Casper–Natrona County International Airport, FHWA, the Cheyenne Metropolitan Planning Organization (MPO), AB Freight, and the transportation director of the Shoshone and Arapahoe Tribes. A number of other organizations were also invited but were unavailable to attend.
9.1.2 Public Outreach

Since May 2014, Wyoming DOT outreach has included a project website, media relations, advertising (online and print), mailings, a public meeting in Casper printed handouts, and targeted emails. Figure 9-1 illustrates the extent of the outreach efforts.

To make the comment process easier, Wyoming DOT provided a number of ways for interested stakeholders to offer input, including in-person and online options (Figure 9-2). By January 15, 2015, we received feedback from nearly 100 stakeholders through the various comment processes.

**Figure 9-1. Outreach Results**

<table>
<thead>
<tr>
<th>Outreach by the Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>3</strong> Earned Media Coverage</td>
</tr>
<tr>
<td><strong>76</strong> Online Surveys</td>
</tr>
</tbody>
</table>

**Figure 9-2. Outreach Input Methods**
9.1.2.1 Website

The project website was established at WyomingStatewideFreightPlan.com (Figure 9-3). This website informed stakeholders about the objectives of this SFP and the process of developing it. The website also hosted documents and allowed stakeholders to communicate their comments to the SFP team.

![Wyoming Statewide Freight Plan Website](image)

Figure 9-3. Wyoming Statewide Freight Plan Website

9.1.2.2 Freight Survey

An online survey was developed to seek content from a wide variety of stakeholders. The survey was promoted through the website as well as other membership and community organizations and the Freight Advisory Committee.

Feedback included identifying the current highway system as a top strength for the transportation system and, for this reason, stakeholders saw great value in maintaining existing infrastructure to preserve what has already been built.

Challenges voiced by the freight industry included driver recruitment, particularly in competition with oil and gas industry wages, and limited air cargo options throughout the state.

For more information about the online survey, see Appendix E, Online Survey Information.
9.1.2.3 Public Meeting

Wyoming DOT held a public meeting on July 9, 2014, at 301 E. Lathrop Road in Casper from 4 p.m. to 6:30 p.m. The purpose of the meeting was to educate the public about the need for the SFP and to invite the public to provide feedback and formal comments.

A presentation at the meeting explained the need to begin planning for potential freight opportunities in Wyoming, especially since statewide freight planning is gaining momentum nationwide. The presentation also focused on encouraging the public to use one of the available methods to provide a formal comment. Wyoming DOT and project representatives answered questions in an open-house format prior to and after the formal presentation. Meeting materials included business cards with contact information, a project banner, comment forms, and a PowerPoint presentation. The meeting presentation was posted on the project website after the meeting. A copy of all meeting materials is provided in Appendix F, Public Meeting Materials.

9.1.2.4 Public Outreach Highlights

Responses were received through the open house (3), project email (2), online comment form (2), and online survey (76).

Stakeholders made specific suggestions about how improvements could be made to the statewide system. A few common themes from the public and community and elected leaders were:

- Increase four-lane roads to reduce congestion (specific recommendations were Big Horn Basin to Casper, Lander/Riverton to Casper, Rawlins to Casper, Wind River Canyon, Lander to Shoshoni, and Casper to Douglas).
- Consider dedicated passing lanes on two-lane roads.
- Charge for overweight tonnage to fund infrastructure maintenance and consider lowering truck speed limits like surrounding States have.

The freight industry also provided a number of ways they felt the system can improve, including:

- Implement a statewide permitting process.
- Additional rail services would eliminate weather-related delays in shipment.
- Input from the general public, elected and community leaders, and the private industry was essential for creating this SFP.
- Participants saw value in creating this SFP for statewide planning and allocating funding resources for highest-priority projects. They also see a benefit in having the resource to better understand planned projects in local areas and statewide.
- Maintaining existing infrastructure across all transportation modes is a top priority voiced from stakeholders. Investing in safety is also seen as important when prioritizing projects.
- Forming a Freight Advisory Committee was essential in the public involvement process, because the public and private committee members will help shape policy and prioritize Wyoming’s needs.
9.1.3 **Coordination**

We will continue to engage freight stakeholders as we develop the SFP, update them on our progress, and seek input on the suggested priorities and targets. Through our soon-to-be-launched online open house and other outreach efforts, we will continue to identify and engage additional stakeholders to develop a comprehensive SFP that represents the interests and needs of all freight and transportation users throughout Wyoming.

9.1.3.1 **Regional Planning**

A key issue identified in this SFP is the effect of weather and weather-related events on critical freight corridors such as I-80, which traverses several mountain passes. Weather events introduce delay and disruption to the freight system, with the resulting effects affecting shippers and consumers across the nation.

The States of California, Nevada, Utah, Wyoming, and Nebraska have formed the I-80 Winter Operations Coalition in order to improve mobility and safety during the winter months. The coalition focuses on two areas:

18. Provide travelers with the information they need to make informed route and travel decisions.

19. Coordinate maintenance and operations to promote consistency across state lines.

In 2010, the I-80 Winter Operations Coalition prepared a Freight Coordination and Action Plan as guidance for involving the freight community in the strategies to be developed for I-80. The safety and efficiency of freight operations on I-80 during the winter months will be improved by continued development of this operational strategy and the provision of travel information through various media, in addition to the targeted and specific information tailored to commercial vehicle operations, such as the Wyoming Commercial Vehicle Operator Portal (this portal provides customized road weather forecasts for the heavily truck traveled routes of I-25, I-80, and I-90).
9.2  Prioritization of Freight Related Strategies and Projects

9.2.1  Project Prioritization

The purpose of this section of the SFP is to define a prioritization process that provides decision-makers with information to determine strategic projects that meet the goals defined in Chapter 1, Wyoming Strategic Freight Goals, and enhance freight mobility through Wyoming. As funding for transportation continues to decrease, so does the opportunity to construct large projects that provide additional capacity to meet Wyoming’s increasing freight volumes. The Wyoming DOT Project Steering Committee developed this prioritization process to help make strategic investment choices and to evaluate future freight projects.

The prioritization process for projects accounts for the goals and performance measures developed by and agreed on during the Freight Advisory Committee meetings. The prioritization process provides a mechanism for the Wyoming DOT Project Steering Committee to evaluate projects with varying needs and thereby identify projects that provide the greatest benefit for overall freight mobility.

The Wyoming DOT Project Steering Committee used four basic steps to develop the project prioritization process:

- **Step 1**: Define the goals and project ranking criteria.
- **Step 2**: Identify the projects to be prioritized.
- **Step 3**: Establish the weighting factor for each of the criteria.
- **Step 4**: Score the alternatives.

Legislation, funding mechanisms, and regulatory authority were also accounted for in the project prioritization process. As a result, the Freight Advisory Committee identified a number of projects that affect freight—for example, projects that involve freight movement by air but are not under the direct control of Wyoming DOT. The committee considered these projects to be high-priority projects but did not rank them in order of importance. Therefore, the Wyoming DOT Project Steering Committee took the final prioritized list and applied a rank to transportation projects only (Figure 9-4). The other projects are still considered to be a priority; they just are not ranked in order of importance. These prioritized non-ranked projects include structurally deficient bridges, airport projects, and safety improvements. A complete list of prioritized and ranked projects is provided in Chapter 10, State Freight Improvement Approaches and Recommendations.
Figure 9-4. Project Ranking Process

1. District Engineer Review and Input
2. MPO LRTP Projects and Project Input
3. Identified Projects from Corridor Studies
4. Statewide Structurally Deficient Bridge List

INITIAL PROJECT LIST

Initial Screening for Consistency with Project Goals

- Primary Freight Structure
- Consistent with Other Long-Range Transportation Plans
- Applied WYDCT Steering Committee Weighted Goals and Prioritization Filters

Final Prioritized Candidate List

Highway Projects Only
The committee developed the initial list of potential freight projects based on information that was readily available. This information included the Statewide Transportation Improvement Plan (STIP), MPO long-range transportation plans (LRTP), and other similar published plans. These existing plans were reviewed for projects that are freight related. Additionally, the Wyoming DOT Project Steering Committee developed a form and issued it to each of the District Engineers in Wyoming and to the Casper and Cheyenne MPOs to solicit recommended freight-related projects (Figure 9-5). After this initial project list was compiled, the committee conducted a preliminary screening process that considered the following criteria:

- Project location in reference to key freight corridors identified in this SFP
- Projects that conform with the SFP goals

When conducting the initial screening, the Wyoming DOT Project Steering Committee identified some of the projects as a priority for the state freight network. However, the committee determined that these projects were of equal importance, so the committee did not further rank the projects in order of importance. These projects included safety improvements and bridges that were considered to be structurally deficient, and the projects would have required further investigation—including cost, crash reduction factor, proximity to key freight corridors, and benefit to the freight network—in order to determine their priority. The transportation projects that remained were then ranked by the committee based on the improvement they would provide for freight mobility in the state.
Figure 9-5. Wyoming Statewide Freight Plan Project Request Form
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**Chapter 10. State Freight Improvement Approaches and Recommendations**

The purpose of this SFP is to assess the current condition of freight movement across all modes for the entire state, and, based on that assessment, develop recommendations and strategies for meeting the freight network goals described in Chapter 1, Wyoming’s Strategic Freight Goals. This chapter discusses the goals developed by the stakeholders and Freight Advisory Committee (FAC) in conjunction with the public involvement process and provides recommendations for those goals and strategies for future investment.

However, it should be noted that the State of Wyoming has a limited role in identifying and prioritizing infrastructure projects associated with private and commercial infrastructure, namely rail lines and pipelines. In terms of rail infrastructure, the State of Wyoming may not obligate any state aid or debt in the construction of any rail system, as per the Wyoming state constitution; and the state’s Class I freight railroads are under no obligation to report potential improvements and capital project priorities for their networks nor divulge the schedule and capital costs associated with such projects. State funding programs for use in rail-related initiatives are therefore limited to a small number of projects involving upgrading or improving rail vehicle grade crossings and developing rail transportation options within City-owned industrial or business parks.
10.1 Goal Recommendations and Strategies

10.1.1 Safety – Achieve a safe freight transportation network

Achieve a safe transportation network by decreasing the number and severity of crashes involving freight-related vehicles and decreasing the number and severity of crashes at rail crossings.

**Strategy**

- Continue the partnership with railroads to prioritize publicly funded grade crossing improvements.
- Publish and enforce regulations regarding fences along rail corridors, right-of-way fireguards, weed control, injury to livestock, proper railroad communication, and the transportation of hazardous materials through Wyoming.
- Ensure that Wyoming’s aviation system continues to safely move air cargo.
- Continue to facilitate projects associated with truck parking to ensure that drivers have a safe place to rest and complete their statutory rest.
- Use new Wyoming DOT design standards for publicly funded projects on the freight network to ensure that such projects are constructed to the latest design guidelines.
- Reduce unsafe weather-related roadway conditions.

**Recommendation**

- Develop a software platform to monitor cargo-related crashes to provide timely information about infrastructure improvements needed to maintain safe freight movement.
- Share with the Wyoming Trucking Association information obtained by analyzing accidents.
- Conduct outreach to the trucking industry (for example, safety information at ports of entry and truck stops).
- Assess winter maintenance activities to identify and improve winter roadway conditions.
10.1.2  **Economy – Support regional economic development**

Encourage freight investments with positive economic benefits to the Wyoming economy, maintain an efficient multimodal freight network for Wyoming businesses across all key industries, and strengthen rural economies’ farm-to-market, manufacturing, and resource industry sectors.

**Strategy**

- Focus on rail projects that provide a positive and diverse economic impact.
- Stakeholders should work through the metropolitan planning organization, DOT, and FAC to communicate freight challenges and opportunities and to relay information concerning investment and planning efforts.
- Allow a forum and agenda items for open discussion of freight mobility needs and issues at a local level through the Wyoming Trucking Association, the Wyoming Economic Development Association, the Wyoming Association of Municipalities, and other various local and regional associations.

**Recommendation**

- Work with key stakeholders to improve multimodal connectivity.
- During regular updates to the FHWA roadway classifications, locate and identify all multimodal connectors.
10.1.3 **Mobility** – Advance freight mobility through an efficient transportation network

**Strategy**

- Use the existing transportation system to expand mode choice.
- Continue to work with multi-jurisdictional and multi-state partners to make corridor-wide system decisions (for example, the I-80 Corridor System Master Plan at [www.i80vision.org](http://www.i80vision.org)).
- Use technology to improve freight mobility and route decision-making.

**Recommendation**

- Develop a program to work with local agencies and district staff to mitigate congestion as truck traffic increases in urbanized areas and energy-extraction locations.
- Identify and close any first-mile or last-mile breaks near multimodal and manufacturing, warehousing, and distribution centers.
- Designate overweight and overweight routes and implement projects that enhance movement by eliminating geometric, bridge, and regulatory constraints.
- Consider the redevelopment of the air cargo express hub at Casper–Natrona County International Airport.
10.1.4  **Maintenance** – Maintain the state of good repair

Constructing new roadway facilities and acquiring the necessary right-of-way is often costly and time consuming. In addition to freight facilities, new projects could also include land-use changes and political concerns. An emphasis should be placed on preserving existing freight facilities.

**Strategy**

- Use new Wyoming DOT design standards for publicly funded projects on the freight network to ensure that such projects are constructed to the latest design guidelines.
- When prioritizing projects, identify projects along key corridors that have high volumes of truck vehicle-miles traveled, poor pavement, and low bridge sufficiency ratings.
- Monitor and investigate possible rail abandonment applications and identify alternatives for preserving rail service, infrastructure, and modal competition when it is economically viable to do so.

**Recommendation**

- The Priority Rating Model (PRM) Task Force should consider including existing air cargo operations as a metric in the PRM (see Section 10.3, Aviation Projects, of this SFP).
10.1.5 *Environmental* – Minimize or mitigate impacts to the environment

Reduce and/or mitigate adverse environmental impacts of freight.

<table>
<thead>
<tr>
<th><strong>Strategy</strong></th>
<th><strong>Recommendation</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Increase the uptake of clean fuels used by trucks in Wyoming.</td>
<td>• Increase the availability of alternative fueling stations, especially on key freight corridors.</td>
</tr>
<tr>
<td>• Replace older trucks.</td>
<td>• Continue to support funding for alternative fueling infrastructure.</td>
</tr>
<tr>
<td></td>
<td>• Consider the introduction of a statewide clean truck program that encourages the use of cleaner fuels. Build on the Wyoming Natural Gas Vehicle and Infrastructure Coalition.</td>
</tr>
<tr>
<td></td>
<td>• Consider incentivization and scrappage schemes for operators to replace older trucks with newer, cleaner, and more fuel-efficient trucks.</td>
</tr>
</tbody>
</table>
10.1.6 **Reliability** – Achieve a reliable transportation network

Promote redundancy and flexibility within the system to meet unanticipated events and aid emergency response; reduce the frequency and duration of road closures.

<table>
<thead>
<tr>
<th><strong>Strategy</strong></th>
<th><strong>Recommendation</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>- Continue participation in multi-state coalitions to address non-reoccurring delays related to weather (I-80 winter coalition).</td>
<td>- Conduct travel time studies, including truck GPS (global positioning system) data analysis, to determine the effects of delay on freight movement (for example, lower variable speed due to weather, construction delay, etc.).</td>
</tr>
<tr>
<td>- Mitigate disruptions along major freight corridors.</td>
<td>- Add a higher weighting factor to projects that promote route redundancy for key corridors identified in this SFP for future project prioritization.</td>
</tr>
<tr>
<td>- Identify locations with potential freight-related disruptions (such as seasonal construction) and proactively determine adequate freight detours.</td>
<td>- Explore opportunities to integrate innovative technology to support efficient freight movement.</td>
</tr>
<tr>
<td>- Promote a common information technology solution to provide freight users with real-time travel information.</td>
<td></td>
</tr>
<tr>
<td>- Continue to provide freight users with closure information.</td>
<td></td>
</tr>
</tbody>
</table>

10.2 **Highway Projects**

The development of the project list and prioritization of the projects on the list is described in detail in Chapter 9, The State’s Decision-making Process, of this SFP. The prioritization process for projects accounts for the goals and performance measures developed by and agreed on during the Freight Advisory Committee meetings. The prioritization process provides a mechanism for the Wyoming DOT Project Steering Committee to evaluate projects with varying needs and thereby identify projects that provide the greatest benefit for overall freight mobility.

Legislation, funding mechanisms, and regulatory authority were also accounted for in the project-prioritization process. As a result, the Freight Advisory Committee identified a number of projects that affect freight—for example, projects that involve freight movement by air but are not under the direct control of Wyoming DOT.
The Wyoming DOT Project Steering Committee considered these projects to be high-priority projects but did not rank them in order of importance. The committee took the final prioritized list and applied the ranking criterion to transportation projects only (Figure 10-1). The other projects are still considered to be a priority; they just are not ranked in order of importance. These prioritized non-ranked projects include structurally deficient bridges, airport projects, and safety improvements.

**Figure 10-1. Project List and Ranking Process**

The Wyoming DOT Project Steering Committee developed the initial list of potential freight projects based on information that was readily available. After this initial project list was compiled, the committee conducted a preliminary screening process that considered the following two criteria:

- Project location in reference to key freight corridors identified in this SFP
- Projects that conform with the SFP goals
10.2.1 Prioritized Projects

Using a screening and weighting process, Wyoming DOT has identified the following projects as the prioritized project list (Table 10-1).

**Table 10-1. List of Priority Projects**

<table>
<thead>
<tr>
<th>Project Type</th>
<th>Route/Location</th>
<th>Project Limits</th>
<th>Project Description</th>
<th>Total Project Cost ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interchange</td>
<td>I-25</td>
<td>I-80 and I-25 in Cheyenne</td>
<td>Construct new system-to-system interchange in Cheyenne at the junction of I-25 and I-80.</td>
<td>220,000,000 (in 2008 $)</td>
</tr>
<tr>
<td>Interchange</td>
<td>I-25</td>
<td>Westwinds Road</td>
<td>Construct new interchange on I-25 at Westwinds Road (Bar Nunn).</td>
<td>5,109,660</td>
</tr>
<tr>
<td>Corridor Improvements</td>
<td>Cheyenne</td>
<td>F.E. Warren to Walker Road</td>
<td>Various improvements along Central Avenue including interchange and ramp terminals to improve capacity and reduce delay along I-25.</td>
<td>2,500,500 to 9,500,500 (based on alt.)</td>
</tr>
<tr>
<td>Intermodal</td>
<td>I-25</td>
<td>Not applicable</td>
<td>Prioritize projects in the area between the Casper–Natrona County International Airport (CNCIA) and I-25 to promote Casper as a regional energy hub.</td>
<td>Unknown</td>
</tr>
<tr>
<td>Truck parking</td>
<td>WY 258/ WY 220</td>
<td>Not applicable</td>
<td>Increase parking capacity for west-belt loop-truck bypass.</td>
<td>Unknown</td>
</tr>
<tr>
<td>Study</td>
<td>Casper</td>
<td>Not applicable</td>
<td>Conduct study to determine the environmentally and historically sensitive areas for proposed rail park between Yellowstone Highway and the Shoshoni Bypass.</td>
<td>Unknown</td>
</tr>
<tr>
<td>Safety improvement</td>
<td>Evansville</td>
<td>Not applicable</td>
<td>Make safety improvements for rail crossings in Evansville.</td>
<td>Unknown</td>
</tr>
<tr>
<td>New road</td>
<td>Polaris Drive</td>
<td>Westwinds Road to Salt Creek Highway</td>
<td>Construct new minor arterial on west side of Bar Nunn. #1 priority in Casper Metropolitan Planning Organization Long-Range Transportation Plan.</td>
<td>18,000,000</td>
</tr>
<tr>
<td>New road</td>
<td>Westwinds Road</td>
<td>CNCIA to I-25</td>
<td>Extend Westwinds Road between CNCIA and I-25.</td>
<td>22,400,000</td>
</tr>
<tr>
<td>Widening</td>
<td>US 20</td>
<td>Route Marker (RM) 110.60 to 112.60</td>
<td>Widen roadway to add passing lanes for the northbound and southbound directions and add a center lane.</td>
<td>2,043,750</td>
</tr>
<tr>
<td>Widening</td>
<td>US 20/ US 26</td>
<td>RM 50.69 to 75.00</td>
<td>Add passing lanes for the eastbound and westbound directions.</td>
<td>6,624,500</td>
</tr>
<tr>
<td>Widening</td>
<td>US 20/ US 26</td>
<td>RM 75.00 to 99.53</td>
<td>Add passing lanes for the eastbound and westbound directions.</td>
<td>7,044,500</td>
</tr>
<tr>
<td>Safety</td>
<td>US 20/ US 26</td>
<td>RM 116.00 to 116.50</td>
<td>Widen and raise existing tunnels to improve alignment and through-way for commercial vehicles.</td>
<td>49,193,000</td>
</tr>
</tbody>
</table>
10.2.2  Non-prioritized Projects

10.2.2.1  Deficient Bridges on Key Corridors

Figure 10-2 shows the locations of structurally deficient bridges on key freight corridors in Wyoming.

Figure 10-2. Locations of Structurally Deficient Bridges on Key Freight Corridors in Wyoming
Table 10-2 lists the deficient bridges along interstate routes in Wyoming as of 2014 and the total cost of full bridge replacement. It should be noted that not all structurally deficient bridges require a full replacement, and that often less costly alternatives may be appropriate, including bridge rehabilitation and bridge repair. Appendix G lists the Structurally Deficient Bridges on Interstate Corridors listed in table 10-2.

**Table 10-2. Structurally Deficient Bridges along Interstate Routes in Wyoming and Cost of Bridge Replacement, 2014**

<table>
<thead>
<tr>
<th>Corridor</th>
<th>Total Number of Structurally Deficient Bridges*</th>
<th>Total Cost of Full Bridge Replacement ($)**</th>
</tr>
</thead>
<tbody>
<tr>
<td>I-90 (Montana state line to South Dakota state line)</td>
<td>37</td>
<td>47,550,000</td>
</tr>
<tr>
<td>I-80 (Utah state line to Nebraska state line)</td>
<td>41</td>
<td>61,650,000</td>
</tr>
<tr>
<td>I-25 (Colorado state line to Buffalo at I-90)</td>
<td>21</td>
<td>58,375,000</td>
</tr>
</tbody>
</table>

* Values shown in this table differ slightly from Chapter 5 and 8 as they were taken from the 9/30/2013, Wyoming DOT Bridge Needs Assessment rather than the Draft 2015 Transportation Asset Management Plan.

**Replacement costs do not include ancillary costs such as traffic control, bridge approaches, and guardrail.

**10.2.2.2 Safety Projects**

Figure 10-3 was developed from statewide truck crash data (2009–2014) provided by Wyoming DOT. The figure shows the top 25% of truck crash locations, per key corridor, based on the total number of truck crashes over a 5-year period. These locations, as shown on the figure, require further investigation to determine the cause of the crashes, the benefits to freight mobility based on safety improvements, and crash reduction factors, etc., for various improvement types to determine priority ranking and the cost of proposed mitigation measures.
Figure 10-3. Locations of Top 25% of Truck Crashes per Key Freight Corridor in Wyoming, 2009–2014
10.3 Aviation Projects

Aviation projects in the state are identified by a variety of stakeholders including airports and aviation users. The Wyoming DOT Aeronautics Division then prioritizes these projects using the Wyoming Priority Rating Model for Project Evaluation (PRM), which was updated in 2014. The purpose of this model is to evaluate and rank projects for planning, budgeting, and granting by using objective information to make decisions considering the collective needs of the state’s aviation system.

In Wyoming, the Wyoming Aeronautics Commission is responsible for disbursing state funds associated with airport improvements. The commission uses the PRM to evaluate aviation projects for which federal and state funding is being sought. The PRM evaluates projects using the following six weighted categories:

- **Purpose of the project** within the subcategories of safety, security, maintenance, airport enhancement, or planning
- **Project component**, which seeks to prioritize projects associated with preserving and enhancing airside facilities
- **Type of federal funding**
- **Systems impact**, which considers an individual project’s overall impact on the State Aviation System Plan
- **Airport usage**, which prioritizes projects that benefit more airport users and citizens
- **Status of airport protection**, which recognizes safeguarding of airport operations and minimizing impacts on surrounding airport properties

The PRM produces a numerical rating, and this numerical rating is used to rank projects within the Wyoming Aviation Capital Improvement Program (WACIP). The WACIP is developed annually.

Table 10-3 provides a summary of the 2015 WACIP. Note that Table 10-3 includes a project associated with the potential development of the Casper Air Cargo/Sortation Hub. This project was identified as part of this SFP and is not part of the 2015 WACIP.
Table 10-3. Summary of the 2015 WACIP

<table>
<thead>
<tr>
<th>Airport City</th>
<th>Program Fiscal Year</th>
<th>Number of Projects</th>
<th>Estimated Project Value ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Casper</td>
<td>2015</td>
<td>2</td>
<td>2,459,212</td>
</tr>
<tr>
<td></td>
<td>2016</td>
<td>3</td>
<td>2,678,333</td>
</tr>
<tr>
<td></td>
<td>2017</td>
<td>1</td>
<td>6,586,667</td>
</tr>
<tr>
<td></td>
<td>2018</td>
<td>2</td>
<td>2,505,000</td>
</tr>
<tr>
<td></td>
<td>2019</td>
<td>2</td>
<td>2,068,333</td>
</tr>
<tr>
<td></td>
<td>2020</td>
<td>2</td>
<td>1,743,333</td>
</tr>
<tr>
<td></td>
<td>TBC</td>
<td>1</td>
<td>7,000,000</td>
</tr>
<tr>
<td>Cheyenne</td>
<td>2015</td>
<td>1</td>
<td>350,000</td>
</tr>
<tr>
<td></td>
<td>2016</td>
<td>1</td>
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<td></td>
<td>2018</td>
<td>1</td>
<td>480,000</td>
</tr>
<tr>
<td></td>
<td>2019</td>
<td>1</td>
<td>746,667</td>
</tr>
<tr>
<td></td>
<td>2020</td>
<td>1</td>
<td>9,920,000</td>
</tr>
<tr>
<td>Cody</td>
<td>2015</td>
<td>1</td>
<td>160,000</td>
</tr>
<tr>
<td></td>
<td>2016</td>
<td>1</td>
<td>1,322,667</td>
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<td>2</td>
<td>1,146,667</td>
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<tr>
<td></td>
<td>2018</td>
<td>1</td>
<td>160,000</td>
</tr>
<tr>
<td></td>
<td>2019</td>
<td>3</td>
<td>1,827,167</td>
</tr>
<tr>
<td>Gillette</td>
<td>2015</td>
<td>2</td>
<td>717,379</td>
</tr>
<tr>
<td></td>
<td>2016</td>
<td>1</td>
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<td></td>
<td>2017</td>
<td>1</td>
<td>1,440,000</td>
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<td>746,667</td>
</tr>
<tr>
<td>Jackson</td>
<td>2015</td>
<td>2</td>
<td>920,000</td>
</tr>
<tr>
<td></td>
<td>2016</td>
<td>2</td>
<td>6,693,333</td>
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<tr>
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<td>2017</td>
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<td></td>
<td>2018</td>
<td>2</td>
<td>1,400,000</td>
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<td></td>
<td>2019</td>
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<tr>
<td></td>
<td>2020</td>
<td>3</td>
<td>8,800,000</td>
</tr>
<tr>
<td>Laramie</td>
<td>2015</td>
<td>4</td>
<td>1,205,000</td>
</tr>
<tr>
<td></td>
<td>2016</td>
<td>1</td>
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<td>2017</td>
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<tr>
<td></td>
<td>2020</td>
<td>1</td>
<td>1,968,000</td>
</tr>
<tr>
<td>Rawlins</td>
<td>2015</td>
<td>2</td>
<td>1,020,000</td>
</tr>
<tr>
<td></td>
<td>2016</td>
<td>1</td>
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<tr>
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<td>1</td>
<td>303,000</td>
</tr>
<tr>
<td></td>
<td>2020</td>
<td>1</td>
<td>250,000</td>
</tr>
<tr>
<td>Airport City</td>
<td>Program Fiscal Year</td>
<td>Number of Projects</td>
<td>Estimated Project Value ($)</td>
</tr>
<tr>
<td>--------------</td>
<td>---------------------</td>
<td>--------------------</td>
<td>----------------------------</td>
</tr>
<tr>
<td>Riverton</td>
<td>2015</td>
<td>3</td>
<td>16,928,334</td>
</tr>
<tr>
<td></td>
<td>2016</td>
<td>1</td>
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</tr>
<tr>
<td></td>
<td>2020</td>
<td>2</td>
<td>676,000</td>
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<tr>
<td>Rock Springs</td>
<td>2015</td>
<td>1</td>
<td>1,066,667</td>
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<td></td>
<td>2016</td>
<td>1</td>
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</tr>
<tr>
<td></td>
<td>2020</td>
<td>1</td>
<td>320,000</td>
</tr>
<tr>
<td>Sheridan</td>
<td>2015</td>
<td>1</td>
<td>360,000</td>
</tr>
<tr>
<td></td>
<td>2016</td>
<td>3</td>
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<td>2019</td>
<td>1</td>
<td>853,333</td>
</tr>
<tr>
<td></td>
<td>2020</td>
<td>2</td>
<td>1,736,000</td>
</tr>
</tbody>
</table>

* To be confirmed. This project is associated with the potential development of the Casper Air Cargo/Sortation Hub and is not part of the 2015 WACIP.
10.4  Freight Rail Projects

The Class I railroads have been robustly and continually investing in rail infrastructure in Wyoming since the opening of the Southern Powder River Basin and transportation of coal by rail in the 1970s. Historically, most projects were aimed at developing the capacity needed to efficiently handle the surge of coal shipments out of Wyoming. These efforts spawned full upgrades to and multiple-tracking of existing mainlines, construction of new lines, and expansion and creation of new terminal facilities. Funds are budgeted by the Class I railroads each year to facilitate ongoing capital investment in the state’s rail network.

The systemwide capital expenditure budgets for BNSF Railway and Union Pacific Railroad in 2013 were $4.1 billion and $3.6 billion, respectively. The Class I railroads did not identify specifically how much of this funding was used for rail projects in Wyoming.

The Class I railroads have continued to invest heavily in their networks during the last 5 years in order to solve ongoing issues constraining the capacity, efficiency, and velocity of the high volumes of through traffic and coal shipments in Wyoming; to eliminate or mitigate operational chokepoints; to handle various upgrades associated with maintenance and safety; and to accommodate routine infrastructure renewal.

As part of the 2015 Statewide Rail Plan, both Wyoming’s Class I and short-line railroads were queried during the stakeholder outreach process about the specific challenges they face now and expect to face in the next 10 years in terms of capacity constraints, infrastructure needs and upgrades, railroad regulation, and capital funding needs. The railroads did not identify any specific operational bottlenecks in Wyoming.

10.5  Pipeline Projects

Pipelines, like rail lines, are financed, planned, and operated by the private sector. As part of the outreach process associated with this SFP, the Wyoming Pipeline Authority was consulted to determine whether any future pipeline projects should be identified and included in the SFP. The Wyoming Pipeline Authority did not identify any future pipeline projects.
Chapter 11. Implementation Plan

Wyoming’s economy depends upon the movement of minerals and good extracted and transported, to, from, and within the state. The freight network supports the movement of goods and commodities and facilitates a strong economy by creating jobs and enhancing private investment. The amount of freight moved through Wyoming continues to grow each year. Maintaining, improving, and investing in critical freight infrastructure are necessary to ensure that the freight system can accommodate future growth, can constantly improve its safety record, and will perform with sufficient reliability that meets the demands and expectations of the system users.

The ability to maintain and invest in safe and efficient freight networks is directly tied to the funding available for such facilities. Funding influences the decisions made in funding projects tied to the State and National Freight Goals defined in Chapter 1, Wyoming’s Strategic Freight Goals, of this SFP. Safety, maintenance, mobility, and connectivity are goals that Wyoming DOT takes into account when prioritizing how and where funds are distributed throughout the state. However, the investment and decision-making associated with substantial elements of the freight system, namely rail lines and pipelines, are solely within the domain of the private sector. Because of the commercial sensitivity and competition associated with developing and implementing privately owned infrastructure, rail lines and pipelines are not discussed in detail in this chapter.

11.1 Project Prioritization

As described in Chapter 10, The State’s Freight Improvement Strategy, of this SFP, a comprehensive list of projects were put through a screening process, and evaluation criteria were applied to each project. As a result of this exercise, this SRP contains a list of prioritized projects representing improvements necessary to the highway system for each of the key corridors in Wyoming as well as aviation assets associated with air cargo operations. This list represents the needs of the state for maintaining safe and efficient freight mobility.

Strategies

- Prioritize freight-related projects to maintain reliability, safety, mobility, and capacity.
- Identify opportunities on a local level for freight mobility improvements including mode choice, truck bypasses, routes used for delivery, etc.
- Identify intermodal connections for development.
- Eliminate gaps (first and last miles) between manufacturing and shipping facilities and near multimodal centers.
11.2 Project Funding

Prioritizing the projects is the first step in the implementation process; the second step is obtaining the funding for these projects. Potential revenue sources are discussed at length in Chapter 3, Freight Policies, Strategies, and Institutions, of this SFP.

Based on the prioritized project listing and the current funding level for Wyoming infrastructure, some form of additional financing will need to be identified and implemented to reach the freight goals and objectives in this SFP. Alternate funding sources should be reviewed on a case-by-case basis; some of these funding sources would require a legislative change within the state, as is the case with public-private partnerships.

After Wyoming DOT determines the projects moving forward and identifies a funding source, projects will then be carried into the planning phase. This phase could include updating the Wyoming State Transportation Improvement Program (STIP), identifying environmental constraints, analyzing alternatives, and potentially conducting preliminary design. Identifying and procuring funding for early phases of projects identified along key corridors will be critical in project development so that, if funding does become available, the projects are ready for development. Wyoming DOT will engage stakeholders, the Freight Advisory Committee, and the general public as the projects begin to move forward.

### Strategies
- Identify potential revenue strategies.
- Explore programs to incentivize investment into short-line infrastructure.
- Consider economic opportunities when considering project priorities.

### Funding Sources

Further funding sources that are used nationally and that might be potential revenue enhancements for Wyoming include:
- User fee on motor fuel
- Tolls
- Public-private partnership
- Alternative-fuel-vehicle user fees
- Vehicle-miles traveled fees
- Indexing and removing the sales tax exception
11.3 Freight Policies, Strategies, and Challenges

The advancement of freight mobility faces a number of policy challenges, which were identified as part of developing this SFP. Chapter 7, Trends, Needs, and Issues, of this SFP discusses the trends, needs, and issues for the existing freight network.

As discussed previously in this SFP, the movement of Wyoming’s resources requires a multimodal freight system. That freight system has to be flexible to meet the needs of shippers and receivers who are exposed to fluctuations in the global energy market. As this SFP is being compiled, oil prices have dropped significantly, raising concerns that the more expensive oil flowing from U.S. domestic shale fields might not be sustainable at these price levels. Shifts in commodity demand could also lead to a shift in transport needs, whether this shift means changing mode or reacting to fluctuations in volume and demand. Although most resources and energy-related freight are transported using privately owned pipeline and rail infrastructure, the movement of materials and goods at the local level supporting the mineral and energy industries is still of paramount importance.

**Strategies**

- Follow emerging trends and lessons learned in neighboring states (for example, North Dakota fracking facilities).
- Recognize the effect of freight infrastructure and provide projects that enhance economic development and job creation (for example, warehousing facilities and proximity to interstate facilities).
- Strategically allocate funding for maintenance depending on the rate of return per dollar spent; this includes maintaining reliability and mobility for major truck corridors including I-80.
- Evaluate the permitting process in conjunction with surrounding States to provide conformity in the movement of overweight and overweight loads.
11.4 Partnering and Planning

As part of developing this SFP, Wyoming DOT initiated the partnering and public involvement process for Wyoming by creating the Freight Advisory Committee (FAC) and conducting a through public involvement process as described in Chapter 9, The State’s Decision-making Process, of this SFP. The FAC determines the ongoing freight needs and challenges and provides a forum for these issues to be discussed as needed.

As described in Chapter 9, the FAC consists of stakeholders representing different geographic regions, freight modes, and government agencies. It also includes representatives from transportation, industry, aviation, and economic interests.

Wyoming DOT will continue to build on the relationships developed as part of this process when implementing the recommendations from this SFP. Wyoming DOT will also continue to reach out to representatives with all modes for freight movement, including the Wyoming Pipeline Association, for further inclusion of multimodal projects in the prioritized list of potential projects.

In addition to public and stakeholder outreach, transportation needs that affect mode choice and connectivity must be engaged early in the planning process. Wyoming DOT will continue to update this SFP every 5 years or more frequently if needed as determined by the Wyoming DOT and the FAC. Wyoming DOT might need to update this SFP periodically if FHWA provides specific information about performance measures.

### Strategies

- Prioritize projects for all freight modes (when necessary, in the future, revise the ranking criteria to include weighting factors for non-highway modes of transportation).
- Continue the use of the Freight Advisory Committee to obtain information on regional projects and freight transportation needs.
- Review project prioritization to consider rural accessibility to the freight infrastructure network.
- Continue outreach efforts to include organizations and businesses with a specific interest in particular commodities (for example, agricultural, wood, warehousing, etc.).
- Update the statewide study for truck parking, include environmental factors such as electrification of truck stops, and explore opportunities for public-private partnerships to expand truck parking facilities.
## Appendix A. SCTG Commodity Categories and Definitions

<table>
<thead>
<tr>
<th>SCTG Code</th>
<th>Brief Description</th>
<th>Commodity Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Live Animals/Fish</td>
<td>Bovine animals; swine; poultry; fish; other live animals</td>
</tr>
<tr>
<td>2</td>
<td>Cereal Grains</td>
<td>Wheat; corn; rye; barley; oats; grain sorghum; other cereal grains; includes seed</td>
</tr>
<tr>
<td>3</td>
<td>Other Ag. Prods.</td>
<td>Vegetables (fresh, chilled, or dried); fruits and nuts (edible, fresh, chilled or dried); oil seeds; bulbs; soy beans; live plants; cut flowers; cotton; mustard; fresh-cut flowers; plants and parts of plants; tobacco</td>
</tr>
<tr>
<td>4</td>
<td>Animal Feed</td>
<td>Eggs; cereal straw; forage products; food waste used in animal feeding; misc. other products of animal origin</td>
</tr>
<tr>
<td>5</td>
<td>Meat/Seafood</td>
<td>Meat (fresh, chilled, or frozen, salted or brined, smoked); poultry (fresh, chilled, or frozen); fish (except live)</td>
</tr>
<tr>
<td>6</td>
<td>Milled Grain Prods.</td>
<td>Flours; malt; milled rice; starches; inulin; bakery products and food preparations of cereals flour; starch or milk; baked products (including frozen)</td>
</tr>
<tr>
<td>7</td>
<td>Other Foodstuffs</td>
<td>Dairy products (excludes beverages and preparations of milk), processed or prepared vegetables, fruit, or nuts (excludes dried or milled and juices); coffee, tea, and spices (excluding unprocessed coffee and unfermented tea); animal or vegetable fats and oils and their cleavage products; prepared edible fats; animal or vegetable waxes; flours and meals of oil seeds; sugars; confectionary, cocoa, and cocoa preparations; vinegar; non-alcoholic beverages</td>
</tr>
<tr>
<td>8</td>
<td>Alcoholic Bevs.</td>
<td>Beer, wine and other fermented beverages; spirituous beverages and ethyl alcohol; denatured ethyl alcohol (not for human consumption)</td>
</tr>
<tr>
<td>9</td>
<td>Tobacco Prods.</td>
<td>Cigarettes &amp; tobacco products</td>
</tr>
<tr>
<td>10</td>
<td>Building Stone</td>
<td>Calcareous monumental or building stone; other monumental or building stone</td>
</tr>
<tr>
<td>11</td>
<td>Natural Sands</td>
<td>Silica sands and quartz sands for construction and other uses; other sands</td>
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<tr>
<td>12</td>
<td>Gravel</td>
<td>Gravel and crushed stone; limestone flux; agricultural limestone</td>
</tr>
<tr>
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<td>Nonmetallic Minerals</td>
<td>Salt; table salt; dolomite; sulfur, other clays; pumice stone; gypsum</td>
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<td>Metallic Ores</td>
<td>Iron; copper; nickel; aluminum; lead; zinc; uranium; titanium; other ores and concentrates</td>
</tr>
<tr>
<td>15</td>
<td>Coal</td>
<td>Bituminous coal; anthracite; lignite</td>
</tr>
<tr>
<td>16</td>
<td>Crude Petroleum</td>
<td>Crude petroleum oil and oil from bituminous minerals including tar sands</td>
</tr>
<tr>
<td>17</td>
<td>Gasoline</td>
<td>Gasoline; blends of gasoline; aviation turbine fuel; kerosene; ethanol; ethanol blends; other fuel alcohols</td>
</tr>
<tr>
<td>18</td>
<td>Fuel Oils</td>
<td>Diesel; bunker C; biodiesel; fuel oils; blends of fuel oils</td>
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<td>SCTG Code</td>
<td>Brief Description</td>
<td>Commodity Details</td>
</tr>
<tr>
<td>----------</td>
<td>-------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>19</td>
<td>Coal &amp; Petroleum Products (Coal – n.e.c)</td>
<td>Lubricating oils and greases; other refined petroleum oils; gaseous hydrocarbons; petroleum products; bituminous mixtures</td>
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<td>20</td>
<td>Basic Chemicals</td>
<td>Inorganic chemicals; sodium hydroxide; potassium hydroxide; sulfur; sodium sulfates; multiple others; organic chemicals; acyclic alcohols; phenols &amp; phenol alcohols; organic acids; halogenated derivatives of hydrocarbons; misc. others.</td>
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<td>21</td>
<td>Pharmaceuticals</td>
<td>Pharmaceutical products prepared or for preparation for medical use</td>
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<td>22</td>
<td>Fertilizers</td>
<td>Animal or vegetable fertilizers; nitrogenous mineral or chemical fertilizers; phosphatic slag; other phosphatic mineral fertilizers; potassium chloride; other fertilizers</td>
</tr>
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<td>23</td>
<td>Chemical Prods.</td>
<td>Paints and varnishes; vegetable tanning extracts or coloring matter; inks; essential oils; perfumery; soaps; photographic film; insecticides; glues and prepared glues; prepared explosives; activated carbon; water treatment preparation; other chemicals</td>
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<tr>
<td>24</td>
<td>Plastics / Rubber</td>
<td>Plastics and rubber in primary form; articles of plastics; articles of rubber</td>
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<tr>
<td>25</td>
<td>Logs</td>
<td>Logs for pulping; logs for lumber; fuel wood; wood in the rough; other untreated wood</td>
</tr>
<tr>
<td>26</td>
<td>Wood Prods.</td>
<td>Wood chips or particles; treated wood; shingles and shakes; veneer sheets; particle board; plywood; windows, doors, frames and thresholds</td>
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<tr>
<td>27</td>
<td>Newsprint / Paper</td>
<td>Pulp or fibrous cellulosic materials; paper and paperboard in large rolls or sheets</td>
</tr>
<tr>
<td>28</td>
<td>Paper Articles</td>
<td>Toilet paper; facial tissue; sanitary napkins; sacks and bags of paper; packing containers of paper; wallpaper and similar wall coverings; envelopes and stationery; other paper articles</td>
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<tr>
<td>29</td>
<td>Printed Prods.</td>
<td>Printed books etc.; newspapers; journals and periodicals; advertising material; printed or illustrated postcards; business-forms; other</td>
</tr>
<tr>
<td>30</td>
<td>Textiles / Leather</td>
<td>Textile fibers; knitted or crocheted fabrics; woven fabrics; tufted carpets; non-woven or felt fabrics; leather and articles of leather including footwear and luggage</td>
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<tr>
<td>31</td>
<td>Nonmetal Min. Prods.</td>
<td>Hydraulic cements; ceramic products; glass and glass products; worked granite; asphalt shingles; concrete pipes; prefabricated structural components; slag rock; building blocks; other</td>
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<tr>
<td>32</td>
<td>Base Metals</td>
<td>Ferro-alloys; copper; iron and steel; aluminum bars, rods, sheets, foil; lead; nickel; zinc; other nonferrous metal</td>
</tr>
<tr>
<td>33</td>
<td>Articles – Base Metal</td>
<td>Pipes, tubes, and fittings; structures and structural parts; hand tools, cutlery, interchangeable tools; metal containers; springs</td>
</tr>
<tr>
<td>SCTG Code</td>
<td>Brief Description</td>
<td>Commodity Details</td>
</tr>
<tr>
<td>-----------</td>
<td>---------------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>34</td>
<td>Machinery</td>
<td>Turbines; boilers; internal combustion engines; other non-electric motors and engines; pumps; compressors; fans; ventilating or recycling hoods incorporating a fan; air-conditioning, refrigerating, or freezing equipment; materials-handling, excavating, boring and related machinery or equipment; other mechanical machinery</td>
</tr>
<tr>
<td>35</td>
<td>Electronics</td>
<td>Electric motors, generators, generating sets, rotary converters, transformers, static converters, and inductors; electric, electro-thermic, or electro-mechanical domestic appliances; line telephone or telegraph apparatus and electronic equipment and electronic entertainment products; computer and office equipment; prepared unrecorded or pre-recorded media; electronic components and parts; other electronic and electrical equipment</td>
</tr>
<tr>
<td>36</td>
<td>Motorized Vehicles</td>
<td>Motor vehicles; tractors; motorcycles</td>
</tr>
<tr>
<td>37</td>
<td>Transport Equip.</td>
<td>Railway equipment; aircraft and spacecraft; ships, boats, and floating structures</td>
</tr>
<tr>
<td>38</td>
<td>Precision Instruments</td>
<td>Optical elements, instruments, and apparatus; photographic and photocopying machines; surveying equipment; instruments and apparatus for medical, dental, veterinary or similar purposes</td>
</tr>
<tr>
<td>39</td>
<td>Furniture</td>
<td>Furniture; mattresses; lamps; illuminated signs</td>
</tr>
<tr>
<td>40</td>
<td>Misc. Mfg. Prods.</td>
<td>Arms and ammunition; toys and sporting equipment; miscellaneous manufactured products</td>
</tr>
<tr>
<td>41</td>
<td>Waste / Scrap</td>
<td>Metallic waste and scrap; non-metallic waste and scrap (except from food processing)</td>
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<tr>
<td>43</td>
<td>Mixed Freight</td>
<td>Items for grocery and convenience stores; supplies for restaurants; hardware or plumbing supplies; office supplies; miscellaneous</td>
</tr>
<tr>
<td>99</td>
<td>Unknown</td>
<td>Unknown commodities</td>
</tr>
</tbody>
</table>
Appendix.B. EIA 2014 Summary Notes of Interest

B.1 Introduction

Trends in energy demand and resources will affect the demand on the mining and resources industry in Wyoming and will thus affect Wyoming freight movements. Freight movements in Wyoming related to mining and natural resources will be influenced by overall resource production, including coal and natural gas, in the United States; fuel prices; mining productivity; and environmental policies. The following sections, which are taken from EIA’s Annual Energy Outlook 2014 (AEO2014), summarize these major projected market trends that will influence Wyoming freight.

B.2 U.S. Energy Demand

B.2.1 Industrial and Commercial Sectors Lead U.S. Growth in Primary Energy Use

Total primary energy consumption, including fuels for electricity generation, grows by 0.4%/year in the AEO2014 Reference case\(^{15}\) to 106.3 quadrillion Btu in 2040 (Figure MT-8). The largest increase, 7.8 quadrillion Btu, is in the industrial sector, with increased use of natural gas in some industries (bulk chemicals, for example) as a result of low natural gas prices coinciding with rising shipments in those industries. In the industrial sector, which was more severely affected than the other end-use sectors by the 2007-09 economic downturn, energy consumption increases by 7.0 quadrillion Btu from 2008 to 2040.

The second-largest increase in total primary energy use, 3.3 quadrillion Btu from 2012 to 2040, is in the commercial sector. Even as standards for building shells and energy efficiency are tightened and commercial energy intensity (energy use per square foot) decreases by 0.4%/year from 2012 through 2040, energy use grows by 0.6%/year as annual growth in commercial floorspace averages 1.0%.

\(^{15}\) The AEO2014 Reference case projection is a business-as-usual trend estimate, given known technology and technological and demographic trends.
Primary energy use in the residential sector grows by 0.2%/year, or about 1.4 quadrillion Btu from 2012 to 2040. Energy use for space heating was down by almost 1 quadrillion Btu in 2012 because of an unusually warm heating season. In 2040, residential energy use is at 2011 levels, despite reduced energy use for space heating, lighting, and clothes washers, among other uses.

In the transportation sector, light-duty vehicle (LDV) energy use declines with the implementation of fuel economy standards. VMT remain flat (about 12,200 per licensed driver) in the near term, then begin to increase after 2025. From 2012 to 2040, total transportation sector energy use falls by more than 1 quadrillion Btu.

**B.2.2 Renewables and Natural Gas Lead Rise in Primary Energy Consumption**

The fossil fuel share of total energy use declines from 82% in 2012 to 80% in 2040 in the AEO2014 Reference case, while renewable energy use grows (Figure MT-9). The renewable share of total energy use (including biofuels) increases from 9% in 2012 to 12% in 2040 in response to the availability of federal tax credits for renewable electricity generation and capacity during the early years of the projection and in response to state renewable portfolio standard (RPS) programs. Biofuel use mandated by the Renewable Fuels Standard (RFS) accounts for a small part of the increase.

Natural gas consumption grows by about 0.8%/year from 2012 to 2040, led by increases in natural gas use for electricity generation and in the industrial sector. Growing production from tight shale keeps the price of natural gas to end users below 2005-08 levels through 2038.

Increases in vehicle fuel economy offset growth in transportation activity, resulting in a decline in the petroleum and other liquids share of fuel use while consumption of liquid biofuels increases. Biofuels, including E85, biodiesel blended into diesel, and ethanol blended into motor gasoline (up to 15%), account for 4% of all petroleum and other liquids consumption by energy content in 2040.

Coal consumption increases by an average of 0.3%/year from 2012 to 2040, remaining between the 2011 and 2012 levels through 2040. A small amount of coal-fired power plant capacity is added: a total of 2.2 gigawatts (GW) currently under construction and another 0.5 GW added after 2016 (including 0.3 GW with carbon sequestration capability). Coal-fired capacity retirements total 51 GW between 2012 and 2040, but the remaining coal-fired plants continue to be used extensively.
In the AEO2014 Reference case, the intensity of residential energy demand, defined as annual energy use per household, declines by 16% between 2012 and 2040 (Figure MT-10). Energy use for lighting, space heating, and water heating accounts for most of the decline. While household energy intensity decreases, total delivered energy consumption in the residential sector increases by about 5%, with the number of homes growing by 26% over the period. More use of distributed generation, such as from rooftop solar panels, would further reduce delivered energy intensity, but it is not projected to have a large effect, because electricity from distributed generation sources accounts for a small percentage of total electricity use in households over the projection period.

Three additional cases show the effects of different technology assumptions on residential energy intensity. The Best Available Demand Technology case limits purchases of new and replacement equipment by consumers to the most efficient models available at the time of purchase and assumes that the most energy-efficient specifications will be used in new home construction, which influences space heating and cooling demand. The High Demand Technology case assumes higher efficiency, earlier availability, lower cost, and more frequent energy-efficient purchases for some equipment than the Reference case. The 2013 Demand Technology case assumes no future improvement in efficiency for equipment or building shells beyond what is available in 2013.

From 2012 to 2040, household energy intensity declines by 37% in the Best Available Demand Technology case and by 26% in the High Demand Technology case. In the 2013 Demand Technology case, energy intensity is higher than in the AEO2014 Reference case but still declines by 9% from 2012 to 2040 as older, less-efficient appliances are replaced over time by 2013-vintage equipment.
B.3 Industrial Sector Energy Demand

B.3.1 Reliance on Natural Gas, Natural Gas Liquids, and Renewables Rises as Industrial Energy Use Grows

Total delivered energy consumption in the industrial sector increases by 28% (6.6 quadrillion British thermal units [Btu]) from 2012 to 2040 in the AEO2014 Reference case (Figure MT-19). Much of the growth is in natural gas use, which accounts for 34% of the total increase in energy consumption from 2012 to 2025 and 59% of the increase from 2025 to 2040, as a result of relatively low natural gas prices from steady increases in domestic natural gas production through 2040. The mix of industrial energy sources stays relatively constant, however, reflecting limited remaining capability for switching from other fuels to natural gas in most industries.

Renewable fuel consumption increases by 53% from 2012 to 2040, although as a percentage of total energy consumption, renewable fuels remain small, at 10% of total energy consumption in 2040. The paper industry remains the predominant user of renewable energy, accounting for roughly 66% of the energy consumed for heat and power in that industry.

Industrial consumption of hydrocarbon gas liquids (HGL) increases by 35% from 2012 to 2025, followed by a 5% decline from 2025 to 2040. HGL are consumed predominantly as feedstocks in the bulk chemicals industry, and smaller amounts (mostly propane) are consumed for process heat in other industries. Coal is the only industrial fuel that shows a consistent decline in consumption, from 6% of the total in 2012 to 5% in 2040.

Low natural gas prices and increased availability of biomass contribute to growth in the use of combined heat and power (CHP). Industrial CHP generation, excluding the refining industry, increases by 88%, from 111.3 billion kilowatthours (kWh) in 2012 to 208.9 billion kWh in 2040.
B.3.2 Nonmanufacturing Energy Intensity Reductions Are Tempered by the Mining Industry

In 2040, nonmanufacturing industries account for $2.6 trillion (2005 dollars) in shipments in the AEO2014 Reference case – a 57% increase from 2012. From 2012 to 2040, total energy consumption in the nonmanufacturing subsector increases by 27% (1.3 quadrillion Btu) in the Low Economic Growth case, 41% (2.0 quadrillion Btu) in the Reference case, and 55% (2.6 quadrillion Btu) in the High Economic Growth case (Figure MT-23).

The nonmanufacturing subsector consists of the construction, agriculture, and mining industries. In the Reference case, it accounts for roughly 23% of total value of shipments and about 23% of total delivered energy consumed in the industrial sector in 2040. The mining industry is the most energy-intensive of the three industries, accounting for 53% of the energy consumed in the nonmanufacturing subsector in 2040 but only 20% of the value of shipments. In contrast, the construction industry accounts for 65% of the shipments in 2040 but only 33% of the energy consumed, and the agriculture sector accounts for 15% of the shipments and 14% of the energy consumed.

Overall, energy intensity declines in the nonmanufacturing subsector by 10% from 2012 to 2040 in the Reference case. Construction and agriculture both show a decline in energy intensity of 17% from 2012 to 2040, whereas the mining industry shows an increase in energy intensity of 26% over the same period. The energy intensity of mining increases as producers move into less-productive areas over time.
B.3.3 Transportation Sector Energy Consumption Declines in the Reference Case

Transportation sector energy consumption declines from 26.7 quadrillion Btu in 2012 to 25.5 quadrillion Btu in 2040 in the AEO2014 Reference case (Figure MT-24), differing markedly from the longer historic trend. Transportation energy consumption grew by an average of 1.3%/year from 1973 to 2007, when it totaled 29.1 quadrillion Btu. The decline in transportation energy demand is the result of significantly less energy use by light-duty vehicles (LDVs), along with a small decline in energy use by rail, which together more than offset increased energy use by heavy-duty vehicles (HDVs), aircraft, marine vessels, and pipelines.

LDV energy demand falls sharply, from 16.0 quadrillion Btu in 2012 to 12.1 quadrillion Btu in 2040, as the result of higher fuel economy that more than offsets increases in LDV travel. Even with new standards for HDV fuel efficiency and greenhouse gas emissions starting in 2014, energy use by HDVs (including tractor trailers, buses, vocational vehicles, and heavy-duty pickup trucks and vans) increases the fastest among the transportation modes, from 5.3 quadrillion Btu in 2012 to 7.5 quadrillion Btu in 2040, as a result of increased demand for travel as economic output grows.

Aircraft energy consumption increases modestly, from 2.5 quadrillion Btu in 2012 to 2.7 quadrillion Btu in 2040, with growth in personal air travel mostly offset by gains in aircraft fuel efficiency. Energy consumption by marine vessels grows as increased international trade boosts demand for shipping and rising incomes increase demand for recreational boating. Pipeline energy use is tempered as increasing volumes of natural gas are produced closer to end-use markets, and energy consumption for rail travel declines slightly as the efficiency of rail improves more rapidly than travel demand increases.
B.4 Electricity Demand

B.4.1 Growth in Electricity Use Slows, but Use Still Increases by 29 percent from 2012 to 2040

Growth of electricity demand (including retail sales and direct use) has slowed in each decade since the 1950s, from 9.8%/year from 1949 to 1959 to only 0.7%/year since 2000. In the AEO2014 Reference case, electricity demand growth remains relatively low, as rising demand for electric services is offset by efficiency gains from new appliance standards and investments in energy-efficient equipment (Figure MT-29). Total electricity demand grows by 29% (0.9%/year), from 3,826 billion kilowatthours (kWh) in 2012 to 4,954 billion kWh in 2040.

Retail electricity sales grow by 25% (0.8%/year) in the Reference case, from 3,686 billion kWh in 2012 to 4,623 billion kWh in 2040. Population shifts to warmer regions with greater cooling requirements affect both residential and commercial electricity sales. Residential electricity sales grow by 21% to 1,657 billion kWh in 2040, with cooling needs offset by more efficient appliances and light bulbs. Electricity sales to the commercial sector rise by 27% to 1,675 billion kWh in 2040, with continuous growth in demand for electrical devices and equipment. Sales to the industrial sector rise by 30%, initially in the primary metals and bulk chemical industries and later in the food, construction, and metal-based durables industries.

Electricity demand varies with different assumptions about economic growth, advances in energy-efficient technologies, and electricity prices. In the High Economic Growth case, electricity demand grows by 41% from 2012 to 2040, compared with 20% in the Low Economic Growth case and only 14% in the Best Available Demand Technology case. In the High Oil and Gas Resource case, a 2% decline in electricity prices from 2012 to 2040, because of greater natural gas availability, results in demand growth of 35% over the same period. In contrast, in the Reference case, electricity prices increase by 13% over the projection, while demand increases by 29%.
B.4.2 By 2035, Natural Gas Surpasses Coal as the Largest Source of U.S. Electricity Generation

The share of electricity generated from natural gas grows steadily in the AEO2014 Reference case (Figure MT-30). The shift to natural gas occurs primarily as a result of its relatively low cost and coal-fired capacity retirements, although coal maintains the largest share of the generation mix through most of the projection. Changes in fuel mix are primarily a function of natural gas prices, which drive dispatch decisions for both coal and natural gas plants. Although a significant number of coal plants are retired early in the projection, the reduction in coal-fired generation is not proportional to the decline in capacity, because many of the coal plants projected to be retired currently operate at low capacity factors.

After 2020, increasing demand for electricity creates a need for new generating capacity, and natural gas plants account for more than 70% of all new capacity in the projection. As a result, the natural gas share of total electricity generation surpasses the coal share in 2035. Generation from nuclear power plants is relatively constant through 2040, increasing by an average of 0.2%/year, as 10 gigawatts (GW) of new capacity is brought online and 5 GW of older capacity is retired, and the nuclear share of total generation declines while the natural gas and renewable shares increase. Renewable generation grows by an average of 1.9%/year from 2012 through 2040 and makes up an increasing share of the generation mix in the Reference case. The non-hydropower share of total renewable generation increases from 45% in 2012 to 65% in 2040. The generation mix is sensitive to fuel prices and future policies and, therefore, varies significantly across the AEO2014 alternative cases.
B.5 Natural Gas Consumption

B.5.1 Industrial and Electric Power Sectors Drive Growth in U.S. Natural Gas Consumption

U.S. total natural gas consumption grows from 25.6 trillion cubic feet (Tcf) in 2012 to 31.6 Tcf in 2040 in the AEO2014 Reference case. Natural gas use increases in all of the end-use sectors except residential (Figure MT-39). Natural gas use for residential space heating declines as a result of population shifts to warmer regions of the country and improvements in appliance efficiency.

Consumption of natural gas for electric power generation grows by about 2 Tcf and makes up about 33% of the increase in total natural gas consumption by 2040. Relatively low natural gas prices make natural gas an attractive fuel for serving increased load. Natural gas is also the fuel most often used to replace older coal-fired generation as it is retired.

From 2012 to 2040, natural gas consumption in the industrial sector increases by 2.5 Tcf, an average of 0.9%/year, representing about 26% of the total increase in natural gas consumption. As industrial output grows, the energy-intensive industries take advantage of relatively low natural gas prices, particularly through 2028. After 2028, industrial sector consumption of natural gas continues to grow but at a somewhat slower rate, in response to rising prices.

Although transportation use currently accounts for only a small portion of total U.S. natural gas consumption, natural gas use by heavy-duty vehicles (HDVs), trains, and ships shows the largest percentage growth of any fuel in the projection. Consumption in the transportation sector, excluding natural gas use at compressor stations, grows from about 40 billion cubic feet (Bcf) in 2012 to 850 Bcf in 2040.
B.5.2 Natural Gas Prices Rise with an Expected Increase in Production Costs

Average annual U.S. natural gas prices have remained relatively low over the past several years as a result of the availability of abundant domestic resources and the application of improved production technologies. To provide the supplies necessary to meet growth in natural gas consumption and a rise in exports in the AEO2014 Reference case, producers move into areas where the recovery of natural gas is more difficult and expensive, which leads to an increase in Henry Hub spot prices over the projection period. Henry Hub spot prices for natural gas increase by an average of 3.7%/year in the Reference case, from $2.75/million Btu (MMBtu) in 2012 to $7.65/MMBtu (2012 dollars) in 2040 (Figure MT-40).

Growth in demand for natural gas, largely from the electric power and industrial sectors and for liquefied natural gas (LNG) exports, results in upward pressure on prices, particularly in the 2015-18 period. Delivered prices to residential, commercial, industrial, and electric power consumers generally rise with Henry Hub prices in the projection, but the lower 48 average spot price increases at a slightly slower rate than the Henry Hub spot price, because regional production growth in areas that do not serve the Henry Hub is somewhat faster than growth in areas that supply the Henry Hub. In particular, dry gas production in the Marcellus shale play, which predominantly serves the Northeastern and Mid-Atlantic regions, grows from 1.9 Tcf in 2012 to 5.0 Tcf in 2022 in the Reference case, before declining to 4.6 Tcf in 2040. Total onshore production in the Northeast region grows on average by 3.2%/year, from 3.3 Tcf in 2012 to 8.1 Tcf in 2040, while combined onshore and offshore production in the Gulf region grows by 2.1%/year, from 7.3 Tcf in 2012 to 13.0 Tcf in 2040.
B.6 Natural Gas Prices

B.6.1 Natural Gas Prices Depend on Economic Growth and Resource Recovery Rates among Other Factors

The projection of natural gas prices depends on many factors, including macroeconomic growth rates and expected rates of resource recovery from natural gas wells. Higher rates of economic growth lead to increased consumption of natural gas, primarily in response to their effects on housing starts, commercial floorspace, and industrial output. In the High Economic Growth case, higher levels of consumption result in more rapid increases both in depletion of natural gas resources and in the cost of developing new production, pushing natural gas prices higher. The converse is true in the Low Economic Growth case (Figure MT-41). In the High and Low Economic Growth cases, the price rises by 4.0%/year and 3.5%/year, respectively, compared with 3.7%/year in the Reference case.

The rate of resource recovery from oil and natural gas wells has a direct impact on the cost per unit of production and, in turn, prices. The High Oil and Gas Resource case assumes higher estimates for recoverable crude oil and natural gas resources in tight wells and shale formations and for offshore resources in the lower 48 states and Alaska than in the Reference case. The Low Oil and Gas Resource case assumes lower estimated ultimate recovery of natural gas from each shale well or tight well than in the Reference case. In the Low and High Oil and Gas Resource cases, Henry Hub spot natural gas prices increase by 4.9%/year and 1.8%/year, respectively. (An article in the Issues in focus section, “U.S. tight oil production: Alternative supply projections and an overview of EIA’s analysis of well-level data aggregated to the county level,” provides more information on the alternative resource cases.)

In both cases, there are mitigating effects that dampen the initial price response from the demand or supply shift. For example, lower natural gas prices lead to increases in natural gas exports and demand, which place some upward pressure on natural gas prices.
B.6.2 With Production Growing Faster than Use, the U.S. Becomes a Net Exporter of Natural Gas

In the AEO2014 Reference case, natural gas production grows by an average rate of 1.6%/year from 2012 to 2040, more than double the 0.8% annual growth rate of total U.S. consumption over the period. The growth in production meets increasing demand and exports (liquefied natural gas [LNG] and pipeline exports), while also making up for a drop in natural gas imports. The United States becomes a net exporter of natural gas before 2020.

The development of shale gas resources spurs growth in natural gas production, with producers seeing higher prices as a result of growing demand, especially from both the industrial and electricity generation sectors. Growing LNG exports also support higher natural gas prices.

The United States transitions from being a net importer of 1.5 Tcf of natural gas in 2012 to a net exporter of 5.8 Tcf in 2040, with 88% of the rise in net exports (6.5 Tcf) occurring by 2030, followed by slower growth through 2040 (Figure MT-42).

Net LNG exports, primarily to Asia, increase by 3.5 Tcf from 2012 to 2030, then remain flat through 2040. Prospects for future LNG exports are uncertain, depending on many factors that are difficult to anticipate. The increase in net LNG exports to Asia through 2030 accounts for 55% of the rise in total net natural gas exports, with the remainder coming from decreased net pipeline imports from Canada and increased net pipeline exports to Mexico. Net pipeline imports from Canada drop from 2.0 Tcf in 2012 to 0.4 Tcf in 2030, mainly as a result of lower imports to the western United States. Imports from Canada increase to 0.7 Tcf in 2040, with higher imports into the northeastern United States. In contrast, net pipeline exports to Mexico grow steadily, from 0.6 Tcf in 2012 to 3.1 Tcf in 2040.
B.7 Natural Gas Supply

B.7.1 U.S. Natural Gas Production, Use, and Exports all Are Affected by Oil Prices

U.S. natural gas production is affected by crude oil prices primarily through changes in natural gas consumption and exports. Across the oil price cases, the largest changes in consumption are seen for natural gas consumed in transportation and natural gas exported as LNG.

The profitability of natural gas as a transportation fuel or as LNG for export depends primarily on the price differential between crude oil and natural gas. For example, in the Low Oil Price case, the average difference between oil prices and natural gas prices from 2012 through 2040 is about $7.70 per million Btu (MMBtu). With that low price differential, virtually no natural gas is consumed in the transportation sector, and little LNG is exported. In the High Oil Price case, in contrast, the average price differential is about $21.90/MMBtu, which provides substantial incentive for direct use of natural gas in transportation and for conversion to LNG for export.

Across the oil price cases, total natural gas production varies by 8.3 Tcf in 2040 (Figure MT-43), with changes in LNG exports accounting for 6.3 Tcf and changes in direct consumption for transportation accounting for 2.2 Tcf. The increase in LNG exports and transportation consumption is offset to some extent by lower natural gas consumption in the other sectors, with spot prices for natural gas from 2012 to 2040 averaging about $0.70/MMBtu.
B.7.2 U.S. Natural Gas Production Rates Depend on Resource Availability and Production Costs

Prospects for production from tight oil and shale gas resources are uncertain, both because large portions of the formations have little or no production history, and because future technology could increase well productivity while reducing costs. The Low Oil and Gas Resource and High Oil and Gas Resource cases illustrate the potential impacts of changes in the AEO2014 Reference case assumptions regarding technology advances and the resource size and quality.

The High Oil and Gas Resource case assumes (1) higher estimates of onshore lower 48 tight oil, tight gas, and shale gas resources than in the Reference case, as a result of higher estimated ultimate recovery (EUR) per well and closer well spacing; (2) tight oil development in Alaska; (3) higher estimates of offshore resources in Alaska and the lower 48 states; and (4) higher rates of long-term technology improvement. In the High Resource case, higher well productivity reduces development and production costs per unit, resulting in more and earlier resource development than in the Reference case. With the greater abundance of less-expensive shale gas resources, cumulative shale gas production from 2012 through 2040 totals 540 Tcf, as compared with 442 Tcf in the Reference case. In the Reference case and the High Resource case, total natural gas production in 2040 grows to 37.5 Tcf and 45.5 Tcf per year, respectively.

In the Low Oil and Gas Resource case, which assumes lower tight oil, tight gas, and shale gas resources than in the Reference case, total natural gas production plateaus at just under 29 Tcf per year from 2027 through 2036, then declines to 28.1 Tcf in 2040 (Figure MT-47). Shale gas production peaks in 2030 at 13.1 Tcf and declines to 11.6 Tcf in 2040. From 2012 to 2040, cumulative shale gas production totals 341 Tcf in the Low Oil and Gas Resource case.
B.8 Crude Oil and Other Liquids Supply

B.8.1 Crude Oil Leads Initial Growth in Liquids Supply, Next-Generation Liquids Grow Slowly after 2020

In the AEO2014 Reference case, petroleum and other liquids supply grows through 2019 as a result of increases in production of tight oil (including condensates) and natural gas plant liquids (NGPL) (Figure MT-51). Total liquids production grows from 11.1 MMbbl/d in 2012 to a peak of 14.6 MMbbl/d in 2019, then drops to 12.7 MMbbl/d in 2040—still above 2012 levels—as tight oil production declines.

Production of hydrocarbon gas liquids (HGL) increases throughout the projection. HGL is a new term introduced in the analysis to account for NGPL produced from natural gas processing plants and fractionators, and the liquefied refinery gases from crude oil in refineries. NGPL production increases from 2.4 MMbbl/d in 2012 to about 3.0 MMbbl/d in 2030, then remains level after 2030, as growth in natural gas production slows.

Domestic ethanol production remains relatively flat, as consumption of motor gasoline decreases and the penetration of ethanol is slowed by the limited availability of flex-fuel vehicles and retrofitted filling stations. Biodiesel production is also constant throughout the projection on the assumption that the U.S. Environmental Protection Agency (EPA) will indefinitely continue the current requirement of 1.28 billion gallons per year under the RFS.

Other biomass-to-liquids production, excluding ethanol and biodiesel, increases by 32,200 bbl/d from 2012 to 2040. However, neither gas-to-liquids (GTL) nor coal-to-liquids (CTL) contributes to domestic liquids production in the Reference case because of the risks associated with their high capital costs, long construction leadtimes, and the possibility that liquids from CTL facilities will not remain price-competitive with crude oil over the lifetimes of the facilities.
B.8.2 U.S. Crude Oil Production Rates depend on Resource Availability and Production Costs

Projections of U.S. tight oil production are uncertain, because large portions of the known formations have little or no production history, and because technology improvements could increase well productivity while reducing drilling, completion, and production costs. The High and Low Oil and Gas Resource cases illustrate the potential impacts of changes in the AEO2014 Reference case assumptions regarding technology advances and the resource size and quality.

In the High Oil and Gas Resource case, higher well productivity reduces development and production costs per unit, resulting in more and earlier development of oil and gas resources than in the Reference case (Figure MT-52). U.S. crude oil production in the High Oil and Gas Resource case reaches 13.3 MMbbl/d in 2036, compared with an earlier and lower projected high point of 9.6 MMbbl/d in 2019 in the Reference case. Cumulative production in the High Oil and Gas Resource case is about 125 billion barrels—compared to about 90 billion barrels in the Reference case—from 2012 to 2040.

In the Low Oil and Gas Resource case, which assumes lower estimates of tight resources than in the Reference case, crude oil production plateaus at an earlier and lower projected high of 9.2 MMbbl/d in 2016 before declining. With production of tight oil continuing to decline through 2040 in the Low Oil and Gas Resource case, cumulative crude oil production from 2012 to 2040 is 10% lower than in the Reference case, at about 81 billion barrels.
B.8.3 Lower 48 Onshore Tight Oil Development Spurs Increase in U.S. Crude Oil Production

U.S. crude oil production grows from 2012 through 2019 in the AEO2014 Reference case, before peaking at more than 9.6 million barrels per day (MMbbl/d)—about 3.1 MMbbl/d above the 2012 total and close to the historical high of 9.6 MMbbl/d in 1970 (Figure MT-53). The growth in lower 48 onshore crude oil production is primarily a result of continued development of tight oil resources in the Bakken, Eagle Ford, and Permian Basin formations. Tight oil production increases to a peak of 4.8 MMbbl/d from 2018 through 2021 and then declines to about 3.2 MMbbl/d in 2040 (0.9 MMbbl/d higher than the 2012 total) as high-productivity areas, or sweet spots, are depleted.

There is considerable uncertainty about the expected peak level of tight oil production, because ongoing exploration, appraisal, and development programs expand operator knowledge about producing reservoirs and could result in the identification of additional tight oil resources.

Crude oil production using carbon dioxide–enhanced oil recovery (CO₂-EOR) increases after 2017—when oil prices rise, and as output from the more profitable tight oil deposits begins declining and affordable anthropogenic sources of carbon dioxide (CO₂) become available—to 0.7 MMbbl/d in 2040. The rate of the increase is slower over the last five years, when production is limited by reservoir quality and CO₂ availability. From 2013 through 2040, cumulative crude oil production from CO₂-EOR projects totals 5.2 billion barrels.

Lower 48 offshore oil production varies between 1.4 MMbbl/d and 2.0 MMbbl/d over the projection period. Toward the end of the period, the pace of exploration and production activity quickens and new large development projects, associated predominantly with discoveries in the deepwater and ultra-deepwater portions of the Gulf of Mexico, are brought on stream. New off-shore oil production from the Alaska North Slope partially offsets the decline in production from onshore North Slope fields.
B.9 Petroleum and Other Liquids Supply

B.9.1 Increasing U.S. Oil Supply Reduces Net Imports of Petroleum and Other Liquid Fuels

The net crude oil and product imports share of U.S. petroleum and other liquid fuels consumption grew from the mid-1980s to 2005 but has fallen steadily since 2005 (Figure MT-55). Because each barrel of U.S. crude oil production displaces a barrel of imported crude oil, the outlook for net petroleum and other liquid fuel imports in the High and Low Oil Price and High and Low Oil and Gas Resource cases depends on U.S. oil production.

The net import share of U.S. petroleum and other liquid fuels consumption declines from 2012 through 2023 in the AEO2014 Reference case, largely because of projected growth in tight oil production. The net import share declines to 25% in 2019, coinciding with a peak in U.S. oil production of 9.6 MMbbl/d, then increases to 32% in 2040 after domestic oil production declines.

Higher oil prices encourage more rapid and extensive oil resource development. In the High Oil Price case, the share of domestic consumption accounted for by imports of petroleum and liquid fuels drops to 15% in 2023, then grows to 21% in 2040. The opposite occurs in the Low Oil Price case, with the petroleum and other liquids imports share of domestic consumption rising after 2016, to 46% in 2040.

In the High Oil and Gas Resource case, improvements in oil production technology beyond those in the Reference case, along with 1% annual growth in estimated ultimate recovery (EUR), lead to higher U.S. crude oil production. In 2036, U.S. crude production peaks at 13.3 MMbbl/d, and net U.S. imports of crude oil and petroleum products fall to virtually zero, where they remain through 2040. The Low Oil and Gas Resource case uses the same production technology assumptions as the Reference case but assumes a 50% lower EUR. As in the Low Price case, net imports begin to rise in 2016 and increase to 40% of U.S. consumption in 2040.
B.10 Coal Production

B.10.1 Coal Production Growth Limited by Competitive Fuel Prices and Little New Coal-fired Capacity

Coal production in 2012 was more than 7% below the 2011 total (Figure MT-60), mostly as a result of gas-on-coal competition. In the AEO2014 Reference case, coal production recovers briefly as natural gas prices rise before dropping to 2012 levels in 2016, as the need for electricity generators to comply with Mercury and Air Toxic Standards (MATS) leads to a wave of coal-fired capacity retirements. From 2016 to 2030, coal production increases gradually as growing electricity demand and rising natural gas prices spur the use of coal for power generation. After 2030, when existing coal units reach maximum utilization rates and virtually no new capacity is built, coal production stabilizes. Coal exports, which totaled 3.2 quadrillion Btu in 2012, remain at that level through 2020 and then increase to 3.8 quadrillion Btu in 2040. Overall, U.S. coal production grows by an average of 0.3%/year in the Reference case, from 20.6 quadrillion Btu in 2012 to 22.6 quadrillion Btu in 2040.

On a regional basis, strong production growth in the Interior region contrasts with generally stagnant production in Appalachia and the West. Interior coal production reaches new highs as scrubbers installed at existing coal-fired generating units allow them to burn the region’s higher-sulfur coals with lower delivered costs. Western production grew steadily for decades but fell by 14% from 2008 to 2012 as a result of the recession and competition from natural gas. Western production increases slightly in the Reference case, tempered by slow growth in coal use for electricity generation and by competition from coal producers in the Interior region. Appalachian coal production declines by 14% from 2012 to 2016 as coal produced from the extensively mined, higher-cost reserves of Central Appalachia is supplanted by lower-cost coal from other regions.
B.10.2 Outlook for U.S. Coal Production Is Affected by Fuel Price Uncertainties

U.S. coal production varies across the AEO2014 cases, reflecting different assumptions about coal production and transportation costs, natural gas prices, and actions to limit greenhouse gas (GHG) emissions (Figure MT-61). In general, assumptions that reduce the competitiveness of coal versus natural gas lead to lower coal production. For example, relative to the AEO2014 Reference case, coal production is lower in both the High Coal Cost case (higher costs for coal mining and transportation) and the High Oil and Gas Resource case (lower costs for natural gas production). Similarly, actions to cut GHG emissions would also reduce the competitiveness of coal because of its high carbon content. Conversely, lower coal prices in the Low Coal Cost case and higher natural gas prices in the Low Oil and Gas Resource case improve the competitiveness of coal and lead to higher levels of coal production.

Of the cases shown in Figure MT-61, the GHG10 case shows the largest decline in U.S. coal production, with an economy-wide CO₂ emissions price that rises to $34 per metric ton of CO₂ (2012 dollars) in 2040, leading to 32% lower coal production in 2040 compared with the Reference case. Production in the High Coal Cost and Low Coal Cost cases is 7% lower and 4% higher, respectively, than in the Reference case in 2020, evolving to 25% lower and 11% higher in 2040 as the gap between coal and natural gas prices widens. In addition to the GHG10 case, two more GHG scenarios were developed for AEO2014 (not shown in Figure MT-61) — the GHG25 case, with an economywide CO₂ allowance fee that increases to $85 per metric ton in 2040; and the GHG10 and Low Gas Prices case, with lower natural gas prices than in the Reference case. In the GHG25 case and the GHG10 and Low Gas Prices case, total coal production in 2040 is 73% and 53% lower, respectively, than in the Reference case.
B.10.3 Expected Declines in Mining Productivity Lead to Further Increases in Average Minemouth Prices

In the AEO2014 Reference case, the average real minemouth price for U.S. coal increases by 1.4%/year, from $1.98/MMBtu in 2012 to $2.96/MMBtu in 2040, continuing the upward trend that began in 2000 (Figure MT-62). A key factor underlying the higher coal prices is an expected decline in coal mining productivity in most areas, but at slower rates than those seen between 2000 and 2011. The minemouth price fell slightly in 2012, primarily as a result of a 19% decline in the price of coking coal. Steam coal prices also declined in 2012, but by less than 1%. In the High and Low Coal Cost cases developed for AEO2014, different assumptions about mining productivity lead to minemouth coal prices in 2040 that are 87% higher and 45% lower, respectively, than in the Reference case.

In the Appalachian region, the average minemouth coal price increases by 1.6%/year from 2012 to 2040, because of a decline in mine productivity. The higher price outlook in the region also reflects a larger share of total production for higher-value coking coal, resulting from a decline in shipments of steam coal to domestic markets. Recent increases in the average price of Appalachian coal, from $1.33/MMBtu in 2000 to $3.16/MMBtu in 2012, have reduced the ability of Appalachia coal to compete with coal from other regions.

In the Western region, the coal price grows by 2.1%/year from 2012 to 2040. An increase in stripping ratios at mines in Wyoming’s Powder River Basin, which contributed to a 32% decrease in the basin’s coal mining productivity from 2000 to 2012, continues to push mining costs higher. In the Interior region, with a more optimistic outlook for mine productivity, minemouth prices rise by 1.0%/year from 2012 to 2040. Increased output from large, highly productive longwall mines in the region supports expected improvements in productivity.
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Appendix C. 23 CFR 658, Appendix C—Trucks over 80,000 Pounds on the Interstate System and Trucks over Surface Transportation Assistance Act of 1982 (STAA) Lengths on the National Network
State: Colorado

**COMBINATION:** Truck tractor and 2 trailing units—LCV

**LENGTH OF THE CARGO-CARRYING UNITS:** 111 feet

**MAXIMUM ALLOWABLE GROSS WEIGHT:** 110,000 pounds

### Operational Conditions

**WEIGHT:** The maximum gross weight is 110,000 pounds, subject to the formula \( W=800(L+40) \) where “\( W \)” equals the gross weight in pounds and “\( L \)” equals the length in feet between the centers of the first and last axles, or the gross weight determined by the Federal Bridge Formula, whichever is least. A single axle shall not exceed 20,000 pounds, and a tandem axle shall not exceed 36,000 pounds.

**DRIVER:** The driver must have a commercial driver’s license with the appropriate endorsement. The driver cannot have had any suspension of driving privileges in any State during the past 3 years where such suspension arose out of the operation of a motor vehicle used as a contract or common carrier of persons or property.

The driver must be certified by the motor carrier permit holder’s safety office. The certification shall demonstrate that the driver has complied with all written requirements and that the driver has successfully completed a company-approved road test for each type of combination vehicle operated.

**VEHICLE:** Vehicles shall not have fewer than six axles or more than nine axles. They shall be configured such that the shorter trailer shall be operated as the rear trailer, and the trailer with the heavier gross weight shall be operated as the front trailer. In the event that the shorter trailer is also the heavier, the load must be adjusted so that the front trailer is the longer and heavier of the two.

Vehicles shall have adequate power to maintain a minimum speed of 20 miles per hour on any grade over which the combination operates and can resume a speed of 20 miles per hour after stopping on any such grade.

Tires must conform to the standards in the Department of Public Safety’s (DPS) Rules and Regulations Concerning Minimum Standards for the Operation of Commercial Motor Vehicles at 8 CCR 1507-1 and C.R.S. 42-4-225 and 42-2-406.

Vehicles are required to have a heavy-duty fifth wheel and equal strength pick-up plates that meet the standards in the DPS Commercial Vehicle Rules. This equipment must be properly lubricated and located in a position that provides stability during normal operation, including braking. The trailers shall follow in the path of the towing vehicle without shifting or swerving more than 3 inches to either side when the towing vehicle is moving in a straight line.

Kingpins must be of a solid type and permanently fastened. Screw-out or folding type kingpins are prohibited.

Hitch connections must be of a no-slack type, preferably air-actuated ram.
Drawbar lengths shall be adequate to provide for the clearances required between the towing vehicle and the trailer(s) for turning and backing maneuvers.

Axles must be those designed for the width of the body of the trailer(s).

Braking systems must comply with the DPS Commercial Vehicle Rules and C.R.S. 42-4-220. Fast air-transmission and release valves must be provided on all trailer(s) and converter dolly axles. A brake force limiting valve, sometimes called a “slippery road” valve, may be provided on the steering axle.

**PERMIT:** An annual permit is required for which a fee is charged. Also, the vehicle must have an overweight permit pursuant to C.R.S. 42-4-409(11)(a)(II) (A), (B), or (C) and comply with Rule 4-15 in the rules pertaining to Extra-Legal Vehicles or Loads.

A truck tractor and two trailing units wherein at least one of the trailing units exceeds 28.5 feet in length shall not operate on the following designated highway segments during the hours of 6 a.m. to 9 a.m. and from 3 p.m. to 6 p.m., Monday through Friday, for Colorado Springs, Denver, and Pueblo. (A truck tractor with two trailing units wherein at least one of the trailing units exceeds 28.5 feet in length not operating at greater than the legal maximum weight of 80,000 pounds is subject to different hours-of-operation restrictions. Refer to rules pertaining to Extra-Legal Vehicles or Loads.)

- Colorado Springs: I-25 between Exit 135 (CO 83 Academy Blvd. So.) and Exit 150 (CO 83, Academy Blvd. No.).
- Denver: I-25 between Exit 200 (Jct. I-225) and Exit 223 (CO 128, 120th Avenue),
  - I-70 between Exit 259 (CO 26/US 40) and Exit 282 (Jct. I-225),
  - I-76 between Exit 5 (Jct. I-25) and Exit 12 (US 85),
  - I-225 entire length,
  - I-270 entire length.
- Pueblo: I-25 between Exit 94 (CO 45 Lake Ave.) and Exit 101 (US 50/CO 47).

The holder of a longer vehicle combination (LVC) permit must have an established safety program as provided in Chapter 9 of the “Colorado Department of Highways Rules and Regulations for Operation of Longer Vehicle Combinations on Designated State Highway Segments.” Elements of the program include compliance with minimum safety standards at 8 CCR 1507-1, hazardous materials regulations at 8 CCR 1507-7, -8, and -9, Colorado Uniform Motor Vehicle Law, Articles 1 through 4 of Title 42, C.R.S. as amended, and Public Utility Commission regulations at 4 CCR 723-6, -8, -15, -22, and -23.
ACCESS: A vehicle shall not be operated off the designated portions of the Interstate System except to access food, fuel, repairs, and rest or to access a facility. Access to a facility shall be subject to the following conditions:

1. The facility must:
   a. Be either a manufacturing or a distribution center, a warehouse, or truck terminal located in an area where industrial uses are permitted;
   b. Be a construction site; and
   c. Meet the following criteria:
      1. Vehicles are formed for transport or broken down for delivery on the premises;
      2. Adequate off-roadway space exists on the premises to safely maneuver the vehicles; and
      3. Adequate equipment is available on the premises to handle, load, and unload the vehicle, its trailers, and cargo.

2. The facility must be located within a maximum distance of 10 miles from the point where the vehicle enters or exits the designated portions of the Interstate System. Such 10-mile distance shall be measured by the actual route(s) to be traveled to the facility, rather than by a straight-line radius from the designated Interstate System to the facility;

3. The access route(s) between the designated Interstate System and the facility must be approved in advance by the public entity (Colorado DOT, municipality, or county) having jurisdiction for the roadway(s) that make up the route(s). Where the State of Colorado has jurisdiction over the access route(s), it will consider the following safety, engineering, and other criteria in determining whether to approve the route(s):
   a. Safety of the motoring public;
   b. Geometrics of the street and roadway;
   c. Traffic volumes and patterns;
   d. Protection of State highways, roadways, and structures;
   e. Zoning and general characteristics of the route(s) to be encountered; and
   f. Other relevant criteria warranted by special circumstances of the proposed route(s).

Local entities, counties, and municipalities having jurisdiction over route(s) should consider similar criteria in determining whether to approve the proposed ingress and egress route(s); and

4. A permit holder shall access only the facility or location authorized by the permit. If the permit authorizes more than one facility or location, then on any single trip by an LVC from the designated Interstate System the permit holder may access only one facility or location before returning to the designated Interstate System.
Wyoming Department of Transportation
Final September 2015 and Addenda 2017

**ROUTES:**

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<td>New Mexico</td>
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<td>I-70</td>
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<td>I-70 Exit 90 Rifle</td>
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**LEGAL CITATIONS:** Vehicles must comply with all applicable statutes, such as C.R.S. 42-4-402(1), 42-4-404(1), 42-4-407(1)(c)(III)(A), and 42-4-409(11)(a)(II) (A), (B) or (C). All LVCs must comply with the Extra-Legal Vehicles and Loads Rules and the Longer Vehicle Combination Rules. However, when the rules address the same subject, the LVC, since it is operating at greater than 80,000 pounds, must comply with the Extra-Legal Vehicles and Loads Rules. Such rules are 4-1-2 and 4-1-3 concerning holiday travel restrictions, 4-1-5 concerning hours of operation restrictions, 4-8 concerning minimum distance between vehicles and 4-15 concerning maximum allowable gross weight.

**State: Colorado**

**COMBINATION:** Truck tractor and 3 trailing units—LCV

**LENGTH OF THE CARGO-CARRYING UNITS:** 115.5 feet

**MAXIMUM ALLOWABLE GROSS WEIGHT:** 110,000 pounds

**OPERATIONAL CONDITIONS:** Same as the CO-TT2 combination.

**ROUTES:** Same as the CO-TT2 combination.

**LEGAL CITATIONS:** Same as the CO-TT2 combination.

**State: Colorado**

**COMBINATION:** Truck-trailer

**LENGTH OF THE CARGO-CARRYING UNITS:** 78 feet

**Operational Conditions**

**WEIGHT:** This combination must operate in compliance with State laws and regulations. Because it is not an LCV, it is not subject to the ISTEA freeze as it applies to maximum weight.

**DRIVER, VEHICLE, PERMIT, and ACCESS:** Same as the CO-TT2 combination.

**ROUTES:** Same as the CO-TT2 combination.

**LEGAL CITATIONS:** Same as the CO-TT2 combination.
State: Idaho

**COMBINATION:** Truck tractor and 2 trailing units—LCV

**LENGTH OF THE CARGO-CARRYING UNITS:** 95 feet

**MAXIMUM ALLOWABLE GROSS WEIGHT:** 105,500 pounds

### Operational Conditions

**WEIGHT:** Single axle: 20,000 pounds, tandem axle: 34,000 pounds, and gross vehicle weight up to 105,500 pounds.

Axle spacing: must comply with Idaho Code 49-1001.

Trailer weights: The respective loading of any trailer shall not be substantially greater than the weight of any trailer located ahead of it in the vehicle combination. Substantially greater shall be defined as more than 4,000 pounds heavier.

**DRIVER:** The driver must have a commercial driver’s license with the appropriate endorsement.

**VEHICLE:** The rules provide that all CMVs with two or more cargo-carrying units (except for truck-trailer combinations which are limited to an 85-foot combination length) are subject to calculated maximum off-tracking (CMOT) limits. The CMOT formula is:

\[
CMOT = R - \left( R^2 - (A^2 + B^2 + C^2 + D^2 + E^2) \right)^{1/2}
\]

\( R = 161 \)

A, B, C, D, E, etc. = measurements between points of articulation or pivot. Squared dimensions to stinger steer points of articulation are negative.

The power unit of LCVs and extra-length combinations shall have adequate power and traction to maintain a speed of 15 miles per hour under normal operating conditions on any up-grade over which the combination is operated.

Fifth-wheel, drawbar, and other coupling devices shall be as specified by Federal Motor Carrier Safety Regulations, section 393.70.

Every combination operated under special permit authority shall be covered by insurance meeting State and Federal requirements. Evidence of this insurance must be carried in the permitted vehicle.

**PERMIT:** Permits are required. Permit duration is for 1 year from the date of issuance.

**ACCESS:** Combinations with a CMOT limit of less than 6.5 feet may use any Interstate or designated highway system interchange for access. Combinations with a CMOT of 6.5 to 8.75 feet may use only the following Interstate System interchanges:

- I-15 Exits 58 and 119.
- I-84 Exits 3, 49, 50, 52, 54, 57, 95, 168, 173, 182, 208, and 211.
- I-86 Exits 36, 40, 56, and 58.
ROUTES: All NN routes.

LEGAL CITATIONS: Other regulations and restrictions that must be complied with are:
- Idaho Code 49-1001, -1002, -1004, -1010, and -1011.
- Idaho Transportation Department Rules 39.C.01, .06, .08, .09, .10, .11, .15, and .19–.23.

State: Idaho

COMBINATION: Truck tractor and 3 trailing units—LCV
LENGTH OF THE CARGO-CARRYING UNITS: 95 feet
MAXIMUM ALLOWABLE GROSS WEIGHT: 105,500 pounds

OPERATIONAL CONDITIONS: Same as the ID-TT2 combination.

ROUTES: Same as the ID-TT2 combination.

LEGAL CITATIONS: Same as the ID-TT2 combination.

State: Idaho

COMBINATION: Truck-trailer
LENGTH OF THE CARGO-CARRYING UNITS: 78 feet

Operational Conditions

WEIGHT: This combination must operate in compliance with State laws and regulations. Because it is not an LCV, it is not subject to the ISTEA freeze as it applies to maximum weight.

DRIVER, PERMIT, and ACCESS: Same as the ID-TT2 combination.

VEHICLE: Overall combination length limited to 85 feet.

ROUTES: Same as the ID-TT2 combination.

LEGAL CITATIONS: Same as the ID-TT2 combination.
State: Idaho

**COMBINATION:** Truck-trailer-trailer, and truck-semitrailer-trailer.

**LENGTH OF THE CARGO-CARRYING UNITS:** 98 feet

**Operational Conditions**

**WEIGHT:** This combination must operate in compliance with State laws and regulations. Because it is not an LCV, it is not subject to the ISTEA freeze as it applies to maximum weight.

**DRIVER, PERMIT, and ACCESS:** Same as the ID-TT2 combination.

**VEHICLE:** Overall combination length limited to 105 feet.

**ROUTES:** Same as the ID-TT2 combination.

**LEGAL CITATIONS:** Same as the ID-TT2 combination.

State: Montana

**COMBINATION:** Truck tractor and 2 trailing units—LCV

**LENGTH OF THE CARGO-CARRYING UNITS:** 93 feet

**MAXIMUM ALLOWABLE GROSS WEIGHT:** 137,800 pounds for vehicles operating under the Montana/Alberta Memorandum of Understanding (MOU). For other MT-TT2 combinations, the maximum allowable gross weight is 131,060 pounds.

**Operational Conditions**

**WEIGHT:** Except for vehicles operating under the MOU, any vehicle carrying a divisible load over 80,000 pounds must comply with the Federal Bridge Formula found in 23 U.S.C. 127.

- Maximum single-axle limit: 20,000 pounds
- Maximum tandem-axle limit: 34,000 pounds
- Maximum gross weight limit: 131,060 pounds
- Maximum weight allowed per inch of tire width is 600 pounds.
WEIGHT, MONTANA/ALBERTA MOU:

- Maximum single-axle limit: 20,000 pounds
- Maximum tandem-axle limit: 37,500 pounds
- Maximum tridem-axle limit:
  - Axles spaced from 94" to less than 118": 46,300 pounds
  - Axles spaced from 118" to less than 141": 50,700 pounds
  - Axles spaced from 141" to 146": 52,900 pounds
- Maximum gross weight:
  - A-Train: 118,000 pounds
  - B-Train (eight axle): 137,800 pounds
  - B-Train (seven axle): 124,600 pounds

The designation of “A-Train” or “B-Train” refers to the manner in which the two trailing units are connected.

DRIVER: The driver must have a commercial driver’s license with the appropriate endorsement.

VEHICLE: No special requirements beyond compliance with Federal Motor Carrier Safety Regulations.

PERMIT: Special permit required for double trailer combinations if either trailer exceeds 28.5 feet. Permits are available on an annual or a trip basis and provide for continuous travel. Statutory reference: 61-10-124, MCA. For vehicles being operated under the Montana/Alberta MOU, operators must have paid gross vehicle weight fees for the total weight being carried. In addition, a term Restricted Route and Oversize Permit for which an annual fee is charged must be obtained. Finally, vehicle operators must secure a single-trip, overweight permit prior to each trip.

ACCESS: Access must be authorized by the Montana DOT. For vehicles operated under the Montana/Alberta MOU, access routes from I-15 into Shelby are authorized when permits are issued. For vehicles with a cargo-carrying length greater than 88 feet but not more than 93 feet, a 2-mile access from the Interstate System is automatically granted to terminals and service areas. Access outside the 2-mile provision may be granted on a case-by-case basis by the Administrator of the Motor Carrier Services Division.

ROUTES: Combinations with a cargo-carrying length greater than 88 feet, but not more than 93 feet, are limited to the Interstate System. Combinations with a cargo-carrying length of 88 feet or less can use all NN routes except U.S. 87 from milepost 79.3 to 82.5. For vehicles being operated under the Montana/Alberta MOU, the only route available is I-15 from the border with Canada to Shelby.
LEGAL CITATIONS:

<table>
<thead>
<tr>
<th>61-10-124 MCA</th>
<th>61-10-104 MCA</th>
<th>ARM 18.8.509(6)</th>
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<tr>
<td>61-10-107 (3) MCA</td>
<td>61-10-121 MCA</td>
<td>ARM 18.8.517, 518</td>
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Montana/Alberta Memorandum of Understanding
Administrative Rules of Montana

State: Montana

COMBINATION: Truck tractor and 3 trailing units—LCV

LENGTH OF THE CARGO-CARRYING UNITS: 100 feet

MAXIMUM ALLOWABLE GROSS WEIGHT: 131,060 pounds

Operational Conditions

WEIGHT: Any vehicle carrying a divisible load over 80,000 pounds must comply with the Federal Bridge Formula found in 23 U.S.C. 127.

- Maximum single-axle limit: 20,000 pounds
- Maximum tandem-axle limit: 34,000 pounds
- Maximum gross weight limit: 131,060 pounds
- Maximum weight allowed per inch of tire width is 600 pounds.

DRIVER: Drivers of three-trailing-unit combinations must be certified by the operating company. This certification includes an actual driving test and knowledge of Federal Motor Carrier Safety Regulations and State law pertaining to triple-vehicle operations. Drivers are also required to have a commercial driver’s license with the appropriate endorsement.

VEHICLE: The 100-foot cargo-carrying length is only with a conventional tractor within a 110-foot overall length limit. If a cab-over-tractor is used, the cargo length is 95 feet within a 105-foot overall length limit. Vehicles involved in three-trailing-unit operations must comply with the following regulations:

1. Shall maintain a minimum speed of 20 miles per hour on any grade;
2. Kingpins must be solid and permanently affixed;
3. Hitch connections must be no-slash type;
4. Drawbars shall be of minimum practical length;
5. Permanently affixed axles must be designed for the width of the trailer;
6. Anti-sail mudflaps or splash and spray suppression devices are required;
7. The heavier trailers shall be in front of lighter trailers;
8. A minimum distance of 100 feet per 10 miles per hour is required between other vehicles except when passing;
9. Operating at speeds greater than 55 miles per hour is prohibited; and
10. Vehicle and driver are subject to Federal Motor Carrier Safety Regulations.


**PERMIT:** Special triple-vehicle permits are required for the operation of these combinations. Permits are available on an annual or trip basis. Permits are good for travel on the Interstate System only and are subject to the following conditions:

1. Travel is prohibited during adverse weather conditions;
2. Transportation of Class A explosives is prohibited; and
3. Companies operating triple combinations must have an established safety program including driver certifications.

**ACCESS:** Access is for 2 miles beyond the Interstate System, or further if granted by the Administrator of the Motor Carrier Services Division.

**ROUTES:** Interstate System routes in the State.

**LEGAL CITATION:** 18.8.517 Administrative Rules of Montana.

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**State: Montana**

**COMBINATION:** Truck-trailer

**LENGTH OF THE CARGO-CARRYING UNITS:** 88 feet

**Operational Conditions**

**WEIGHT:** This combination must operate in compliance with State laws and regulations. Because it is not an LCV, it is not subject to the ISTEA freeze as it applies to maximum weight.

**DRIVER and ACCESS:** Same as the MT-TT2 combination.

**VEHICLE:** Same as the MT-TT2 combination, except overall length limited to 95 feet.

**PERMIT:** Special permit required if overall length exceeds 75 feet. Special permits allow continuous travel and are available on an annual or trip basis.

**ROUTES:** Same as the MT-TT2 combination.

**LEGAL CITATIONS:** 61-10-121 and 61-10-124, MCA.
State: Montana

COMBINATION: Truck-trailer-trailer

LENGTH OF THE CARGO-CARRYING UNITS: 103 feet

Operational Conditions

WEIGHT: This combination must operate in compliance with State laws and regulations. Because it is not an LCV, it is not subject to the ISTEA freeze as it applies to maximum weight.

DRIVER, PERMIT, and ACCESS: Same as the MT-TT2 combination.

VEHICLE: The cargo-carrying unit length is 103 feet with a conventional truck within a 110-foot overall length limit, and 98 feet with a cab-over-engine truck within a 105-foot overall length limit. On two-lane highways, the cargo-carrying unit length is 88 feet within a 95-foot overall length limit.

ROUTES: All NN routes except U.S. 87 between mileposts 79.3 and 82.5.

LEGAL CITATIONS:

61-10-124 MCA
61-10-121 MCA
ARM 18-8-509
State: Nebraska

**COMBINATION:** Truck tractor and 2 trailing units—LCV

**LENGTH OF THE CARGO-CARRYING UNITS:** 95 feet for combination units traveling empty. 65 feet for combination units carrying cargo, except those carrying seasonally harvested products from the field where they are harvested to storage, market, or stockpile in the field, or from stockpile to market, which may extend the length to 71.5 feet.

**Operational Conditions**

**WEIGHT:**

Maximum weight:

- Single axle = 20,000 pounds
- Tandem axle = 34,000 pounds
- Gross = Determined by Federal Bridge Formula B, but not to exceed 95,000 pounds.

Truck tractor and two-trailing-unit combinations with a length of cargo-carrying units of over 65 feet are required to travel empty.

**DRIVER:** The driver must have a commercial driver’s license with the appropriate endorsement. There are no additional special qualifications where the cargo-carrying unit lengths are 65 feet or less. For cargo-carrying unit lengths over 65 feet, the driver must comply with all State and Federal requirements and must not have had any accidents while operating such vehicles.

**VEHICLE:** For combinations with a cargo-carrying length over 65 feet but not over 85 feet, the semitrailer cannot exceed 48 feet in length, and the full trailer cannot be less than 26 feet or more than 28 feet long. The shorter trailer must be placed to the rear. The wheel path of the trailer(s) cannot vary more than 3 inches from that of the towing vehicle.

For combinations with a cargo-carrying length greater than 85 feet, up to and including 95 feet, the trailers must be of approximately equal length.

**PERMIT:** A weight permit in accordance with Chapter 12 of the Nebraska Department of Roads (NDOR) Rules and Regulations is required for operating on the Interstate System with weight in excess of 80,000 pounds.

A length permit, in accordance with Chapters 8 or 11 of the NDOR Rules and Regulations, is required for two-trailing-unit combinations with a length of cargo-carrying units over 65 feet. Except for permits issued to carriers hauling seasonally harvested products in combinations with a cargo-carrying length greater than 65 feet but not more than 71.5 feet which may move as necessary to accommodate crop movement requirements, holders of length permits are subject to the following conditions.

Movement is prohibited on Saturdays, Sundays, and holidays; when ground wind speed exceeds 25 miles per hour; when visibility is less than 800 feet; or when steady rain, snow, sleet, ice, or other conditions cause slippery pavement. Beginning November 15 until April 16, permission to move must be obtained from the
NDOR Permit Office within 3 hours of movement. Beginning April 16 until November 15, permission to move must be obtained within 3 days of the movement.

Fees are charged for all permits. Length permits for combinations carrying seasonally harvested products are valid for 30 days and are renewable but may not authorize operation for more than 150 days per year.

All permits are subject to revocation if the terms are violated.

**ACCESS:** Access to NN routes is not restricted for two-trailing-unit combinations with a cargo-carrying length of 65 feet or less, or 71.5 feet or less if involved in carrying seasonally harvested products. For two-trailing-unit combinations with a cargo-carrying length greater than 65 feet and not involved in carrying seasonally harvested products, access to and from I-80 is limited to designated staging areas within 6 miles of the route between the Wyoming State Line and Exit 440 (Nebraska Highway 50); and except for weather, emergency, and repair, cannot reenter I-80 after exiting.

**ROUTES:** Except for length permits issued to carriers hauling seasonally harvested products in combinations with a cargo-carrying length greater than 65 feet but not more than 71.5 feet which may use all non-Interstate NN routes, vehicles requiring length permits are restricted to I-80 between the Wyoming State Line and Exit 440 (Nebraska Highway 50). Combinations not requiring length permits may use all NN routes.

**LEGAL CITATIONS:**

Nebraska Revised Statutes Reissued 1988
§39-6,179 (Double trailers under 65 feet)
§39-6,179.01 (Double trailers over 65 feet)
§39-6,180.01 (Authorized weight limits)
§39-6,181 (Vehicles; size; weight; load; overweight; special permits; etc.)

Nebraska Department of Roads Rules and Regulations, Title 408, Chapter 1 (Double trailers over 65 feet)
State: Nebraska

**COMBINATION:** Truck tractor and 3 trailing units

**LENGTH OF THE CARGO-CARRYING UNITS:** 95 feet

### Operational Conditions

**WEIGHT:** A truck tractor and three-trailing-unit combination is required to travel empty.

**DRIVER:** Same as the NE-TT2 combination.

**PERMIT:** A length permit in accordance with Chapter 11 of the NDOR Rules and Regulations is required for a three-trailing-unit combination. Conditions of the length permit prohibit movements on Saturdays, Sundays, and holidays; when ground wind speed exceeds 25 miles per hour; and when visibility is less than 800 feet. Movement is also prohibited during steady rain, snow, sleet, ice, or other conditions causing slippery pavement. Beginning November 15 until April 16, permission to move must be obtained from the NDOR Permit Office within 3 hours of movement. Beginning April 16 until November 15, permission to move must be obtained within 3 days of the movement. A fee is charged for the annual length permit. These permits can be revoked if the terms are violated.

**ACCESS:** Access to and from I-80 is limited to designated staging areas within 6 miles of the route between the Wyoming State Line and Exit 440 (Nebraska Highway 50). Except for weather, emergency, and repair, three-trailing-unit combinations cannot reenter the Interstate after having exited.

**VEHICLE:** A three-trailing-unit combination must have trailers of approximately equal length, and the overall vehicle length cannot exceed 105 feet.

**ROUTES:** I-80 from Wyoming to Exit 440 (Nebraska Highway 50).

**LEGAL CITATIONS:**


Nebraska Department of Roads Rules and Regulations, Title 408, Chapter 1
State: Nebraska

**COMBINATION:** Truck-trailer

**LENGTH OF THE CARGO-CARRYING UNITS:** 68 feet

**Operational Conditions**

**WEIGHT:** This combination must operate in compliance with State laws and regulations. Because it is not an LCV, it is not subject to the ISTEA freeze as it applies to maximum weight.

**DRIVER:** The driver must have a commercial driver’s license with the appropriate endorsement.

**VEHICLE:** The overall vehicle length, including load, cannot exceed 75 feet.

**PERMIT:** No permit is required.

**ACCESS:** Statewide during daylight hours only.

**ROUTES:** All NN routes.

**LEGAL CITATIONS:** Neb. Rev. Stat. §39-6,179.
State: South Dakota

**COMBINATION:** Truck tractor and 2 trailing units—LCV

**LENGTH OF THE CARGO-CARRYING UNITS:** 100 feet

**MAXIMUM ALLOWABLE GROSS WEIGHT:** 129,000 pounds

### Operational Conditions

**WEIGHT:** For all combinations, the maximum gross weight on two or more consecutive axles is limited by the Federal Bridge Formula but cannot exceed 129,000 pounds. The weight on single axles or tandem axles spaced 40 inches or less apart may not exceed 20,000 pounds. Tandem axles spaced more than 40 inches but 96 inches or less may not exceed 34,000 pounds. Two consecutive sets of tandem axles may carry a gross load of 34,000 pounds each, provided the overall distance between the first and last axles of the tandems is 36 feet or more. The weight on the steering axle may not exceed 600 pounds per inch of tire width.

For combinations with a cargo-carrying length greater than 81.5 feet, the following additional regulations also apply. The weight on all axles (other than the steering axle) may not exceed 500 pounds per inch of tire width. Lift axles and belly axles are not considered load-carrying axles and will not count when determining allowable vehicle weight.

**DRIVER:** The driver must have a commercial driver’s license with the appropriate endorsement.

**VEHICLE:** For all combinations, a semitrailer or trailer may neither be longer than nor weigh 3,000 pounds more than the trailer located immediately in front of it. Towbars longer than 19 feet must be flagged during daylight hours and lighted at night.

For combinations with a cargo-carrying length of 81.5 feet or less, neither trailer may exceed 45 feet, including load overhang. Vehicles may be 12 feet wide when hauling baled feed during daylight hours.

For combinations with a cargo-carrying length over 81.5 feet long, neither trailer may exceed 48 feet, including load overhang. Loading the rear of the trailer heavier than the front is not allowed. All axles except the steering axle require dual tires. Axles spaced 8 feet or less apart must weigh within 500 pounds of each other. The trailer hitch offset may not exceed 6 feet. The maximum effective rear trailer overhang may not exceed 35 percent of the trailer’s wheelbase. The power unit must have sufficient power to maintain 40 miles per hour. A “LONG LOAD” sign measuring 18 inches high by 7 feet long with black on yellow lettering 10 inches high is required on the rear. Offtracking is limited to 8.75 feet for a turning radius of 161 feet.

Offtracking Formula = $161 - \left[161^2 - \left(L_1^2 + L_2^2 + L_3^2 + L_4^2 + L_5^2 + L_6^2 + L_7^2 + L_8^2\right)\right]^{\frac{1}{2}}$

**NOTE:** $L_1$ through $L_8$ are measurements between points of articulation or vehicle pivot points. Squared dimensions to stinger steer points of articulation are negative. For two-trailing-unit combinations where at least one trailer is 45 feet long or longer, all the dimensions used to calculate offtracking must be written in the “Permit Restriction” area of the permit along with the offtracking value derived from the calculation.
PERMIT: For combinations with a cargo-carrying length of 81.5 feet or less, a single-trip permit is required for movement on the Interstate System if the gross vehicle weight exceeds 80,000 pounds. An annual or single-trip permit is required for hauling baled feed over 102 inches wide.

For combinations with a cargo-carrying length greater than 81.5 feet, a single-trip permit is required for all movements. Operations must be discontinued when roads are slippery due to moisture, visibility must be good, and wind conditions must not cause trailer whip or sway.

For all combinations, a fee is charged for any permit.

ACCESS: For combinations with a cargo-carrying length of 81.5 feet or less, access is Statewide off the NN unless restricted by the South Dakota DOT.

For combinations with a cargo-carrying length greater than 81.5 feet, access to operating routes must be approved by the South Dakota DOT.

ROUTES: Combinations with a cargo-carrying length of 81.5 feet or less may use all NN routes. Combinations with a cargo-carrying length over 81.5 feet are restricted to the Interstate System and:

<table>
<thead>
<tr>
<th>From</th>
<th>To</th>
</tr>
</thead>
<tbody>
<tr>
<td>US 85</td>
<td>I-90 Exit 10 Spearfish</td>
</tr>
<tr>
<td>SD 50</td>
<td>Burleigh Street Yankton</td>
</tr>
</tbody>
</table>

State: South Dakota

**COMBINATION:** Truck tractor and 3 trailing units—LCV

**LENGTH OF THE CARGO-CARRYING UNITS:** 100 feet

**MAXIMUM ALLOWABLE GROSS WEIGHT:** 129,000 pounds

**Operational Conditions**

**WEIGHT, DRIVER, PERMIT, and ACCESS:** Same as the SD-TT2 combination.

**VEHICLE:** Same as the SD-TT2 combination, except trailer lengths are limited to 28.5 feet, including load overhang, and the overall length cannot exceed 110 feet, including load overhang.

**ROUTES:** Same as the SD-TT2 combination with a cargo-carrying length over 81.5 feet.

**LEGAL CITATIONS:** SDCL 32-22-14.14, -38, -39, -42, and -52; and Administrative Rules 70:03:01:60 through :70.

---

State: South Dakota

**COMBINATION:** Truck-trailer

**LENGTH OF THE CARGO-CARRYING UNITS:** 73 feet

**Operational Conditions**

**WEIGHT:** This combination must operate in compliance with State laws and regulations. Because it is not an LCV, it is not subject to the ISTEA freeze as it applies to maximum weight.

**DRIVER and PERMIT:** Same as the SD-TT2 combination.

**VEHICLE:** Same as the SD-TT2 combination except that in addition, the overall length including load overhang is limited to 80 feet. Trailer length is not limited.

**ACCESS:** Same as the access provisions for the SD-TT2 combination with a cargo-carrying length of 81.5 feet or less.

**ROUTES:** Same as the route provisions for the SD-TT2 combination with a cargo-carrying length of 81.5 feet or less.

State: South Dakota

**COMBINATION:** Truck-trailer

**LENGTH OF THE CARGO-CARRYING UNITS:** 78 feet

**Operational Conditions**

**WEIGHT:** This combination must operate in compliance with State laws and regulations. Because it is not an LCV, it is not subject to the ISTEA freeze as it applies to maximum weight.

**DRIVER and PERMIT:** Same as the SD-TT2 combination.

**VEHICLE:** Same as the SD-TT2 combination with a cargo-carrying length over 81.5 feet, except that, in addition, the overall length is limited to 85 feet.

**ACCESS:** Same as the access provisions for the SD-TT2 combination with a cargo-carrying length greater than 81.5 feet.

**ROUTES:** Same as the route provisions for the SD-TT2 combination with a cargo-carrying length greater than 81.5 feet.

**LEGAL CITATIONS:** SDCL 32-22-38, -39, -42, and -52; and Administrative Rules 70:03:01:60 through :70.
**State: Utah**

**COMBINATION:** Truck tractor and 2 trailing units—LCV

**LENGTH OF THE CARGO-CARRYING UNITS:** 95 feet

**MAXIMUM ALLOWABLE GROSS WEIGHT:** 129,000 pounds

## Operational Conditions

**WEIGHT:** Weight limits are as follows:

- Single axle: 20,000 pounds
- Tandem axle: 34,000 pounds
- Gross weight: 129,000 pounds

Vehicles must comply with the Federal Bridge Formula.

Tire loading on vehicles requiring an overweight or oversize permit shall not exceed 500 pounds per inch of tire width for tires 11 inches wide and greater, and 450 pounds per inch of tire width for tires less than 11 inches wide as designated by the tire manufacturer on the sidewall of the tire. Tire loading on vehicles not requiring an overweight or oversize permit shall not exceed 600 pounds per inch of tire width as designated by the tire manufacturer on the sidewall.

**DRIVER:** The driver must have a commercial driver’s license with the appropriate endorsement. Carriers must certify that their drivers have a safe driving record and have passed a road test administered by a qualified safety supervisor.

**VEHICLE:** While in transit, no trailer shall be positioned ahead of another trailer which carries an appreciably heavier load. An empty trailer shall not precede a loaded trailer. Vehicles shall be powered to operate on level terrain at speeds compatible with other traffic. They must be able to maintain a minimum speed of 20 miles per hour under normal operating conditions on any grade of 5 percent or less over which the combination is operated and be able to resume a speed of 20 miles per hour after stopping on any such grade, except in extreme weather conditions.

Oversize signs are required on vehicles in excess of 75 feet in length on two-lane highways.

A heavy-duty fifth wheel is required. All fifth wheels must be clean and lubricated with a light-duty grease prior to each trip. The fifth wheel must be located in a position which provides adequate stability. Pick-up plates must be of equal strength to the fifth wheel. The kingpin must be of a solid type and permanently fastened. Screw-out or folding-type kingpins are prohibited.

All hitch connections must be of a no-slack type, preferably a power-actuated ram. Air-actuated hitches which are isolated from the primary air transmission system are recommended.

The drawbar length should be the practical minimum consistent with the clearances required between trailers for turning and backing maneuvers.
Axles must be those designed for the width of the body.

All braking systems must comply with State and Federal requirements. In addition, fast air transmission and release valves must be provided on all semitrailer and converter-dolly axles. A brake force limiting valve, sometimes called a “slippery road” valve, may be provided on the steering axle. Anti-sail-type mud flaps are recommended.

The use of single tires on any combination vehicle requiring an overweight or oversize permit shall not be allowed on single axles. A single axle is defined as one having more than 8 feet between it and the nearest axle or group of axles on the vehicle.

When traveling on a level, smooth, paved surface, the trailing units must follow in the path of the towing vehicle without shifting or swerving more than 3 inches to either side when the towing vehicle is moving in a straight line. Each combination shall maintain a minimum distance of 500 feet from another commercial vehicle traveling in the same direction on the same highway. Loads shall be securely fastened to the transporter with material and devices of sufficient strength to prevent the load from becoming loose, detached, dangerously displaced, or in any manner a hazard to other highway users. The components of the load shall be reinforced or bound securely in advance of travel to prevent debris from being blown off the unit and endangering the safety of the traveling public. Any debris from the special permit vehicle deposited on the highway shall be removed by the permittee.

Bodily injury and property damage insurance is required before a special Transportation Permit will be issued.

In the event any claim arises against the State of Utah, Utah Department of Transportation, Utah Highway Patrol, or their employees from the operation granted under the permit, the permittee shall agree to indemnify and hold harmless each of them from such claim.

**PERMIT:** Permits must be purchased. The Utah DOT Motor Carrier Safety Division will, on submission of an LCV permit request, assign an investigator to perform an audit on the carrier, which must have an established safety program that is in compliance with the Federal Motor Carrier Safety Regulations (49 CFR parts 387–399), the Federal Hazardous Materials Regulations (49 CFR parts 171–178), and a “Satisfactory” safety rating. The request must show a travel plan for the operation of the vehicles. Permits are subject to Highway Patrol supervision, and permitted vehicles may be subject to temporary delays or removed from the highways when necessary during hazardous road, weather, or traffic conditions. The permit will be cancelled without refund if violated. Expiration dates cannot be extended except for reasons beyond the control of the permittee, including adverse weather. Permits are void if defaced, modified, or obliterated. Lost or destroyed permits cannot be duplicated and are not transferable.

**ACCESS:** Routes approved by the Utah DOT plus local delivery destination travel on two-lane roads.
**ROUTES:** For combinations with a cargo-carrying length of 85 feet or less, all NN routes. Combinations with a cargo-carrying length over 85 feet are restricted to the following NN routes:

<table>
<thead>
<tr>
<th>From</th>
<th>To</th>
</tr>
</thead>
<tbody>
<tr>
<td>I-15</td>
<td>Arizona</td>
</tr>
<tr>
<td>I-70</td>
<td>Jct. I-15</td>
</tr>
<tr>
<td>I-80</td>
<td>Nevada</td>
</tr>
<tr>
<td>I-84</td>
<td>Idaho</td>
</tr>
<tr>
<td>I-215</td>
<td>Entire length in the Salt Lake City area</td>
</tr>
<tr>
<td>UT-201</td>
<td>I-80 Exit 102 Lake Point Jct.</td>
</tr>
</tbody>
</table>

**LEGAL CITATIONS:**
Utah Code 27-12-154 and -155; Utah Administrative Code, Section R-909-1.

**State: Utah**

**COMBINATION:** Truck tractor and 3 trailing units—LCV

**LENGTH OF THE CARGO-CARRYING UNITS:** 95 feet

**MAXIMUM ALLOWABLE GROSS WEIGHT:** 129,000 pounds

**OPERATIONAL CONDITIONS:** Same as the UT-TT2 combination.

**ROUTES:** Same as the UT-TT2 combination with a cargo-carrying length greater than 85 feet.

**LEGAL CITATIONS:** Same as the UT-TT2 combination.
State: Utah

**COMBINATION:** Truck-trailer

**LENGTH OF THE CARGO-CARRYING UNITS:** 88 feet

**Operational Conditions**

**WEIGHT:** This combination must operate in compliance with State laws and regulations. Because it is not an LCV, it is not subject to the ISTEA freeze as it applies to maximum weight.

**DRIVER, VEHICLE, PERMIT, and ACCESS:** Same as the UT-TT2 combination.

**ROUTES:**

1. Truck-trailer combinations hauling bulk gasoline or LP gas: cargo-carrying length less than or equal to 78 feet, all NN routes; cargo-carrying lengths over 78 feet up to and including 88 feet, same as UT-TT2 with cargo-carrying length over 85 feet.

2. All other truck-trailer combinations: cargo-carrying length less than or equal to 70 feet, all NN routes; cargo-carrying lengths over 70 feet up to and including 78 feet, same as UT-TT2 with cargo-carrying length over 85 feet.

**LEGAL CITATIONS:** Same as the UT-TT2 combination.

State: Utah

**COMBINATION:** Truck-trailer-trailer

**LENGTH OF THE CARGO-CARRYING UNITS:** 88 feet

**OPERATIONAL CONDITIONS:** Same as the Utah truck-trailer combination.

**ROUTES:** Same as the UT-TT2 combination.

**LEGAL CITATIONS:** Same as the UT-TT2 combination.
State: Utah

**COMBINATION:** Automobile transporter

**LENGTH OF THE CARGO-CARRYING UNITS:** 105 feet

**Operational Conditions**

**WEIGHT, DRIVER, PERMIT, and ACCESS:** Same as the Utah truck-trailer combination.

**VEHICLE:** The cargo-carrying length of automobile transporters that carry vehicles on the power unit is the same as the overall length.

**ROUTES:** For automobile transporters with a cargo-carrying length of 92 feet or less, all NN routes. For automobile transporters with a cargo-carrying length over 92 feet up to and including 105 feet, same as UT-TT2 with cargo-carrying length over 85 feet.

**LEGAL CITATIONS:** Same as the UT-TT2 combination.
State: Wyoming

COMBINATION: Truck tractor and 2 trailing units—LCV

LENGTH OF THE CARGO-CARRYING UNITS: 81 feet

MAXIMUM ALLOWABLE GROSS WEIGHT: 117,000 pounds

Operational Conditions

WEIGHT: No single axle shall carry a load in excess of 20,000 pounds. No tandem axle shall carry a load in excess of 36,000 pounds. No triple axle, consisting of three consecutive load-bearing axles that articulate from an attachment to the vehicle including a connecting mechanism to equalize the load between axles having a spacing between the first and third axle of at least 96 inches and not more than 108 inches, shall carry a load in excess of 42,500 pounds. No vehicles operated on the Interstate System shall exceed the maximum weight allowed by application of Federal Bridge Weight Formula B.

No wheel shall carry a load in excess of 10,000 pounds. No tire on a steering axle shall carry a load in excess of 750 pounds per inch of tire width, and no other tire on a vehicle shall carry a load in excess of 600 pounds per inch of tire width. “Tire width” means the width stamped on the tire by the manufacturer.

Dummy axles may not be considered in the determination of allowable weights.

DRIVER: The driver must have a commercial driver’s license with the appropriate endorsement.

VEHICLE: The lead semitrailer can be up to 48 feet long with the trailing unit up to 40 feet long. In a truck tractor–semitrailer–trailer combination, the heavier towed vehicle shall be directly behind the truck-tractor, and the lighter towed vehicle shall be last if the weight difference between consecutive towed vehicles exceeds 5,000 pounds.

PERMITS: No permits required.

ACCESS: Unlimited access off the NN to terminals.

ROUTES: All NN routes.

LEGAL CITATIONS:

WS 31-5-1001, -1002, -1004, -1008; and WS 31-17-1-1 through 31-17-117.
State: Wyoming

**COMBINATION:** Truck-trailer

**LENGTH OF THE CARGO-CARRYING UNITS:** 78 feet

**Operational Conditions**

**WEIGHT:** This combination must operate in compliance with State laws and regulations. Because it is not an LCV, it is not subject to the ISTEA freeze as it applies to maximum weight.

**DRIVER, PERMIT, and ACCESS:** Same as the WY-TT2 combination.

**VEHICLE:** No single vehicle shall exceed 60 feet in length within an overall limit of 85 feet.

**ROUTES:** Same as the WY-TT2 combination.

**LEGAL CITATIONS:**

WS 31-5-1002

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State: Wyoming

**COMBINATION:** Automobile/boat transporter

**LENGTH OF THE CARGO-CARRYING UNITS:** 85 feet

**Operational Conditions**

**WEIGHT:** This combination must operate in compliance with State laws and regulations. Because it is not an LCV, it is not subject to the ISTEA freeze as it applies to maximum weight.

**DRIVER, PERMIT, and ACCESS:** Same as the WY-TT2 combination.

**VEHICLE:** The cargo-carrying length of automobile transporters that carry vehicles on the power unit is the same as the overall length. No single vehicle shall exceed 60 feet in length within an overall limit of 85 feet.

**ROUTES:** Same as the WY-TT2 combination.

**LEGAL CITATIONS:** Same as the WY-TT2 combination.
State: Wyoming

COMBINATION: Saddlemount combination
LENGTH OF THE CARGO-CARRYING UNITS: 85 feet

Operational Conditions

**WEIGHT:** This combination must operate in compliance with State laws and regulations. Because it is not an LCV, it is not subject to the ISTEA freeze as it applies to maximum weight.

**DRIVER, PERMIT, and ACCESS:** Same as the WY-TT2 combination.

**VEHICLE:** The cargo-carrying length of saddlemount combinations that carry vehicles on the power unit is the same as the overall length. No single vehicle shall exceed 60 feet in length within an overall limit of 85 feet.

No more than three saddlemounts may be used in any combination, except additional vehicles may be transported when safely loaded upon the frame of a vehicle in a properly assembled saddlemount combination.

Towed vehicles in a triple saddlemount combination shall have brakes acting on all wheels which are in contact with the roadway.

All applicable State and Federal rules on coupling devices shall be observed and complied with.

**ROUTES:** Same as the WY-TT2 combination.

**LEGAL CITATIONS:** Same as the WY-TT2 combination.
Appendix D. Wyoming State Freight Advisory Committee

D.1 Committee By-Laws

ARTICLE I. NAME

The legal name of this Committee is the “Wyoming Freight Advisory Council”, herein and often referred to as the “FAC”.

ARTICLE II. OBJECTIVES

The FAC is a collaborative process for freight planning that involves the relevant stakeholders who utilize and are affected by the State’s freight transportation system. The objectives of the FAC are to serve as a forum for the discussion of State decisions affecting freight transportation; provide advice and ideas on possible freight program policies and strategies which would be beneficial to Wyoming; communicating and coordinating regional priorities with other organizations; promoting the sharing of information between the private and public sectors on freight issues; and participating in the development of the Wyoming State Freight Plan.

ARTICLE III. MEMBERSHIP

The membership of the FAC shall consist of not more than 32 members. Membership should represent different geographic areas of the state and represent a cross-section of the major industrial and freight transportation sectors within the state. Membership will include representatives and owners of freight transportation infrastructure (both public and private); carriers operating on publicly-owned freight infrastructure; shippers and freight forwarders; representatives of employees of these stakeholders; State, local, and tribal governments; Metropolitan planning organizations, councils of government, regional councils, and other regional and planning organizations trade associations and authorities; and the general public.

ARTICLE IV. OFFICERS

Officers of the FAC will include the Chair and Vice Chair. The Chair and Vice Chair shall be elected by a simple majority vote of FAC members present.
The Chair shall:

1. Appoint special committee chairs;
2. Appoint members of special committees;
3. Develop agendas and conduct meetings;
4. In January of each year provide a schedule of meetings for that year;
5. Select the location of regularly scheduled meetings;
6. Call for elections of the CHAIR and Vice-chair prior to the expiration of their respective terms

The Vice-Chair shall:

1. Perform all functions of and serve as the Chair in the absence of the Chair.

Each Chair and Vice Chair shall each serve a planned one-year term. Terms begin in January of each year.

In the event the Chair vacates office for any reason, the Vice Chair will accede to the Chair for the remainder of the vacating Chair’s planned one year term. An election is then required to select the Vice Chair for the remainder of the term.

The Chair shall receive nominations for the Chair and Vice Chair positions during a regularly scheduled meeting. Consideration for the Chair and Vice Chair position will be from the membership of the FAC.

**ARTICLE V. MEETINGS**

Special FAC meetings may be called upon consensus of the need to do so by the officers of the FAC.

WYDOT staff shall be responsible for meeting minutes, distributing the meeting agendas, and other associated administrative duties required to support the business of the FAC.

Any FAC member may request the Chair to place business on the agenda.

**ARTICLE VI. QUORUM**

A simple majority of general members present with full standing shall constitute a quorum for convening a meeting.

**ARTICLE VII. ORDER OF BUSINESS**

The following shall be the regular order of business:

1. Roll Call
2. Minutes of the previous meeting
3. Report of Committees
4. Unfinished Business
5. New Business
6. Public Comment Period
7. Adjournment
ARTICLE IX. COMMUNICATIONS
All official communications to the FAC shall be addressed to:
The Wyoming State Freight Advisory Committee

ARTICLE X. RULES OF ORDER
On questions of parliamentary procedure, Roberts Rules of Order shall prevail.

ARTICLE XI. AMENDMENTS
These By-Laws may be added to, or amended by a majority vote of the membership at any meeting of the FAC, provided a quorum is present.

ARTICLE XII. ADOPTION OF FAC BY-LAWS
A majority approval vote by the FAC membership is required to adopt the FAC By-Laws. Upon the adoption of the By-Laws by the FAC, a copy of the By-Laws will be signed and dated by the Chair of the FAC and will be available for inspection by the public at:

Wyoming State Freight Advisory Committee
D.2 Committee Presentation
The Statewide Freight Plan (SFP) will enable WYDOT to implement a broad approach to statewide planning that will integrate freight elements into the larger Statewide Long Range Transportation Plan, expand economic development opportunities for grants and public-private partnerships, and improve network safety and efficiency.
Statewide Freight Plan Topics

- What has been the role of freight in Wyoming?
- What is the future role of freight in Wyoming?
- Trends and forecasts
- Freight network needs and opportunities
- Proposed freight network improvements and investments
- Long range freight network and investment program
Statewide Freight Plan Policy & Needs

This plan will be developed with help from agencies and the public and will provide direction for future freight transportation policy in our state.
MAP-21 Requirements

- States are strongly encouraged to create State Freight Plans compliant with MAP-21 (Moving Ahead for Progress in the 21st century). The plan includes:
  - Condition & performance
  - Needs & issues
  - Proposed projects & strategies
  - Freight Advisory Committee
National Goals & Performance

- Freight & economic vitality is one of seven national goals.
  - Improve freight network
  - Rural area access to markets
  - Regional economic development

- Project performance objectives:
  - Benefit-cost
  - Safety
  - Economic competitiveness
  - Environmental sustainability
  - System condition
  - Effective planning
National Freight Network

- National Freight Network
  - Primary Freight Network
  - Critical Rural Freight Corridors
Freight Advisory Committee

- MAP-21 requires a Freight Advisory Committee
  - Consisting of public & private stakeholders
  - Advisory role on policy, needs & priorities
  - Promote sharing of information
  - Help develop the freight plan
# Freight Advisory Committees

- **Many variables across the different state FACs**
  - Membership
  - Formality
  - Life span of the FACs
  - Meeting frequency

- **What works best for the individual state**
  - Resources
  - Concerns/issues/industry dynamics
  - Relationship with the freight sector

- **Common factor**
  - Industry involvement in the process
  - Industry keen to participate and have their voice heard
  - Industry willing to share (mostly)
Statewide Freight Study Process

1. **Develop Strategic Goals**
   - Create Plan Outline and Schedule
2. **Assess Current Conditions**
   - Economic Evaluation
   - Analyze Freight Policies, Strategies and Institutions
   - Inventory of State Freight Transportation
   - Freight Trends, Needs & Issues
   - Summarize State Policies and Decision-Making Methods
3. **Recommend Freight Improvement Strategies**
   - Create a Freight Advisory Committee
4. **Prepare State Freight Mobility Plan**
5. **Public Involvement**
   - Stakeholder Outreach and Coordination
   - Public Information Meeting
   - Website and Online Open House
Where Are We Now?

- Kickoff Oct. 2013
- July public meeting in Casper
- Tech memos – November 2014
- Inventory – October 2014
- Draft – December 2014
Wyoming Air Cargo System
Goods Moved by Pipeline in Wyoming
Wyoming Road Network
Wyoming Rail Network
Key Freight Corridors
Truck AADT for Key Corridors 2014
Truck AADT for Key Corridors 2034
Truck Facilities
ITS Facilities
Prioritize Performance Measurements

1. Safety
2. Infrastructure Condition
3. Congestion Reduction
4. System Reliability
5. Freight movement and economic vitality
6. Environmental sustainability
7. Reduced project delivery delays
Improve Freight Safety

- Reduce fatalities
- Reduce crash severity
- Reduce total number of crashes
- Reduce the number of freight and rail related accidents in Wyoming
Support Regional Economic Development

- Encourage freight investments with positive economic benefits to the Wyoming economy
- Maintain an efficient multimodal freight network for Wyoming businesses across all key industries
- Rural economies’ farm-to-market, manufacturing, and resource industry sectors
Advance Freight Network Efficiency

- Identifying and mitigating impediments to freight mobility
  - Truck climbing lanes
  - Share of rail system that can support 286k modern rail cars
  - Oversize and overweight load restrictions
  - Improve multimodal connectivity and last mile connections
Maintain the State of Good Repair

- Maintain freight distribution centers
- Reduce the number of deficient bridges on the freight network
- Maintain the pavement condition
## Reduce Environmental Impacts

- Ensure that improvements to the freight system minimize or mitigate impacts to the environment and help improve the quality of life for residents
- Encourage freight modes, strategies, and investments that promote environmental benefits and minimize negative impacts
- Reduce truck engine emissions
Freight Network Reliability

- Promote redundancy and flexibility within the system to meet unanticipated events and aid emergency response
- Minimize frequency and duration of road closures
Communication Methods and Tools

- Study website and online comment form
  - www.WyomingStatewideFreightPlan.com
- Media
  - Press releases
  - Advertisements
- Public Participation
  - Public Meeting – July 9, 2014, Casper, Wyoming
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Appendix E. Online Survey Information

E.1 Introduction

An online survey was used to gather information from the public and interested stakeholders. The online survey was available from August 13, 2014, to March 4, 2015; 72 respondents completed the survey. The majority of respondents (62) completed the survey in October 2014. Table 11-4 through Table 11-9 summarize the online survey.

The survey was advertised with a variety of outreach methods, including links on the project website and online meeting (at www.WyomingStatewideFreightPlan.com), a feature and link on the Wyoming DOT website homepage, a survey-specific press release, an email sent to all project contacts, and a printed packet.
### E.2 Responses to General Questions

**Table 11-4. Online Survey Summary for Responses to General Questions**

*By the Numbers*

|-------------------------------|-----------------------------------|

**Outreach methods**

- Email sent to all in project database
- Link on project website (www.wyomingstatewidefreightplan.com)
- Link on project online meeting (at website above)
- Feature and link on Wyoming DOT website (www.dot.state.wy.us)
- Press release
- Printed packet distributed to ______

**Respondents**

![Bar chart showing responses by role](chart.png)

Total of 72 respondents. Majority of responses (62) received in October 2014.

**County of Residence**

- Over half of respondents were from Fremont (39%) and Laramie (14%) counties
- 12 counties had no respondents
- 2 respondents reside outside Wyoming
Table 11-4. Online Survey Summary for Responses to General Questions

By the Numbers

**Wyoming Highway System**

Percentage of respondents who rated their needs in these areas as somewhat or fully met.

**Freight System Needs**

Most Needed:
- Improving airports
- Maintenance/preservation projects
- Safety-related investments

**Freight System Goals**

Percentage of respondents who ranked these goals as "Most Important."
Table 11-4. Online Survey Summary for Responses to General Questions

By the Numbers

Freight System Goals (cont’d)

<table>
<thead>
<tr>
<th>Goals</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reducing Commute Times</td>
<td>2%</td>
</tr>
<tr>
<td>Providing Public Transportation Options for Elderly, Disabled, and Low-Income Citizens</td>
<td>8%</td>
</tr>
</tbody>
</table>

Percentage of respondents who ranked these goals as "Less Important."

E.2.1 Questions

1. In what county do you live?
2. How well does the state’s highway system meet your needs in the following areas?
3. Rank project types in order of need.
4. Rank goals in order of importance.
5. Identify your primary interest in Wyoming freight.
   a. Their answer sends them to appropriate track

E.2.2 General Questions and Respondent Tracks

The survey began with a description of the project and a few general questions presented to every respondent. Most survey questions were optional but it was required that respondents select their county of residence. The final question in this section asked respondents to identify their primary involvement with freight in Wyoming as one of the following: General Public, Community Leader, General Economic Development/Planning Advocate, Industrial Developer/Shipper/Transportation and Warehousing, Elected Official and Other. The remainder of the survey was separated into specific question tracks for each respondent type (those who selected ‘Other’ completed the General Public question track). At the end of each track, respondents could choose whether to mark their survey as complete or answer questions for any of the other tracks. Respondents could choose to answer questions from one or all tracks.
E.2.3 County of Residence

The majority of respondents were from either Fremont County (39 percent) or Laramie County (14 percent). Each of the remaining counties was represented by less than 10 percent of survey respondents; there were 12 Wyoming counties with no respondents and 2 respondents residing outside of Wyoming (one of whom was a former resident).

E.2.4 Respondent Track

The majority of respondents (63 percent) identified themselves as members of the general public. Community leaders (14 percent) and industrial developer/shipper/transportation and warehousing (13 percent) had the next highest level of participation. Only two respondents (2 percent) chose general economic development/planning advocate and only one respondent (1 percent) answered the elected official questions. Three respondents listed their primary interest as something else; the submitted answers were: freight company owner, locomotive engineer and car load shipper.

E.2.5 State Highway System

The majority of respondents reported that the Wyoming highway system either ‘Fully Met’ or ‘Somewhat Met’ their needs in both trip time reliability (79 percent) and safety (69 percent), but only between 30 percent and 40 percent of respondents said the same for specialized transport needs and access to other modes. Within the ‘other’ category respondents provided nine responses:

- We need to be sure that roads are capable of carrying overweight loads, if not the truck needs to be diverted to a road that is.
- more SALT less sand for winter driving
- improve/upgrade wildlife exclosure [sic] fencing
- Slow trucks down 10 mph under auto like many other states
- Frustration [sic] level at not being able to pass slow moving vehicles.
- More roads needed in oilfield areas such as running 93 to 369. Also more 4 lane roads and to finish roads already started such as Casper [sic] bypass. still pisses me off its abandoned and you wasted tax revenue
- cost
- Railroad one carload shipments.
- I would like to see more transportation service locally on Sundays and later on Saturdays
E.2.6 Most Needed Projects

Respondents ranked the following project types as the top three most needed in Wyoming (shown as a weighted average): improving airports to better accommodate tourism, business travel, personal travel, and air cargo (4.97), maintenance/preservation projects across all transportation modes (4.94) and safety-related investments across all transportation modes (4.44).

E.2.7 Statewide Freight Goals

Overwhelmingly, respondents said that maintaining existing infrastructure was the most important of the listed goals; over 80 percent of respondents rated it in one of the top two most important categories. Strengthening the economy (and creating/sustaining jobs) and improving transportation safety both had similar importance to respondents, with about 45 rating those in the top two most important categories. Reducing commute times and providing additional transportation choices such as walking, biking and transit had the lowest importance to respondents.
E.3 Industrial Developer/Shipping/Transportation and Warehousing Responses

E.3.1 Questions

1. How many full-time employees
2. Own/operate trucks over 10,000 lbs
3. How many drivers employ
4. Issues recruiting drivers
5. Length to fill driver vacancy
6. How would you classify your business?
   a. If answer ‘Manufacturing,’ move to Q12 then Q13
   b. If answer anything else, skip to Q13
7. Manufacturing business type: enter your subsector
8. Describe receiving and shipping facilities
9. What are your fastest growing products
10. Fastest growth markets next 2-5 years
11. Receiving: primary origins
12. Shipping: primary destinations
13. Transportation modes or equipment used
14. Does exist freight system meet needs for access to other modes
15. What three technologies are most important in supporting supply chain
16. Rate factors for importance to supply chain structure
17. Does your company use rail services? If yes, which ones?
   a. Yes – move to Q23
   b. No – skip to Q27
18. Prioritize options
19. Most frequent issues
20. Percentage of business relies on railroads for cargo
21. Rate overall quality WY freight transport
22. Does your company use air cargo services? If yes, which ones?
23. How would you rate air cargo transportation in the state? Why?
24. Are there specific shipping/receiving practices that cause issues? How often? What remedies?
25. What is weakest element of WY transportation services
26. What is greatest strength of WY transportation services
27. Additional strategies or action to increase shipping
28. Additional thoughts/comments
29. Is your survey complete or would you like to answer other questions?
Table 11-76. Online Survey Summary for Industrial Developer/Shipping/Transportation and Warehousing Responses

**By the Numbers**

<table>
<thead>
<tr>
<th>Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>• 11 of the 72 survey respondents selected this track of questions; only 6 made it to the final question in the track.</td>
</tr>
<tr>
<td>• Several questions were answered by only 1 respondent, which should be kept in mind when utilizing the data.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Respondent Employment</th>
</tr>
</thead>
<tbody>
<tr>
<td>• 64% of respondents are in the transportation/warehousing industry.</td>
</tr>
<tr>
<td>• 73% of respondents own/operate trucks over 10,000 lbs.</td>
</tr>
<tr>
<td>• 5 of the 11 respondents (45%) are part of companies with less than 50 full-time employees in Wyoming.</td>
</tr>
<tr>
<td>• Most companies employ under 50 drivers; one respondent’s company employs 400 + drivers.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Facilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Receiving and shipping facilities were reported as having between 3-6 doors on the loading dock.</td>
</tr>
<tr>
<td>• Warehouses/distribution centers range from 10,000 to 1,000,000 square feet.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Product Origins and Destinations</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Primary product origins are:</td>
</tr>
<tr>
<td>o Wyoming</td>
</tr>
<tr>
<td>o Texas</td>
</tr>
<tr>
<td>o Colorado</td>
</tr>
<tr>
<td>o Various other states</td>
</tr>
<tr>
<td>• Primary product destinations are:</td>
</tr>
<tr>
<td>o Wyoming</td>
</tr>
<tr>
<td>o Colorado</td>
</tr>
<tr>
<td>o Other western/central states</td>
</tr>
<tr>
<td>• No products had international origins or destinations</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fastest Growing Products and Markets</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Oil and gas</td>
</tr>
<tr>
<td>• Industrial chemicals</td>
</tr>
<tr>
<td>• Construction/modular homes</td>
</tr>
</tbody>
</table>
Table 11-76. Online Survey Summary for Industrial Developer/Shipping/Transportation and Warehousing Responses

By the Numbers

Transportation Modes

No respondents reported using rail or container ships.
Only one respondent uses or is interested in using rail services; they requested a small rail hub in Hot Springs or Washakie County for receiving shipments.

Infrastructure

- 67% of respondents said the existing freight system either fully or somewhat met their needs for access to other modes
- The most important factors in supply chain structure were reported as cost (86%) and carrier safety record (71%)
- The highest-rated elements of transportation services in Wyoming are:
  - Long haul tractor trailers
  - Highway system
- The weakest elements of transportation services in Wyoming are reported as:
  - Lack of options for air cargo
  - Lack of online permitting
  - Rail/train system
- Lack of available drivers

Technology

- Respondents listed the below as the most important technologies to support their supply chain operations:
  - Central permitting office
  - Cost of delivery
  - GPS/Shipment tracking
  - Electronic log books

*Two respondents (40%) of respondents rated air cargo services as good or excellent.
*One respondent (20%) rated air cargo services as poor because of limited choices and a lack of options for access and prices.
Table 11-76. Online Survey Summary for Industrial Developer/Shipping/Transportation and Warehousing Responses

By the Numbers

- SAP

Freight System Issues

- There was no consensus on the most frequent transportation issues affecting shipments
- 45% of respondents experience driver recruiting issues
  - Respondents said that recruiting issues are because of:
    - A lack of interested and qualified drivers
    - Inability to pay competitive wages
- Filling a driver vacancy can take anywhere from 2 weeks to 6 months

Improvements

- Respondents listed the following as potential improvements to the freight system:
  - Online permitting
  - More/improved rail services
  - Interstate tolls
  - Better customer service at the Sundance and Gillette ports
- Transload facilities and additional capacity were selected as the highest priority options for facilitating freight transportation (only 1 respondent completed this question)

E.3.2 Survey Track Information

Eleven of the 72 survey respondents selected this track of questions and only six completed the final question in the series. One respondent went on to answer the general public questions. Several questions in this section were answered by only one person, which should be kept in mind when analyzing the data.

E.3.3 Respondents and Their employers

The majority of respondents (64 percent) is in the transportation/warehousing industry and nearly 75 percent own or operate trucks over 10,000-pound gross vehicle weight. Forty-five percent of respondents work in a company that employs less than 50 employees in Wyoming and almost all respondents work in a company that employs less than 50 drivers. One respondent reported being employed by a company with over 400 drivers.
E.3.4 Facilities for Shipping and Receiving

Receiving and shipping facilities were reported as having between three and six doors on the loading dock; while warehouses/distribution centers range from 10,000 to 1,000,000 square feet.

E.3.5 Products

As these organizations receive freight, the top state of origin for product is Texas, with Wyoming and Colorado as the next highest primary origin states for products. Pennsylvania, New Mexico, Arizona and Utah are also represented. For products leaving the facilities Wyoming is the top destination for products with North and South Dakota, Colorado and Montana represented. No products had international origins or destinations.

The fastest-growing markets were reported as oil and gas, industrial chemicals and construction/modular homes.

E.3.6 Transportation Modes

Truckload (71 percent), less than truckload (43 percent) and specialized (43 percent) are the three transportation modes/equipment that are most used as goods moved within the respondents’ supply chain. No respondents reported using rail or container ships.

One only respondent was interested in using rail services; they requested a small rail hub in Hot Springs or Washakie County for receiving shipments. Two respondents (29 percent) each use air cargo services and rate current air cargo services as good or excellent. One respondent rated air cargo services as poor and stated that choices for air cargo services in Wyoming are limited with a lack of flexibility in access and pricing options.

E.3.7 Existing Infrastructure and Technology

The majority of respondents (67 percent) said that the existing freight system either fully or somewhat met their needs for access to other modes of transport. The most important factors in supply chain structure were reported as cost (86 percent) and carrier safety record (71 percent).

The highest-rated elements of transportation services in Wyoming are the highway system and long haul tractor trailers. The weakest elements are reported as the lack of options for air cargo, a lack of online permitting, the rail/train system and a lack of available drivers.

Respondents listed the below as the most important technologies to support their supply chain operations: a central permitting office, cost of delivery, GPS/Shipment tracking, electronic log books and SAP.
E.3.8 Freight System Issues

There was no consensus on the most frequent transportation issues affecting shipments; congestion, accident, availability of rail cars, damage due to rough ride and late deliveries due to winter weather were each selected as the most frequent issue by an equal number of respondents (one).

However, 45 percent of respondents indicated that they have experienced issues recruiting drivers. The reasons given for the recruiting difficulties include:

- Finding drivers interested and/or qualified in long haul trucking
- Finding drivers experienced with the variety of conditions in Wyoming
- Finding drivers experienced with oil field work
- Inability to pay wages that are competitive with other companies and industries (such as oil fields)

E.3.9 Freight System Improvements

Respondents recommended the following strategies and actions as potential improvements that would benefit Wyoming freight transportation:

- Online permitting
- More/improved rail services
- Interstate tolls
- Better customer service at the Sundance and Gillette ports

Transload facilities and additional capacity were selected as the highest priority options for facilitating freight transportation, though only one respondent completed this question.
E.4 Community Leader Responses

E.4.1 Questions

1. Key freight corridors?
2. Main freight-traffic generators
3. Current transportation concerns in your region
4. Primary obstacles to economic development that could be overcome by investments in freight
5. Transportation or land use planning obstacles that relate to freight policies?
6. How can the freight plan benefit your MPO or local government
7. Further comments or suggestions/links
8. Is your survey complete or would you like to answer other questions?
Table 11-77. Online Survey Summary for Community Leader Responses

By the Numbers

Respondents

- 10 of the 72 survey respondents identified themselves as Community Leaders
- All questions in this section were open-ended
- 1 respondent went on to answer the General Public questions; 2 respondents went on to answer the Industrial Developer/Shipper/Transportation and Warehousing questions

Key Freight Corridors

There were:
- 20 mentions of roadways
- 4 mentions of rail/trains
- 3 mentions of airports
- 1 mention of a pipeline (Phillips 66)
- 1 mention of a logistics hub (Casper)
- 1 non-specific mention of corridors related to the energy industry

Main Freight-Traffic Generators

Respondents said:
- Energy industry and oil fields (3 mentions)
- Agriculture and ranches (3 mentions)
- Local goods
- Long haul tractor trailers
- Freeway
- BNSF
- Casper Airport
- Casper Logistics Hub
- Mines
- Industry (general)

Current Transportation Concerns Impacting Freight Movement

- Roadways deteriorating from over-sized/overweight loads
- Lack of freight regulation/law enforcement on roadways
- High volume of commercial traffic on I-80
- Inadequate roadway infrastructure (two lane roads, lack of passing lanes, narrow tunnels, bottlenecks)
### Table 11-77. Online Survey Summary for Community Leader Responses

#### By the Numbers
- Driving conflicts between commercial and passenger traffic
- Roadway improvements needed (interchanges, freeways)
- Weather-related closures/delays/crashes
- Need improved connectivity (to airports, industrial centers)
- Airfreight sorting facility at C/NCIA
- Inadequate rail infrastructure (bottlenecks, at-grade crossings)

#### Obstacles to Economic Development That Could Be Addressed by Freight Investments
- High gas prices
- Lack of large chain stores
- Lack of workers
- New sorting facility at C/NCIA
- Improved roadway connectivity between traffic corridors
- Inability to move some oversize loads
- Weather-related delays
- Weak economic development support from community

#### Issues Related to Freight Mobility
- Lack of adequate funding
- Limited right-of-way for rail projects
- Lack of planning for future rail projects

#### Local Benefits of a Statewide Freight Plan
- Helps communities plan for future/potential projects
- Provide a forum for freight issues to be heard by elected officials
- Provide specific targets for addressing freight needs in a community
- Contextualizes freight movement statewide, not just in urbanized areas
E.4.2 Survey Track Information

Ten of the 72 survey respondents identified themselves as community leaders. This group has a broad view of freight in Wyoming, balancing freight needs with overall mobility and economic development. All questions in this track were open-ended, requiring respondents to type in their answers rather than select pre-populated responses. One respondent from this group went on to answer the General Public questions and two went on to answer the Industrial Developer/Shipper/Transportation and Warehousing questions.

E.4.3 Existing Corridors and Freight-Traffic Generators

Respondents in the community leader category seemed to focus mainly on roadways, seeing those as the key corridors for freight; 20 of the 30 key freight corridor listed were roadways. All roadways mentioned were interstate and highways rather than local roadways. Rail and air freight had few mentions and there was only one mention of a pipeline and one mention of a logistics hub.

The main freight-traffic generators mentioned were industry-related; freight, oil field, energy and mining in particular. Among other mentions were local goods, farming and ranching, freeways, BNSF and the Casper Airport.

E.4.4 Transportation Concerns Impacting Freight

Again, community leaders focused mainly on roadways and truck freight in listing regional transportation concerns potentially impacting freight movement. Roadway deterioration, inadequate roadway infrastructure, high freight traffic volume, lack of law enforcement and public safety were main concerns. Outside of roadway concerns, respondents listed weather-related complications, inadequate rail infrastructure, issues with an airfreight sorting facility and improved connectivity as current issues impacting freight movement.

E.4.5 Current Economic Development Obstacles

High gas prices, lack of large chain stores, lack of workers, an inability to move oversize loads, weather-related delays, ineffective sorting facilities (C/NCIA), a lack of connectivity and weak economic development support were identified as obstacles to economic development that could potentially be solved by freight investments.

E.4.6 Transportation/Land Use Planning Obstacles

Respondents indicated concern about adequate funding, limited right right-of-way for rail projects within the Casper corridor and a general lack of planning for future rail projects were among the biggest obstacles with regards to transportation and land use planning. It appears that there is strong support for freight development among current elected officials at the county level.
E.4.7  Statewide Freight Plan Benefits

Community leaders see many benefits to the completion of the statewide freight plan. A freight plan could help communities plan for future or potential projects in their area.

The plan would also raise the visibility of freight and associated economic benefits and help create priorities and strategies that will secure and direct funding to the highest priority projects in the state. It can also provide a forum for freight issues to be heard by elected officials. A statewide plan will help provide specific targets for a freight network and contextualize freight movement within the state, not just local areas.
E.5 Elected Official Responses

E.5.1 Questions

1. Agree with following statements
2. State’s role in transportation
3. Focus existing funds
4. Future events
5. Trends
6. Additional thoughts/comments
7. Is your survey complete or would you like to answer other questions?
Table 11-78. Online Survey Summary for Elected Official Responses

*By the Numbers*

**Respondents**
- 2 of the 72 survey respondents identified themselves as Elected Officials and answered the questions in this track
- The low number of respondents in this category should be kept in mind as data is analyzed
- 1 respondent went on to answer Community Leader questions

**Value of the state Transportation System**
- Respondents feel the state transportation system is extremely important:
  - 100% of respondents strongly agreed that the transportation system is very important to the perception of the quality of life in Wyoming
  - 100% of respondents agreed or strongly agreed that the transportation system is critical to improving Wyoming’s economy

**State Role in Transportation**
*Respondents were split on the state’s most important role:*

<table>
<thead>
<tr>
<th>Role</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provide Infrastructure and Service to the Entire State</td>
<td>100%</td>
</tr>
<tr>
<td>Administer Federal and State Capital Assistance to Local Governments</td>
<td>80%</td>
</tr>
<tr>
<td>Provide Infrastructure and Services to Serve Local Needs</td>
<td>60%</td>
</tr>
</tbody>
</table>

**Funding and Trends**
- 100% of respondents think maintaining existing infrastructure is the most important use of existing funding
- 100% of respondents agreed the following are the top two most likely events that could influence Wyoming’s transportation system:
  - A reduction in federal transportation funds
  - A reduction in state fuel tax revenues
- 100% of respondents agreed that a reduction in federal and state funding would create a significant change in transportation needs and investments
E.5.2 Survey Track Information

Two of the 72 survey respondents identified themselves as elected officials. The low number of respondents should be kept in mind as data is analyzed and utilized. One respondent from this group went on to answer the Community Leader questions.

E.5.3 Value of the Transportation System

From the perspective of elected officials, the transportation system is very important to how citizens and visitors perceive the quality of life in Wyoming (100 percent strongly agree). The respondents also believe that Wyoming’s transportation system is critical to improving the economy and attracting jobs to the state (50 percent strongly agree, 50 percent somewhat agree).

E.5.4 State’s Transportation Role

Elected officials were split on what they found to be the state’s most important role in transportation, naming two categories as the most important role the state could take: to provide state-owned infrastructure and/or services that serve local or small regional needs, and to administer federal and state capital assistance to local governments. However, all respondents agreed that the state’s second most important role is to provide infrastructure and service to the entire state or large regions of the state.

E.5.5 Funding and Trends

Respondents indicated that maintaining current infrastructure is the most important area for the state to focus its existing transportation funding. The least important area was to reduce commute times. These responses mirrored those of all respondents to the general questions asked at the beginning of the survey.

Respondents agreed that the most likely events that could influence Wyoming’s transportation system would be reductions in federal transportation funds and state fuel tax revenues. All respondents also agreed that these reductions in funding would create the most significant change in Wyoming’s transportation needs and investments. Respondents thought that urban redevelopment would be the least likely event to occur and would least affect state transportation needs and investments.
E.6 General Economic Development/Planning Advocate Responses

E.6.1 Questions

1. Existing system meet needs for access to other modes?
2. Existing system meet needs for safety?
3. Existing system meet needs for other needs?
4. Potential opportunities
5. Changes to policies and programs
6. What freight project should WYDOT consider
7. What opportunities are there if these improvements are made
8. What impacts are there if these improvements are made
9. Additional thoughts/comments
10. Is your survey complete or would you like to answer other questions?
Table 11-79. Online Survey Summary for General Economic Development/Planning Advocate Responses

By the Numbers

Respondent
- 1 of the 72 survey respondents identified themselves as a General Economic Development/Planning Advocate
- The single respondent only answered questions 50, 51 and 59
- The low number of respondents in this category should be kept in mind as data is analyzed
- The respondent did not go on to answer questions from any other track

Existing System
- The respondent felt that the existing freight system:
  - Somewhat met their needs for access to other modes
  - Somewhat met their needs for safety

E.6.2 Survey Track Information

Only one of the 72 survey respondents identified themselves as a General Economic Development/Planning Advocate. The low number of respondents should be kept in mind as data is analyzed and utilized. No respondent from this group went on to answer questions from any other track.

E.6.3 Responses

The existing freight system somewhat meets the needs for respondent in terms of access to other modes and safety. All other questions in this track were left unanswered.
E.7 General Public Responses

E.7.1 Questions

1. Potential opportunities
2. Changes to policies and programs
3. What freight project should WYDOT consider
4. What opportunities are there if these improvements are made
5. What impacts are there if these improvements are made
6. Additional feedback
7. Is your survey complete or would you like to answer other questions?
Table 11-9. Online Survey Summary for General Public Responses

**By the Numbers**

**Respondent**
- 43 of the 72 survey respondents identified themselves as a member of the General Public
- Most questions were answered by only about half of the respondents on this track

**Opportunities for Freight in Wyoming**
- Improvements to rail were listed most often (including more use of rail for freight, more short route lines, increased rail services and high-speed rail)
- Switch freight transport from roadways to other modes
- Increased connectivity and proximity between modes, including the addition of distribution centers
- More manufacturing, particularly in the energy industry
- Additional modes of travel such as passenger rail and biking
- Widen two-lane highways for passing
- Use of natural gas/future energy sources
- Additional responses include: more compliance with regulations, improved safety, improved air infrastructure, a public that values freight needs, smaller regional companies and political changes

**Freight Policy Changes Desired**
- General consensus was that existing regulations, especially for truck travel, should be better enforced
- Safety and reduced roadway congestion were major themes of responses
- Many people mentioned the speed of freight trucks; some argued they should go slower than passenger traffic, others argued they should drive up to the speed limit – both sides desired improved safety and reduced roadway congestion
- General updated regulations for trucks (variety of opinions on vehicle certifications, weight, triple trailers)
- More stringent driver testing and consequences for transgressions
- Improvements to company cultures so drivers aren’t asked to drive in unsafe ways to meet tight deadlines
- Improved permitting (online permitting and a statewide process for all roadways, not just state highways)
- A focus on infrastructure maintenance and improvements
- Continued safety education
- Improve ease for small shippers to obtain rail service for less than unit shipments
- Additional responses include: the addition of interstate passenger rail, improved public transit, minimizing train noise
Table 11-9. Online Survey Summary for General Public Responses

By the Numbers

<table>
<thead>
<tr>
<th>Freight Projects WYDOT Should Consider</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>• The number one response was the widening of roads to add passing lanes</td>
<td></td>
</tr>
<tr>
<td>• Respondents also wanted to improve safety and reduce congestion of the roadways by:</td>
<td></td>
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<tr>
<td>o Switching freight from trucks to other modes, particularly rail</td>
<td></td>
</tr>
<tr>
<td>o Charging fees for vehicles with 4 or more axles</td>
<td></td>
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<tr>
<td>• Increased enforcement/compliance</td>
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<tr>
<td>• Offering more alternative transportation options like passenger rail, buses, biking, air</td>
<td></td>
</tr>
<tr>
<td>• Increased connections between freight modes</td>
<td></td>
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<tr>
<td>• Fund increased freight and passenger service to regional airports</td>
<td></td>
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<tr>
<td>• Development of a comprehensive permit process</td>
<td></td>
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<tr>
<td>• More and improved rail, including making it more cost effective to add sidings and loading/unloading</td>
<td></td>
</tr>
<tr>
<td>• Support local/regional trucking operations</td>
<td></td>
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</tbody>
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<table>
<thead>
<tr>
<th>Potential Opportunities of Improvements</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Improved roadway safety</td>
<td></td>
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<tr>
<td>• Reduced roadway congestion and travel times</td>
<td></td>
</tr>
<tr>
<td>• Increased mobility options</td>
<td></td>
</tr>
<tr>
<td>• Less roadway deterioration and less maintenance</td>
<td></td>
</tr>
<tr>
<td>• Increased economic and employment opportunities</td>
<td></td>
</tr>
<tr>
<td>• Improved delivery times</td>
<td></td>
</tr>
<tr>
<td>• Increased efficiency</td>
<td></td>
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<tr>
<td>• Increased recreation/tourism</td>
<td></td>
</tr>
<tr>
<td>• Better accommodate future growth in energy industry</td>
<td></td>
</tr>
<tr>
<td>• Better working conditions for freight truck drivers</td>
<td></td>
</tr>
</tbody>
</table>
Table 11-9. Online Survey Summary for General Public Responses

By the Numbers

Impacts if Improvements Are Not Made

- More accidents on roadways
- Deteriorating roadways become unsafe; extra cost for additional/continued roadway improvements
- Slower travel times and increased congestion on roadways
- Increased highway shutdowns
- More truck traffic
- Limited economic development
- More fuel
- Reduced quality of life for citizens (less access to modes of travel, more pollution)

Additional Feedback

- People should be more educated about unsafe driving
- Switch freight to rail
- Increase safety of freight trucks sharing the roadways with the general public
- Larger, more affordable airports
- Freight is necessary and needs to be accommodated
- Survey should be more widely advertised
- Thank you for seeking public input

E.7.2 Survey Track Information

Forty-three of the 72 survey respondents identified themselves as a member of the General Public. All questions were an open-answer format, requiring respondents to type in their answers rather than select pre-populated responses.

E.7.3 General Public Themes

The general public focused mostly on improving safety and reducing congestion on the roadways. To accomplish this, respondents wanted the addition of passing lanes, the movement of freight to other modes (particularly rail), more compliance and enforcement of existing regulations, changes in truck speed (although there was no consensus if that should be faster or slower), more education about safe driving, more stringent freight truck driver testing, safer working conditions for freight truck drivers and the availability of alternative modes of transportation.

Respondents felt that improvements to the Wyoming transportation system would also lead to less roadway deterioration and lowered roadway maintenance costs, increased quality of life for citizens, less pollution and increased economic development opportunities, including increased industry, recreation and tourism.
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Appendix F. Public Meeting Materials
Welcome!

The Wyoming Department of Transportation (WYDOT) is developing a Statewide Freight Plan (SFP). This plan will be developed with help from agencies and the public and will provide direction for future freight transportation policy in our state. Priorities adopted by the plan will be based on the common interests of stakeholders statewide.

The SFP will enable WYDOT to implement a broad approach to statewide planning that will integrate freight rail elements into the larger Statewide Long Range Transportation Plan, expand economic development opportunities for grants and public-private partnerships, and improve network safety and efficiency.

We look forward to hearing your thoughts about the direction for freight systems and services in Wyoming!

Please visit the project website at:

www.WyomingStatewideFreightPlan.com

Contact the Project Team

Ed Fritz
Wyoming Department of Transportation Planning
5300 Bishop Boulevard
Cheyenne, WY 82009
(307) 777-3018

Larceee Kolkman
HD&K Engineering, Inc.
Project Representative
1780 Carey Avenue, Suite 102
Cheyenne, WY 82001
(307) 416-4403

info@wyomingstatewidefreightplan.com
Welcome!

The SFP may include discussion of the following topics:
- What has been the role of freight in Wyoming?
- What is the future role of freight in Wyoming?
- Trends and forecasts
- Freight needs and opportunities
- Proposed freight system improvements and investments
- Wyoming's long range service and investment program

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Wyoming Department of Transportation Planning
5500 Bishop Boulevard
Cheyenne, WY 82009
(307) 777-5018

Larree Kolkman
HDR Engineering, Inc.
Project Representative
1720 Carey Avenue, Suite 612
Cheyenne, WY 82001
(970) 416-4435

info@wyomingstatewidefreightplan.com
Welcome! The Wyoming Department of Transportation (WYDOT) is developing a Statewide Freight Plan (SFP). This plan will be developed with help from agencies and the public and will provide direction for future freight transportation policy in our state. Priorities adopted by the plan will be based on the common interests of stakeholders statewide.

The SFP will enable WYDOT to implement a broad approach to statewide planning that will integrate freight elements into the larger Statewide Long Range Transportation Plan, expand economic development opportunities for grants and public-private partnerships, and improve network safety and efficiency.

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Planning
5300 Bishop Boulevard
Cheyenne, WY 82009
(307) 777-3818

Laycee Kolkman
HDR Engineering, Inc.
Project Representative
1720 Carey Avenue, Suite 612
Cheyenne, WY 82001
(970) 416-4405

info@wyomingstatewidefreightplan.com
How Do I Submit Comments?

- Written Comments: Complete and submit this form at the public meeting or follow the directions on the reverse side of this sheet to mail your comments.
- Email Comments: Email comments to info@wyomingstatewidefreightplan.com.

What are your thoughts about the Wyoming Statewide Freight Plan?


Date: __________________________________________
Name: __________________________________________
Street Address: __________________________________
City, State, Zip: __________________________________
Phone: __________________________________________
Email: __________________________________________
Contact Preference: □ Direct Mail □ Email □ Do Not Contact
The Wyoming Department of Transportation is developing a Statewide Freight Plan (SFP). The SFP will enable the Wyoming Department of Transportation to implement a broad approach to statewide planning that will integrate freight elements into the larger Statewide Long Range Transportation Plan.
Statewide Freight Plan

- The Wyoming Department of Transportation (WYDOT) is developing a Statewide Freight Plan (SFP).
- The SFP will enable WYDOT to implement a broad approach to statewide planning that will integrate freight elements into the larger Statewide Long Range Transportation Plan, expand economic development opportunities for grants and public-private partnerships, and improve network safety and efficiency.
Statewide Freight Plan Purpose

- To provide input for required State Freight Plans to comply with MAP-21 (Moving Ahead for Progress in the 21st century)
- This plan will be developed with help from agencies and the public and will provide direction for future freight transportation policy in our state.
Statewide Freight Plan Topics

- What has been the role of freight in Wyoming?
- What is the future role of freight in Wyoming?
- Trends and forecasts
- Freight network needs and opportunities
- Proposed freight network improvements and investments
- Long range freight network and investment program
Wyoming Air Cargo System
Wyoming Road Network
Goods Moved by Pipeline in Wyoming
Wyoming Rail Network
Communication Methods and Tools

- **Study website and online comment form**
- **Media**
  - Press releases
  - Advertisements
- **Public Participation**
  - Public Meeting – July 9, 2014, Casper, Wyoming
Next Step – Providing Input

- Provide input:
  - Website
  - Email
  - Mail
Next Step – Providing Input

 Provide input:

- Website - www.WyomingStatewideFreightPlan.com
- Email – info@wyomingstatewidefreightplan.com
- Mail – Wyoming Department of Transportation
  Attn: Ed Fritz
  Planning
  5300 Bishop Boulevard
  Cheyenne, WY 82009-3340
Statewide Freight Study Process

- Develop Strategic Goals
  - Create Plan Outline and Schedule
- Assess Current Conditions
  - Economic Evaluation
- Recommend Freight Improvement Strategies
  - Create a Freight Advisory Committee
- Prepare State Freight Mobility Plan
- Public Involvement
  - Stakeholder Outreach and Coordination
  - Public Information Meeting
  - Website and Online Open House
- Analyze Freight Policies, Strategies and Institutions
- Inventory of State Freight Transportation
- Freight Trends, Needs & Issues
- Summarize State Policies and Decision-Making Methods
### Appendix.G. Bridge Projects

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# District Bridge Needs Analysis Report

*Needs as of 9/6/2013

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# District Bridge Needs Analysis Report

*Period of Evaluation: September 2013*

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## District Bridge Needs Analysis Report

### *Needs as of 9/6/2013*

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*Additional Key Freight Corridor Bridges are shown in Figure 10-2*
Addenda

to the September 2015

Wyoming Statewide Freight Plan

September 2017
Addendum 1. National Multimodal Freight Program

Addendum 1.1 Multimodal Freight Policy Goals

In addition to the freight policy goals stated in Chapter 1 of the Wyoming Statewide Freight Plan (SFP), the following new goals are established by the FAST Act for multimodal freight policy:

- Improve the reliability of freight transportation;
- Improve the short- and long-distance movement of goods that
  - Travel across rural areas between population centers,
  - Travel between rural areas and population centers, and
  - Travel from the Nation’s ports, airports, and gateways to the National Multimodal Freight Network,
- Improve the flexibility of States to support multi-State corridor planning and the creation of multi-State organizations to increase the ability of States to address multimodal freight connectivity.

The Wyoming Department of Transportation (WYDOT) strives to satisfy these goals in every aspect of their freight planning processes and will continue to do so in the future. Weather-related reliability is considered one of the largest issues with the movement of freight in Wyoming and is considered in project development when applicable. The following are WYDOT initiatives that address the freight policy goals from the FAST Act and MAP-21:

- WYDOT is involved in the I-80 Winter Operations Coalition consisting of members from California, Nevada, Utah, Wyoming and Nebraska. Chapter 3 of the Statewide Freight Plan describes the Coalition and its activities in greater detail.
- WYDOT is in the process of developing winter maintenance performance measures to assess the effectiveness of the various snow removal techniques used by WYDOT. WYDOT will use the results to identify and apply the most promising methods of snow removal, which should improve the movement of freight on Wyoming roads.
- WYDOT has staff dedicated primarily to the management of snow fences. Properly placed snow fences can substantially improve the conditions that truck drivers experience during winter storm events.
- WYDOT is always looking for ways to increase the safety and reliability of freight movement along I-80, the busiest freight route in the State. For example, WYDOT has submitted a FASTLANE grant application to improve freight reliability on I-80 in southeast Wyoming. The project will install passing lanes in areas that are most troublesome to truckers during winter
storms and build additional truck parking areas with ITS equipment to inform, improve the safety of and add to the convenience of truck drivers.

- WYDOT applied for and received a Connected Vehicle Pilot Project grant from FHWA in 2016. The information gathered from that study should inform WYDOT how to best improve the safety needs of the trucking industry while traveling I-80 and other Wyoming corridors.
- To improve safety and reliability, WYDOT installed several variable message signs and variable speed limits on some Wyoming roads to reduce crash incidents and inform freight movers of issues before they reach the problem areas. Wind is very often a cause of truck crashes in Wyoming. The variable message signs warn light, high profile truck drivers to avoid roads when wind conditions are dangerous, and allow the closure of these roads if necessary.
- During project development, WYDOT assesses the height of railroad overpasses to determine the need and viability of allowing double-stack rail cars to pass.
- Weather was identified as the most serious issue with airport freight reliability. WYDOT Aeronautics Division studies and plans airport needs on a regular and funds the increasing of equipment and infrastructure to remedy this problem. Chapter 5 and 10 of the Statewide Freight Plan describe these issues in more detail.

**Addendum 1.2 National Multimodal Freight Network**

WYDOT worked with the states of Montana, South Dakota, Idaho and Nebraska to develop a consistent National Multimodal Freight Network (NMFN) within the region. Discussed components included highway and rail connections between the states. WYDOT submitted the following facilities, in addition to the Interim NMFN, to be included in the network:

- **US 30 from the Idaho State Line to I-80 at Granger Wyoming (98.732 miles in Wyoming):**
  
  US-30 is an important connection for freight moving from the Northwestern U.S. to the Midwest U.S. Trucks moving freight to and from the Northwest often leave I-86 at Pocatello, Idaho and drive US-30 to access I-80 in Wyoming. Approximately 47 percent of the traffic on US-30 is truck traffic. US-30 also provides access to natural gas fields and coal mining. Wyoming and Idaho DOTs have informally agreed that US-30 should be a freight corridor in their respective States.

- **US-191 from Rock Springs to Daniel Jct. (110.444 miles):**

  US-191 connects two large natural gas fields to I-80 in southeastern Wyoming. The corridor moves approximately 16 percent trucks, and numerous oil and gas production workers and their equipment.

- **US-287/WY-220 from Rawlins to Casper (117.098 miles):**

  US-287/WY-220 is a rural principal arterial providing access from I-80 to I-25 in south and central Wyoming. This additional connectivity and resiliency is very important to the trucking industry in the winter when I-80 east of Rawlins often closes due to poor weather conditions. The average annual percentage of trucks on US-287/WY-220 is 25 percent, but is estimated to be much higher during winter weather events. Casper, Wyoming, is a significant energy production hub with US-287/WY-220 providing much shorter (over 200 miles shorter than I-25) and more
convenient access for trucks wanting to travel I-80 westbound than does I-25 and other alternative routes.

- **US 20/26 & Casper Bypass from I-25 to Shoshoni (96.874 miles):**
  This route serves a large, newly developing natural gas and oilfield, making connections to intermodal facilities in Casper which is a significant energy hub in Wyoming. The corridor has 17 percent trucks with that number expected to increase as the gas and oilfield develops.

- **US-20 Shoshoni to Montana State Line (156.286 miles in Wyoming):**
  US-20 serves an important Wyoming agricultural area. Alternative truck routes from inside Wyoming to the Big Horn Basin must travel over mountain passes or a much longer route through Montana. Winter-time freight movement can be very hazardous over these mountain passes. US-20 traffic is approximately 13 percent trucks. Wyoming and Montana DOTs have been in contact with each other concerning the designation of this route as an important freight route for both states.

- **WY-59 from Douglas to Gillette (113.098 miles):**
  WY-59 serves northeast Wyoming which has historically been the largest mineral production area in the State. Nearly 40 percent of coal used in the United States is produced in this region, and oil production has significantly increased along this route. An intermodal oil transfer facility is also located on this corridor. Approximately 20 percent of the traffic on this road is truck traffic.

  This corridor is a Strahnet route serving a connection from F.E. Warren Air Force Base in southeastern Wyoming to Ellsworth Air Force Base in western South Dakota. South Dakota DOT has requested Wyoming DOT include US-18 at Mule Creek Jct. be included as a freight route. US-85 would complete this Strahnet connection. US-85 has about 11 percent truck traffic and US-18 has 19 percent truck traffic.

- **US-26 from I-25 to Nebraska State Line (46.382 miles):**
  US-26 provides access to one of Wyoming’s largest agricultural areas, petroleum transfer facilities, and the highest coal shipment rail line exiting the state. This rural principal arterial experiences around 13 percent trucks.

- **US-212 from South Dakota State Line to Montana State Line (20.44 miles):**
  This corridor serves a large bentonite mining operation in extreme northeast Wyoming. The corridor has nearly 46 percent trucks. The Montana, South Dakota, and Wyoming DOTs have informally agreed that US-212 should be a freight corridor.

- **US-85/I-180 from Colorado State Line to I-80 (8.537 miles in Wyoming):**
This corridor provides a connection from a large agricultural area in Colorado to I-80 in Wyoming. The Colorado DOT has expressed interest in this route as a freight corridor in their state. Truck traffic ranges from over 12 percent just north of the Colorado state line to 3 percent near I-80 where urban traffic dilutes the truck percentages. The city of Cheyenne is also conducting a study for a more direct route from the truck to rail connector at the Swan Ranch Business Park to US-85.

- The railroad from Colony, Wyoming East to the South Dakota State Line:
  These seven miles of additional railroad move bentonite that is mined in Wyoming eastward into South Dakota. It also provides continuity to the NMFN rail system proposed by South Dakota. The Wyoming DOT has been in contact with the South Dakota DOT and both agree that this rail line should be added to the NMFN.

The NMFN shown in Figure A.1-1 includes the critical rural freight corridors (CRFC) that WYDOT will propose for the National Highway Freight Network (NHFN). Additional details about the CRFCs and NHFN are provided in the next section, Addendum #2.

WYDOT gave the Wyoming Freight Advisory Committee the opportunity to comment on the proposed NMFN corridors. No responses were received.
Figure Addendum.1-1  WYDOT Recommended Multimodal Freight Network (Highways)
Figure Addendum.1-2  WYDOT Recommended Multimodal Freight Network (Railroads)
Addendum 2.  National Highway Freight Program

Addendum.2.1 National Highway Freight Policy Goals

In addition to the freight policy goals stated in Chapter 1 of the SFP, the following new goals are established by the FAST Act for national highway freight policy:

- Reduce the cost of freight transportation,
- Improve the year-round reliability of freight transportation,
- Improve the flexibility of States to support multi-State corridor planning and the creation of multi-State organizations to increase the ability of States to address multimodal freight connectivity.

WYDOT always seeks to reduce the cost of freight transportation costs and improve freight movement reliability within Wyoming. As described in Addendum #1, several initiatives are in place to meet the National Highway Freight Policy goals. These include involvement in multi-State organizations to improve freight reliability across State borders and within Wyoming.

WYDOT has created multiple freight studies, many focusing on reliability of freight through Wyoming. They address alternative freight movement methods, increasing the allowable weight of vehicles on Wyoming highways, streamlining port of entry visits, truck wind vulnerability studies, and other safety and reliability studies. In addition, Wyoming has seen much growth in energy extraction forcing WYDOT to extend its evaluation of freight needs to incorporate the impacts of energy products movement. This includes assessing the performance of truck/rail transfer facilities and their associated roadways.

WYDOT researches and applies innovative technologies to freight transportation, especially to reducing weather-related delays and crashes. These ITS technologies include the installation of variable message signs and variable speed limit signs as described in Addendum #1. Also, in 2016, WYDOT received a grant from the U.S. Department of Transportation to conduct a 20-month study deploying and testing Connected Vehicle Pilot Program technology. The study will use current and develop new cutting-edge technologies to improve safety, mobility and economic benefits for truck drivers along I-80. The Connected Vehicle technology promises to inform truck drivers of issues they may encounter well in advance. This should allow drivers to take alternate routes to avoid, wait out, or take actions to increase their safety when approaching a hazard. In essence, it will provide a means for truck drivers to improve the reliability and safety of their trips.

WYDOT will continue to pursue the actions stated above to meet national freight goals. WYDOT will also strive to find better and more innovative ways to accomplish this.
Addendum 2.2 National Highway Freight Network

Federal NHFN funding of State freight projects are tied to meeting the National Highway Freight Policy Goals. WYDOT expects to annually receive between $7.2 million to $9.2 million from 2017 to 2020 in NHFN apportionments for freight highway projects. WYDOT is allowed to spend up to 50 percent of NHFN monies on other project types as long as WYDOT meets freight performance targets. Projects that are funded with NHFN funds must also be included in a freight investment plan within the State’s freight plan. Addendum #4 of this document includes WYDOT’s freight investment plan.

Addendum 2.3 Components of the NHFN

The NHFN includes Primary Highway Freight Network (PHFN), Critical Rural Freight Corridors (CRFC), Critical Urban Freight Corridors (CUFC) and other NHFN routes. Each of these components are described as follows:

- The PHFN consists of 41,518 miles of highways. Wyoming has 621.04 miles of that total. They include all of I-80 (403.26 miles), all of I-90 (208.93 miles), and I-25 from the Colorado State Line to I-80 (8.84 miles). These routes were selected by FHWA based on the FAST Act Federal legislation.
- Other NFN routes include interstate highways not designated as PHFN. In Wyoming they include I-25 from I-80 to I-90 (292.43 miles) and I-180 in Cheyenne (1.47 miles). These routes were selected by FHWA based on the FAST Act Federal legislation.
- CRFC routes are selected by the State in which they exist and approved by FHWA. Wyoming is allowed to propose up to 150 miles of CRFC routes. WYDOT selected CRFC routes according to FHWA regulations and based on the volume of trucks on the routes.
- CUFC routes are selected by MPOs with population over 50,000 or by the State if no MPO over 50,000 is in the State. They must be approved by FHWA. Wyoming is allowed to propose up to 75 miles of CUFC routes. WYDOT worked with the Cheyenne and Casper MPOs to select potential CUFC routes. CUFC routes were selected based on FHWA requirements and the MPOs’ preferences.

Every three years, Freight Advisory Committees may submit additional mileage for consideration in the NHFN. These newly proposed routes must be approved by FHWA.

Wyoming’s proposed selections for CRFC and CUFC routes are shown in the following tables and figures.
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* Refer to Table A.2-2 for the FHWA “Criteria Met” descriptions

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<td>0.265</td>
<td>0.265</td>
<td>ML1133B</td>
<td>H, I, J, K</td>
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<tr>
<td>5th Street</td>
<td>100.848</td>
<td>101.146</td>
<td>0.298</td>
<td>ML13176B</td>
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<tr>
<td>Morrie Avenue</td>
<td>99.661</td>
<td>100.499</td>
<td>0.835</td>
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<tr>
<td>Venture Drive</td>
<td>105.986</td>
<td>107.074</td>
<td>1.088</td>
<td>ML13842B</td>
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<tr>
<td>Waterford</td>
<td>98.664</td>
<td>99.549</td>
<td>0.885</td>
<td>ML20553B</td>
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<tr>
<td>College Drive</td>
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<td>6.873</td>
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<td>ML212B</td>
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<tr>
<td>WY 220</td>
<td>113.360</td>
<td>117.210</td>
<td>3.851</td>
<td>ML21B</td>
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<tr>
<td>Fox Farm Road</td>
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<td>1.840</td>
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<tr>
<td>Round Top Road</td>
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<td>1.810</td>
<td>1.810</td>
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<tr>
<td>WY 253</td>
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<td>0.560</td>
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<tr>
<td>Christensen Road</td>
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<td>0.926</td>
<td>0.510</td>
<td>ML25471B</td>
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<tr>
<td>WY 254</td>
<td>1.336</td>
<td>4.060</td>
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<td>WY 258</td>
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<td>0.151</td>
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<tr>
<td>US 20-26</td>
<td>0.000</td>
<td>0.087</td>
<td>0.087</td>
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<td>US 20-26</td>
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<td>Nationway</td>
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<td>103.186</td>
<td>1.996</td>
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<td>Logan Avenue</td>
<td>100.309</td>
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<td>WY 505</td>
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<td>1.008</td>
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<td>Lincolnway</td>
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<td>3.436</td>
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<td>A-209-2</td>
<td>5.020</td>
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<td>Campstool Road</td>
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<td>5.020</td>
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<td>High Plains</td>
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<td>103.14</td>
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<td>WY 220</td>
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<td>Christensen Road</td>
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<td>0.300</td>
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<td>CR 927</td>
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<td>0.214</td>
<td>ML9586B</td>
<td>H, I, J, K</td>
</tr>
<tr>
<td><strong>Total Miles</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>72.511</td>
</tr>
</tbody>
</table>

* Refer to Table A.2-2 for the FHWA “Criteria Met” descriptions
Table Addendum.2-2  FHWA Criteria for CRFCs and CUFCs

<table>
<thead>
<tr>
<th>CRFC Criteria</th>
<th>Route/facility descriptor:</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Rural principal arterial roadway with a minimum of 25 percent of the annual average daily traffic of the road measured in passenger vehicle equivalent units from trucks</td>
</tr>
<tr>
<td>B</td>
<td>Provides access to energy exploration, development, installation, or production areas</td>
</tr>
<tr>
<td>C</td>
<td>Connects the PHFS or the Interstate System to facilities that handle more than: - 50,000 20-foot equivalent units per year; or - 500,000 tons per year of bulk commodities;</td>
</tr>
<tr>
<td>D</td>
<td>Provides access to a grain elevator, an agricultural facility, a mining facility, a forestry facility, or an intermodal facility</td>
</tr>
<tr>
<td>E</td>
<td>Connect to an international port of entry</td>
</tr>
<tr>
<td>F</td>
<td>Provides access to significant air, rail, water, or other freight facilities</td>
</tr>
<tr>
<td>G</td>
<td>Corridor that is vital to improving the efficient movement of freight of importance to the economy of the State.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CUFC Criteria</th>
<th>Route/facility descriptor:</th>
</tr>
</thead>
<tbody>
<tr>
<td>H</td>
<td>Connects an intermodal facility to the PHFS, the Interstate System, or an intermodal freight facility.</td>
</tr>
<tr>
<td>I</td>
<td>Located within a corridor of a route on the PHFS and provides an alternative highway option important to goods movement</td>
</tr>
<tr>
<td>J</td>
<td>Serves a major freight generator, logistic center, or manufacturing and warehouse industrial land</td>
</tr>
<tr>
<td>K</td>
<td>Corridor that is important to the movement of freight within the region, as determined by the MPO or the State</td>
</tr>
</tbody>
</table>

Figure Addendum.2-1  WYDOT Recommended CRFC and CUFC Routes
Figure Addendum.2-2  WYDOT Recommended CUFC Routes in the Casper MPO

Figure Addendum.2-3  WYDOT Recommended CUFC Routes in the Cheyenne MPO
Addendum.2.4  State Performance Measures and Targets

Every two years, States must submit a State Performance Report (SPR) with performance measure results to FHWA and annually submit the associated performance metrics to FHWA through the Highway Performance Monitoring System (HPMS). They must set targets for each of the performance measures and try to meet or exceed those targets. The following describes what penalties there are if any State does not make reasonable progress toward their targets:

“If FHWA determines that a State DOT has not made significant progress toward achieving the target established for the Freight Reliability measure in § 490.607, then the State DOT shall include as part of the next performance target report under 23 U.S.C. 150(e) [the Biennial Performance Report] the following:

(i) An identification of significant freight system trends, needs, and issues within the State.

(ii) A description of the freight policies and strategies that will guide the freight-related transportation investments of the State.

(iii) (An inventory of truck freight bottlenecks within the State and a description of the ways in which the State DOT is allocating funding under title 23 U.S.C. to improve those bottlenecks.

   a. The inventory of truck freight bottlenecks shall include the route and milepost location for each identified bottleneck, roadway section inventory data reported in HPMS, Average Annual Daily Traffic (AADT), Average Annual Daily Truck Traffic (AADTT), Travel time data and measure of delay, such as travel time reliability, or Average Truck Speeds, capacity feature causing the bottleneck or any other constraints applicable to trucks, such as geometric constrains, weight limits or steep grades.

   b. For those facilities that are State owned or operated, the description of the ways in which the State DOT is improving those bottlenecks shall include an identification of methods to address each bottleneck and improvement efforts planned or programmed through the State Freight Plan or MPO freight plans; the Statewide Transportation Improvement Program and Transportation Improvement Program; regional or corridor level efforts; other related planning efforts; and operational and capital activities.

(iv) A description of the actions the State DOT will undertake to achieve the target established for the Freight Reliability measure in § 490.607.

The State DOT should, within 6 months of the significant progress determination, amend its Biennial Performance Report to document the information specified in this paragraph to ensure actions are being taken to achieve targets.” (Federal Register / Vol. 82. No. 11, January 18, 2017 / Rules and Regulations)
One performance measure was created by FHWA for freight, the percentage of Interstate mileage providing for reliable truck travel times. The “metric”, called the TTTR, divides the 95th percentile travel time by the 50th percentile travel time. This is done for every road segment over five different timeframes. These “metrics” are then reported in the HPMS annually. The corresponding “measures” are calculated as the length weighted, annual maximum “metric” for each of the timeframe subsets. The measures are reported in the biennial SPR. WYDOT has not used this measure, but is in developing the measure for FHWA reporting and internal use. WYDOT has elected to use the FHWA’s TTTR measure to prioritize freight projects.

Chapter 5 of the Freight Plan discusses some freight condition and performance statistics that WYDOT also assesses freight-related projects. They include:

- Pavement condition
- Bridge condition
- Bridge height restrictions
- Highway closure duration, frequency and light high-profile vehicle closures
- Rail safety
- Highway safety including truck crashes, rollovers and weather conditions that may contribute to crashes

WYDOT set a target TTTR Index for freight on Interstate highways within Wyoming at 1.25. TTTR Index results for the years 2014, 2015 and 2016 are 1.21, 1.21, and 1.22 respectively. WYDOT will attempt maintain the TTTR Index below the 1.25 target.

**Addendum.2.5  Congestion and Pavement Deterioration Related to Freight**

Roadway deterioration caused by heavy trucks is a significant concern for WYDOT. Wyoming roads often experience rapidly increased truck traffic followed a few years later by gradual declines due to fluctuations in energy development and changing energy development locations. This makes it difficult to address the needs of these roads in such short time periods and to determine whether the peaking of truck traffic will be sustained for a period long enough to require mitigating the deterioration of pavements and congestion within effective economic limits.

WYDOT actively seeks to reduce the roadway deterioration and traffic congestion of roads traveled by heavy vehicles. The WYDOT Pavement Management System (PMS) uses life-cycle costing methods to optimize expenditures on these roads by estimating the least cost maintenance and reconstruction cycles for each road in the system. It compares the life-cycle results of all WYDOT roads to each other within limited funding parameters.
WYDOT identifies roadway pavement and traffic congestion needs on roads that are expected to experience the effects of boom and bust cycles in energy development. WYDOT has conducted studies such as the WYDOT “Highway Safety Manual (HSM) Part C Predictive Method Analysis for Passing Lanes on US 20/26 Between Shoshoni and Casper.” The study was a means to get ahead of a significant expected increase in natural gas development in the Moneta Ridge area. As a result of the study and other informal analyses of expected growth in truck traffic around Wyoming, several passing lanes were added to US 20/26 and WY 59 to mitigate safety issues in passing trucks.

WYDOT has conducted several studies on I-80, most focused on the needs and issues associated with trucking on this very busy truck route through southern Wyoming. The “Interstate 80 Freight Corridor Analysis” study (2008) assessed current and forecast freight traffic on I-80. The “Strategic Analysis for I-80” study (2006) assessed the problems and alternative methods to reduce safety, congestion and incident problems on I-80. The “Wyoming Freight Movement and Wind Vulnerability” study (2005) evaluated the effects of wind on trucks and establish the conditions that cause wind caused blowovers of trucks on Wyoming roads. The “Feasibility of a Next-Generation, Intermodal Rail-Truck Transport System for the Western I-80 Corridor” study (2006) assessed the potential and feasibility of moving freight that is transported along I-80 to rail carrier.

WYDOT is currently conducting a study on the full length of I-80 in Wyoming. The study, which was initiated by the Wyoming Legislature, will assess the issues and needs of the corridor. These issues and needs include reliability, the addition of lanes to relieve truck/automobile conflicts, and safety. The study will also include an update of the 2008 I-80/I-25 interchange improvement study. Recommended improvements in the I-80/I-25 interchange improvement study include replacing portions the cloverleaf interchange with flyovers to increase capacity and mitigate safety concerns.
Addendum 3.  State Freight Advisory Committee

Addendum.3.1  Wyoming Freight Advisory Committee

WYDOT initially created an informal Freight Advisory Committee soon after the kickoff of the Freight Plan development. An open-house style workshop was held January 9th, 2014 at WYDOT. Perspective Freight Advisory Committee members were invited and included representatives from WYDOT Planning, Wyoming Business Council, Wyoming Trucking Association, FHWA, Casper MPO, and the Casper Airport. Later in the plan’s development process representatives from the Cheyenne MPO, the Wyoming Association of Municipalities, the Eastern Shoshone and Arapaho Tribal Transportation council, a Class II railroad, and the Wyoming County Commissioners Association agreed to become formal members of the committee. WYDOT also invited representatives from the Wyoming Pipeline Authority, but received no respond.

The Wyoming Freight Advisory Committee worked to identify, discuss and recommend potential freight projects, freight-related issues, and freight policy. Appendix D of the Freight Plan documents the by-laws of the Freight Advisory Committee.

Freight committee members were invited to participate in the workshop described above; monthly conference calls from January 2014 through February 2015; a public meeting held in Casper on July 7, 2014; a plan development meeting in October 9, 2014; and to respond to the Multimodal Freight Network proposed by WYDOT. Meeting topics are shown in Appendices D and F of the Freight Plan. Additional meeting minutes, information, and correspondence is shown in Appendix A.1 of this addenda.
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### Addendum 4. State Freight Investment Plan

#### Addendum 4.1 Proposed Freight Investment Plan

WYDOT plans to invest over $108 million on Wyoming highway freight needs from 2017 through 2023. Of that amount, just under $33 million is expected to come from the National Highway Freight Program (NHFP) funds. Figure 4-1 shows the proposed distribution of those funds over the six-year period.

#### Figure Addendum 4-1 Financial Summary for WYDOT Highway Freight Projects

<table>
<thead>
<tr>
<th>Year</th>
<th>Remaining Total Project Costs</th>
<th>Remaining Eligible Freight Costs</th>
<th>Proposed NHFP Expenditures</th>
<th>NHFP Revenue</th>
<th>Available NHFP Funds (carryover)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>$10,707,651</td>
<td>$7,326,792</td>
<td>$10,707,651</td>
<td>$7,326,792</td>
<td>$(3,380,859)</td>
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<tr>
<td>2017</td>
<td>$16,119,440</td>
<td>$14,221,234</td>
<td>$5,195,246</td>
<td>$6,963,012</td>
<td>$(1,613,093)</td>
</tr>
<tr>
<td>2018</td>
<td>$26,541,499</td>
<td>$20,230,105</td>
<td>$4,131,530</td>
<td>$7,645,347</td>
<td>$1,900,724</td>
</tr>
<tr>
<td>2019</td>
<td>$466,752</td>
<td>$466,752</td>
<td>$ -</td>
<td>$8,601,016</td>
<td>$10,501,740</td>
</tr>
<tr>
<td>2020</td>
<td>$32,757,825</td>
<td>$32,757,825</td>
<td>$11,651,749</td>
<td>$9,556,685</td>
<td>$8,406,676</td>
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<tr>
<td>2021</td>
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<td>$23,465,350</td>
<td>$ -</td>
<td>$ -</td>
<td>$8,406,676</td>
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<tr>
<td>2022</td>
<td>$1,652,210</td>
<td>$1,652,210</td>
<td>$1,532,590</td>
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<td>$6,874,086</td>
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<tr>
<td>2023</td>
<td>$7,303,285</td>
<td>$7,084,186</td>
<td>$6,571,291</td>
<td>$ -</td>
<td>$302,795</td>
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</table>

WYDOT’s 6-year forecast total for all STIP projects is approximately $1.62 billion. Proposed freight-related expenditures on NHFN facilities make up 6.6% of that total and NHFP funds about 2% of the total 6-year STIP.
Addendum.4.2  Freight Project Prioritization and Funding

WYDOT selected 18 projects for freight prioritization. Each project may partially or entirely improve freight-related needs in Wyoming. Figure A.4-2 shows the proposed funding sources, funding amounts, total project costs, eligible freight costs for each project, construction year, and priority. All of the projects in Figure A.4-2 are currently included in the WYDOT STIP. WYDOT will submit additional freight projects in the future as they are identified for freight needs.

The listed projects were prioritized using the length-weighted average Travel Time Reliability Index (TTTR). The TTTR Index, developed by FHWA, is the 95th percentile travel time divided by the 50th percentile travel time for trucks on a specified road segment, for the worst performing time period (AM peak, PM peak, midday, overnight, or weekend). The worst performing projects based on the TTTR (those with the greatest variation in travel times) were given the highest priority. Although a listed project may have a high prioritization for freight needs, other considerations must be included when establishing the overall priority of the project within the department.

Chapter 10 of the Freight Plan shows several illustrative projects that are not currently funded. Some of these projects may be added to the prioritized list of freight projects in Figure A.4-2 if funding becomes available.
## WYDOT Freight Investment Projects

<table>
<thead>
<tr>
<th>Priority</th>
<th>Average TTR</th>
<th>Year</th>
<th>Project</th>
<th>Description</th>
<th>Reason</th>
<th>Total Project Cost</th>
<th>Eligible Freight Cost</th>
<th>Proposed Funding</th>
<th>Proposed NHFP Funding</th>
</tr>
</thead>
</table>
| 1        | 5.499       | 2021 | N212121 | CASP STS/POPLAR-1ST ST INT | INT RECONST/BRIDGE WIDENING | $14,250,597 | $14,250,597 | Federal - NH - $13,917,072  
State - SM - $1,462,608 | $0 |
| 2        | 5.015       | 2020 | N341112 | CASP-SHOS/NATRONA EAST | MILL/OVERLAY/PASSING Lanes | $5,803,155 | $5,803,155 | State - SCP - $302,534  
State - SCPTC - $5,500,621  
Federal - NH - $214,852  
State - SM - $22,580 | $0 |
| 3        | 4.157       | 2018 | I254151 | CASP-KAYC/DISTRICT BOUND SOUTH | DMS, RWIS, CAMERA | $1,650,395 | $1,650,395 | Federal - NH - $765,453  
State - SM - $115,970  
Federal - NH - $766,972 | $765,453 |
| 4        | 3.877       | 2018 | B184036 | DIST 4/VAR LOC/VSL-RWIS | VSL/RWIS | $2,192,000 | $2,192,000 | Federal - NH - $2,126,059  
State - SM - $165,941 | $0 |
State - SM - $809,718  
Federal - NH - $8,680,838 | $2,372,639 |
State - SM - $439,544 | $0 |
| 7        | 2.53        | 2022 | I255112 | KAYC-BUFF/KAY NORTH | DMS, RD CLSR GTE, RWIS, CAMERA | $1,652,210 | $1,652,210 | Federal - NH - $1,532,590  
State - SM - $82,555  
Federal - NH - $37,065 | $1,532,590 |
| 8        | 1.815       | 2021 | 0255095 | CASP-KAYC/TTT SEC NBL | MILL/LEVEL/OVERLAY/STR REHAB | $9,214,752 | $9,214,752 | Federal - NH - $9,240,653  
State - SM - $791,143  
State - PRE - $30,000  
Federal - IM - $895,598 | $0 |
| 9        | 1.628       | 2017 | B174019 | DIST 4/VAR LOC/I-90/VSL/RWIS | VSL/RWIS | $1,055,246 | $952,800 | Federal - NH - $905,111  
State - SM - $134,983  
Federal - STPA - $15,152 | $905,111 |
| 10       | 1.41        | 2017 | I253115 | DMS (3), CAMERAS, RWIS | DMS (3), CAMERAS, RWIS | $1,287,545 | $773,807 | Federal - NH - $1,030,036  
State - SM - $83,227  
Federal - NH - $174,282 | $1,030,036 |
### Figure Addendum.4-2  WYDOT Freight Investment Projects (continued)

<table>
<thead>
<tr>
<th>Priority</th>
<th>Average TTTR</th>
<th>Year</th>
<th>Project</th>
<th>Description</th>
<th>Reason</th>
<th>Project Cost</th>
<th>Eligible Freight Cost</th>
<th>Proposed Funding</th>
<th>Proposed NHFP Funding</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>1.296</td>
<td>2019</td>
<td>I254157</td>
<td>CASP MARG/VAR SPEED SIGNS</td>
<td>VARIABLE SPEED LIMIT SIGNS</td>
<td>$466,752</td>
<td>$466,752</td>
<td>Federal - HSIP - $436,670</td>
<td>State - SM - $34,082</td>
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<tr>
<td>12</td>
<td>1.261</td>
<td>2017</td>
<td>I801185</td>
<td>UTAH-EVAN</td>
<td>VSL &amp; DMS</td>
<td>$1,913,454</td>
<td>$1,707,191</td>
<td>Federal - NHF - $887,460</td>
<td>State - SM - $134,091</td>
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<tr>
<td>14</td>
<td>1.205</td>
<td>2023</td>
<td>I805171</td>
<td>LARA/CURTIS ST INTG/I-80</td>
<td>BRIDGE REPLACEMENT</td>
<td>$7,303,285</td>
<td>$7,084,186</td>
<td>Federal - NHF - $6,571,291</td>
<td>State - SM - $335,728</td>
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<tr>
<td>16</td>
<td>1.149</td>
<td>2018</td>
<td>I252158</td>
<td>DWYR-GLEN/CASSA INTG SEC/SBL</td>
<td>WIDEN &amp; OVERLAY W/ ISO-RECONST</td>
<td>$6,387,033</td>
<td>$6,387,033</td>
<td>Federal - NH - $6,184,335</td>
<td>State - SM - $574,840</td>
</tr>
</tbody>
</table>

Figure Addendum.4-3  Location of WYDOT Freight Investment Projects
Appendices to
The WYDOT Freight Plan Addenda

September, 2017
### Appendix A. Freight Advisory Committee Documents

**A.1 Rail Topics Covered in Workshop (1/9/2014)**

<table>
<thead>
<tr>
<th>Current Plan Format</th>
<th>Final FRA Guidance</th>
</tr>
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<tbody>
<tr>
<td>1. The Role of Rail in WY</td>
<td>1. The Role of Rail in Wyoming’s Statewide Transportation System</td>
</tr>
<tr>
<td>2. WY’s Existing Rail System</td>
<td>2. Wyoming’s Existing Rail System</td>
</tr>
<tr>
<td>5. Proposed Passenger Rail Improvements &amp; Investments</td>
<td>5. The State’s Rail Service and Investment Program</td>
</tr>
<tr>
<td>6. Proposed Freight Rail Improvements &amp; Investments</td>
<td>6. Coordination and Review</td>
</tr>
<tr>
<td>7. WY’s Long Range Service &amp; Capital Investment Plan</td>
<td></td>
</tr>
<tr>
<td>8. Coordination &amp; Review</td>
<td></td>
</tr>
</tbody>
</table>
A.2 FAC Meeting Agenda (10/9/2014)

Advisory Committee Meeting
Thursday, October 9, 2014
WYDOT, 5300 Bishop Blvd., Cheyenne, Wyoming

1. Opening address—
   a. Why we are here, why freight is important to Wyoming

2. MAP 21 and the freight advisory committee component

3. Update of where we are in the process

4. What the freight advisory committee is to do—role today and future role

5. Overview of the different modes
   a. Multi modal freight operations and interconnectivity across the modes
   b. What we have found out so far about the different modes

6. Round table discussion—
   a. Key issues from their perspective
   b. What do they want to see in the freight plan?
   c. What infrastructure projects should we be looking at?
   d. What needs to be done to make freight activity in Wyoming more efficient?

7. Summary

Thank you for attending!
A.3  FAC Meeting Attendance and Action Items  
(10/9/2014)

Advisory Committee Meeting  
Thursday, October 9, 2014  
WYDOT, 5300 Bishop Blvd., Cheyenne, Wyoming

Attendee list:

<table>
<thead>
<tr>
<th>NAME</th>
<th>ORGANIZATION</th>
<th>EMAIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laycee Kolkman</td>
<td>HDR</td>
<td><a href="mailto:Laycee.kolkman@hdrinc.com">Laycee.kolkman@hdrinc.com</a></td>
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<tr>
<td>Mike Hutton</td>
<td>ABF Freight</td>
<td><a href="mailto:ABFHutton@bresnan.net">ABFHutton@bresnan.net</a></td>
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<tr>
<td>Dan Kline</td>
<td>WYDOT</td>
<td><a href="mailto:Dan.Kline@wyo.gov">Dan.Kline@wyo.gov</a></td>
</tr>
<tr>
<td>Jeff Purdy</td>
<td>FHWA</td>
<td>Jeffery.Purdy@f dot.gov</td>
</tr>
<tr>
<td>Mark Wingate</td>
<td>WYDOT</td>
<td><a href="mailto:Mark.Wingate@wyo.gov">Mark.Wingate@wyo.gov</a></td>
</tr>
<tr>
<td>Tom Mason</td>
<td>Cheyenne MPO</td>
<td>Tmason@cheyenne mpo.org</td>
</tr>
<tr>
<td>Glenn Januska</td>
<td>Casper/ Natrona County</td>
<td><a href="mailto:gianuska@ffycasper.com">gianuska@ffycasper.com</a></td>
</tr>
<tr>
<td>Ed Fritz</td>
<td>WYDOT</td>
<td><a href="mailto:Ed.Fritz@wyo.gov">Ed.Fritz@wyo.gov</a></td>
</tr>
<tr>
<td>John Smith</td>
<td>Transportation Director</td>
<td><a href="mailto:Johnsmith@wyoming.com">Johnsmith@wyoming.com</a></td>
</tr>
</tbody>
</table>

Action Items:

- HDR to forward the slide show presentation to meeting attendees for review.
- HDR to update the project website to contain project goals and performance measures.
- HDR to issue press release and run newspaper ads stating that the survey is operational and encouraging participation in the survey from the Advisory Committee and general public.
- Tom Mason to provide HDR with contact information for Lowe's and Wal-mart Distribution Centers.
- Glenn Januska to provide HDR with contact information for Conway Distribution Center.
- HDR to obtain and review Statewide Energy Plan.
A.4  Freight Conference Call Agenda (1/28/2014)

Wyoming Statewide Freight Plan

Meeting Date: January Monthly Progress Meeting
Agenda: (Action items are in red)

PI Update:
- Will be starting up soon
- Website name: http://www.wyomingstatewidefreightplan.com/
- HDR will get website up and running over the next two months

Draft Outline
- Will include five chapters:
  - Chpt 1 – Overview and Goals
  - Chpt 2 – Existing freight network
  - Chpt 3 – Trends and Future Projects
  - Chpt 4 – Future Investments
  - Chpt 5 – Findings and Recommendations

Other Updates:
- Reschedule December 24th monthly update meeting to January 9th
  - This will be a workshop for WyDOT, and will go from 10:00 am to 1:00 pm
- Road closure information will be done by road segment, not by gate
- Laycee will contact WyDOT concerning format of road closure information
- 5 years of crash data will be used for the report
- Laycee will contact WyDOT concerning freight and rail crash data
- Data collection from major industrial areas in Wyoming completed
- Laycee will send an email to WyDOT for them to review industrial locations
- Laycee will draft an email to WyDOT for Tribal input on goals and performance measures
- WyDOT will follow up with tribes on the performance measures
A.5  Freight Conference Call Agenda (4/22/2014)

Wyoming Statewide Freight Plan

Monthly Progress Meeting
Meeting Date: April 22, 2014
Agenda: (Action items are in red)

Forecasting Methodology
- We were able to get additional documentation on available freight information for the freight forecasting methodology
  - Origin and destination data
  - Tricky issue with thru traffic
  - Corridor studies and reports created for WyDOT provide good understanding and estimate of thru trips on roadways
  - Forecasting methodology done based on corridor studies and reports created for WyDOT
- Will use forecasting methodology from rail plan
- Will use FAF data available to us now to base forecasting assumptions
- Census information will be used to adjust the assumptions from the FAF
- Marissa and Laycee will get updated economic forecasts for Wyoming
- Will perform freight analysis for state as a whole, and will use county data where available.
- Ed’s North Dakota visit,
  - North Dakota treated oil fields like TAZs, determined how many trucks service each well (approximately 2400 truck trips to start well production, may be higher for frac wells).
  - Well output will vary (high in beginning, then will taper off), this will vary truck trips
  - OD setup was used to determine how many trucks will be coming in and out of the Balken field
  - Ed will send out a copy of the presentation from North Dakota
- Will incorporate changes in LRTP into freight study
- Marissa and Laycee working on methodology and assumptions outline

General Schedule moving forward
- Public meeting set up for June or July this year
- Website framework is setup
- Will link rail plan and freight plan on both website, so it will be at least another year before the rail plan website will be taken down

Wyoming Statewide Rail Plan:
A.6 Freight Conference Call Agenda (6/24/2014)

**Agenda**

<table>
<thead>
<tr>
<th>Project:</th>
<th>Wyoming State Freight Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject:</td>
<td>Investment Planning and Project Prioritization</td>
</tr>
<tr>
<td>Date:</td>
<td>Sunday, June 22, 2014</td>
</tr>
<tr>
<td>Location:</td>
<td>Conference Call</td>
</tr>
<tr>
<td>Attendees:</td>
<td>Attendees Column 1</td>
</tr>
<tr>
<td></td>
<td>Attendees Column 2 (Tab to add more rows)</td>
</tr>
</tbody>
</table>

**Start content here**

1. **How do we identify what the Short Term Investments should be?**
   - Where/what are the headaches and issues requiring short term solutions
     - Specific locations
     - Mode specific? E.g. truck parking
     - Issues affecting freight transport and connectivity
     - Issues caused by freight activity e.g. safety, bridge strikes
   - Who benefits and how quickly?
   - Define short term?
     - Project delivered and implemented in 3 years?
   - Is a short term investment by its nature, low cost?

2. **Long Term Investments**
   - What should be the focus here?
     - Accommodating growth and expanding capacity?
     - Reducing future risk to supply chains and critical industries?
       - Maintaining access to markets for those industries
     - Investment solutions for known and critical infrastructure related freight bottlenecks?
     - Doesn’t have to be infrastructure related.
       - Improving truck safety and regulatory compliance may see investment in Ports of Entry Operations e.g. staffing, facilities, systems
   - Integrating with other elements of the longer term transportation planning process across all modes.
     - How are airports that support air cargo considered in airport investment planning?

3. **Project Prioritization**
   - How should we prioritize projects? What are the assessment factors?
     - A definable problem needs to be solved
       - Assessing the scale/scope of the issue
- Project Cost
  - Implies we need to have scoped a project to determine high level costs
- Implementation timescales
- Complexity
- Do projects have political support?
- Consider only those aspects within the remit of WYDOT?
  - Class 1 rail road infrastructure out of scope?
- Weighing the importance of national (through traffic) v inter state (O or D within Wyoming) v intra state (stays within WY)
- Are certain freight dependent sectors/industries more important than others?
  - Strategic/national interest
  - State interest
  - Local interest
- Improving the sustainability of freight transportation

- Funding
  - If there is no funding pot for freight projects, how do freight projects get prioritized with non freight projects?
  - Available funding
  - Identifying other funding sources
    - Getting ready for future TIGER grants application
  - Making the case (national importance of through traffic but no direct benefit to WYDOT)
- Input and Feedback from State Freight Advisory Committee
A.7 Freight Conference Call Agenda (8/26/2014)

Project: Wyoming State Freight Plan

Subject: Investment Planning and Project Prioritization

Date: Monday, August 18, 2014

Location: Conference Call

Attendees: Attendees Column 1 Attendees Column 2 (Tab to add more rows)

This is the agenda for next Tuesday's conference call to help direct the conversation through short and long term investments and project prioritization.

Scope clarification Questions:

Question 1:

- Question: The scope mentions establishing performance measures regarding the freight system per established guidelines issued by the FHWA and in conformance with Wyoming DOT freight goals, and that HDR will document the current performance of the State’s Freight network (at least for those facilities where there is existing data) including conditions, issues, and performance indicators.
- Discussion: Some states have a “scoring” system (i.e. performance measures in MAP-21 terminology) for their transportation infrastructure state of repair (A for excellent condition, F for failing/unsafe condition, and so on). These are usually based on a number of different criteria such as inspection ratings (i.e. bridges), age, LOS, etc. If Wyoming does not have such a system (for truck and/or rail), then perhaps we should just state it as such.

Question 2:

- Question: Scope item 2.3 Freight industry trends in the state
- Discussion: Do we want to try and capture here the shift from coal to NG?

Question 3:

- In the next 4 weeks we will need to tackle 3.1 and 3.2 revenue for freight improvements and freight related organizations infrastructure owners and planning activities…
- Discussion: when can we start the freight advisory committee meetings and how would the DOT like to hold those (in person, conference call, DOT lead with HDR input)?

Review of Questionnaire Questions:

Will send to Ed in advance by 8/14 for review prior to meeting.

Discussion of Truck Tech Memo:

Trucking Issues:
• Driver shortage, hours of service regulations
• Truck Parking
• Fuel Cost
• Congestion
• Truck Size and Weight
• Highway Funding

Solutions:

• Parking
  o Sponsor P3 for truck parking facilities
• Oversized/ Overweight Routs
  o Identify routes for superloads
• Funding
  o Identify MAP-21 compliant freight routes (eligible for 95% funding share)
• Fuel Cost
  o Support of natural gas fuel distribution network for commercial vehicles
  o Do we want to show a graphic listing all alternative fuel locations in the state and display evaluate gaps?

Define Key Truck Corridors

• What AADT do we want to use as a threshold?
• Are there multimodal facilities in Wyoming? If so where can we obtain their information?

Corridor Plans:

• I-80 (Evanston to Cheyenne)
• US 89 (Geneva to Hoback Junction)
• US 30 (border to junction with I-80)
• US 191-US 189 (Rock Springs to Jackson)
• US 287-US 26 (Rawlins to Jackson)
• US 20 - US 14 – US 16 (Yellowstone to I-90)
• Wyo 120 – US 14A (Thermopolis to US 310)
• US 20 – WYO 789 (Shoshoni to Lovell )
• US 16 – (Worland to Buffalo)
• US 20 – US 26 – WYO 789 (Wind River to Casper)
• WYO 220 (Muddy Gap to Casper)
• I-25 (Cheyenne to Buffalo)
• I-90 (Sheridan to Sundance)
• Wyo 59 (Douglas to Gilette)
• US 85 (Cheyenne to Newcastle)
• I-25 (Exit 92 to Torrington)
A planned improvement to the Wyoming transportation system that sustains goods movement and supports the state’s economic competitiveness. The project may provide improved operations, expansion, or new capacity. It is distinguished from other transportation projects because it provides improved service or capacity to one of the freight modes (highway, rail, or air) on a transportation facility that significantly supports the local, regional, state or national economy.

Given this definition:

- What projects do we want to list in the freight study?
  - Sources:
    - Public outreach
    - MPO’s?
    - Statewide Freight Plan – except no particular projects were developed.
  - Projects should be of statewide significance – meaning that they enhance multistate freight flows or facilitate goods movement to a major freight activity center.

4. How do we identify what the Short Term Investments should be?
- Where/what are the headaches and issues requiring short term solutions
  - Specific locations
  - Mode specific? E.g. truck parking
  - Issues affecting freight transport and connectivity
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  - Making the case (national importance of through traffic but no direct benefit to WYDOT)
- Input and Feedback from State Freight Advisory Committee

Possible actions
- Passing lanes on US 20/26 between Shoshoni and Casper (RM 1.28-99.4)
  - 2012 cost ($2.5M) 2016 ($12.4M) 2032 ($20.0M) 22 passing lanes at a cost of 500K each. Source Ed – report from Jeff Brown.
- I-80 (Evanston to Cheyenne)
- US 89 (Geneva to Hoback Junction)
- US 30 (border to junction with I-80)
- US 191-US 189 (Rock Springs to Jackson)
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A.8 FAC Invitation Letters

September 18, 2014

Mayor Edward Delgado
Town of Guernsey
via e-mail: mayor@townofguernsey.wy.gov

Subject: Wyoming State Freight Advisory Committee Invitation

Dear Mayor Delgado:

WYDOT is seeking to establish a Freight Advisory Committee to assist in the development of the State Freight Plan and to provide input and support to freight decision-making within the state. If you are not already a member, we would like to invite you to become a member of the Wyoming Freight Advisory Committee. The Committee will act as a forum for identifying and discussing issues that affect freight mobility to, from, and within Wyoming. The Committee will assist WYDOT in identifying and prioritizing investments in strategic freight transportation projects.

Committee membership will be made up of both private and public sector representatives. Organizations representing the freight industry from across the different freight modes will be invited to attend, including air, pipeline, rail, and roads.

Our next meeting will be held:

Thursday, October 9, 2014
10:00 a.m. to 1:00 p.m.
Location will be determined once attendance has been verified
Cheyenne, Wyoming

If you would like to attend the meeting please RSVP to Ed Fritz at (307) 777-3818 or ed.fritz@wyo.gov to receive additional updated meeting materials and agenda.

WYDOT greatly appreciates your input and contribution to the Wyoming Freight Advisory Committee. If you would like further information regarding the Freight Advisory Committee or have any questions, please contact Ed Fritz at (307) 777-3818 or ed.fritz@wyo.gov. You may also view our Freight Plan Web site at http://www.wyomingstatewidefreightplan.com/

Sincerely,

Ed Fritz
September 18, 2014

Mike Hutton
Wyoming Trucking Association
via e-mail

Subject: Wyoming State Freight Advisory Committee Invitation

Dear Mr. Hutton:

WYDOT is seeking to establish a Freight Advisory Committee to assist in the development of the State Freight Plan and to provide input and support to freight decision-making within the State. If you are not already a member, we would like to invite you to become a member of the Wyoming Freight Advisory Committee. The Committee will act as a forum for identifying and discussing issues that affect freight mobility to, from, and within Wyoming. The Committee will assist WYDOT in identifying and prioritizing investments in strategic freight transportation projects.

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Sincerely,

Ed Fritz
September 18, 2014

Glenn Januska
President, Wyoming Airport Operators Association
Manager, Casper Airport
via e-mail: gianucksajiffy@casper.com

Subject: Wyoming State Freight Advisory Committee Invitation

Dear Mr. Januska:

WYDOT is seeking to establish a Freight Advisory Committee to assist in the development of the State Freight Plan and to provide input and support to freight decision-making within the state. If you are not already a member, we would like to invite you to become a member of the Wyoming Freight Advisory Committee. The Committee will act as a forum for identifying and discussing issues that affect freight mobility to, from, and within Wyoming. The Committee will assist WYDOT in identifying and prioritizing investments in strategic freight transportation projects.

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Sincerely,

Ed Fritz
September 18, 2014

Brian Jeffries
Executive Director
Wyoming Pipeline Authority
via e-mail: brian@wyopipeline.com

Subject: Wyoming State Freight Advisory Committee Invitation

Dear Mr. Jeffries:

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Sincerely,

Ed Fritz
September 18, 2014

Brandon Marshall
Wyoming Business Council
via e-mail

Subject: Wyoming State Freight Advisory Committee Invitation

Dear Mr. Marshall:

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Sincerely,

Ed Fritz
September 18, 2014

Thomas Mason
Cheyenne MPO
via e-mail

Subject: Wyoming State Freight Advisory Committee Invitation

Dear Mr. Mason:

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Sincerely,

Ed Fritz
September 18, 2014

Andrew Nelson
Casper MPO
via e-mail

Subject: Wyoming State Freight Advisory Committee Invitation

Dear Mr. Nelson:

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Sincerely,

Ed Fritz
September 18, 2014

Jeff Purdy
FHWA
via e-mail: jeffrey.purdy@dot.gov

Subject: Wyoming State Freight Advisory Committee Invitation

Dear Mr. Purdy:

WYDOT is seeking to establish a Freight Advisory Committee to assist in the development of the State Freight Plan and to provide input and support to freight decision-making within the state. If you are not already a member, we would like to invite you to become a member of the Wyoming Freight Advisory Committee. The Committee will act as a forum for identifying and discussing issues that affect freight mobility to, from, and within Wyoming. The Committee will assist WYDOT in identifying and prioritizing investments in strategic freight transportation projects.

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Sincerely,

Ed Fritz
Request for WYDOT Freight Advisory Committee Member

Ed Fritz <ed.fritz@wyo.gov> 5/27/14

To: salmonton, greenman, Dan, Mark

Dear Mr. Simonson:

The Wyoming Department of Transportation (WYDOT) is in the process of developing a statewide freight assessment plan. As part of that process, WYDOT is creating a Freight Advisory Committee to guide the development of the plan and continue in an advisory role after the plan's completion. Committee members will be asked to act as a liaison for their respective organizations and to point out freight-related needs and issues within the State of Wyoming. Once the statewide freight plan is complete, we are anticipating holding annual committee meetings.

We ask that you recommend a person with a vested interest in, or experience with, freight-related needs and issues to serve on the WYDOT Freight Advisory Committee. We would like to have the committee members selected and in place by the end of June, 2014. These members will supplement and/or replace the current freight plan steering committee.

In addition, we will be happy to attend your Outdoor WDMM meeting if you would like us to further explain any of these details. If you have any questions, feel free to contact me at (307) 777-3018 or reply to this email.

Sincerely,

Ed Fritz <ed.fritz@wyo.gov> 5/27/14

To: pobemueller, kiltie, Dan, Mark

Dear Mr. Obemueuler:

The Wyoming Department of Transportation (WYDOT) is in the process of developing a statewide freight assessment plan. As part of that process, WYDOT is creating a Freight Advisory Committee to guide the development of the plan and continue in an advisory role after the plan's completion. Committee members will be asked to act as a liaison for their respective organizations and to point out freight-related needs and issues within the State of Wyoming. Once the statewide freight plan is complete, we are anticipating holding annual committee meetings.

We ask that you recommend a person with a vested interest in, or experience with, freight-related needs and issues to serve on the WYDOT Freight Advisory Committee. We would like to have the committee members selected and in place by the end of June, 2014. These members will supplement and/or replace the current freight plan steering committee.

If you have any questions, feel free to contact me at (307) 777-3018 or reply to this email.

Sincerely,

Ed Fritz

Wyoming Traffic Safety
Planning & Research Division

Ed Fritz <ed.fritz@wyo.gov> 7/22/14

To: salmonton, pobemueller, greenman, kiltie, Dan, Mark

Good Morning Ms. Simonson and Mr. Obemueuler,

I just wanted to touch base to see if you had interest in appointing a representative to the Wyoming Freight Advisory Committee. WYDOT would like to form the committee with a broad spectrum of stakeholders who have freight-related needs and issues within the State and developing processes to mitigate freight issues.

Please let me know if you are interested in being part of the Freight Committee. We would like to have this committee formed and in operation soon.

Sincerely,

Ed Fritz
Planning Division
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