New Mexico State Rail Plan

New Mexico Department of Transportation

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prepared for

New Mexico Department of Transportation

prepared by

Cambridge Systematics, Inc.
10415 Morado Circle, Building II, Suite 340
Austin, TX 78759

with

Bohannan Huston, Inc.
Karpoff & Associates

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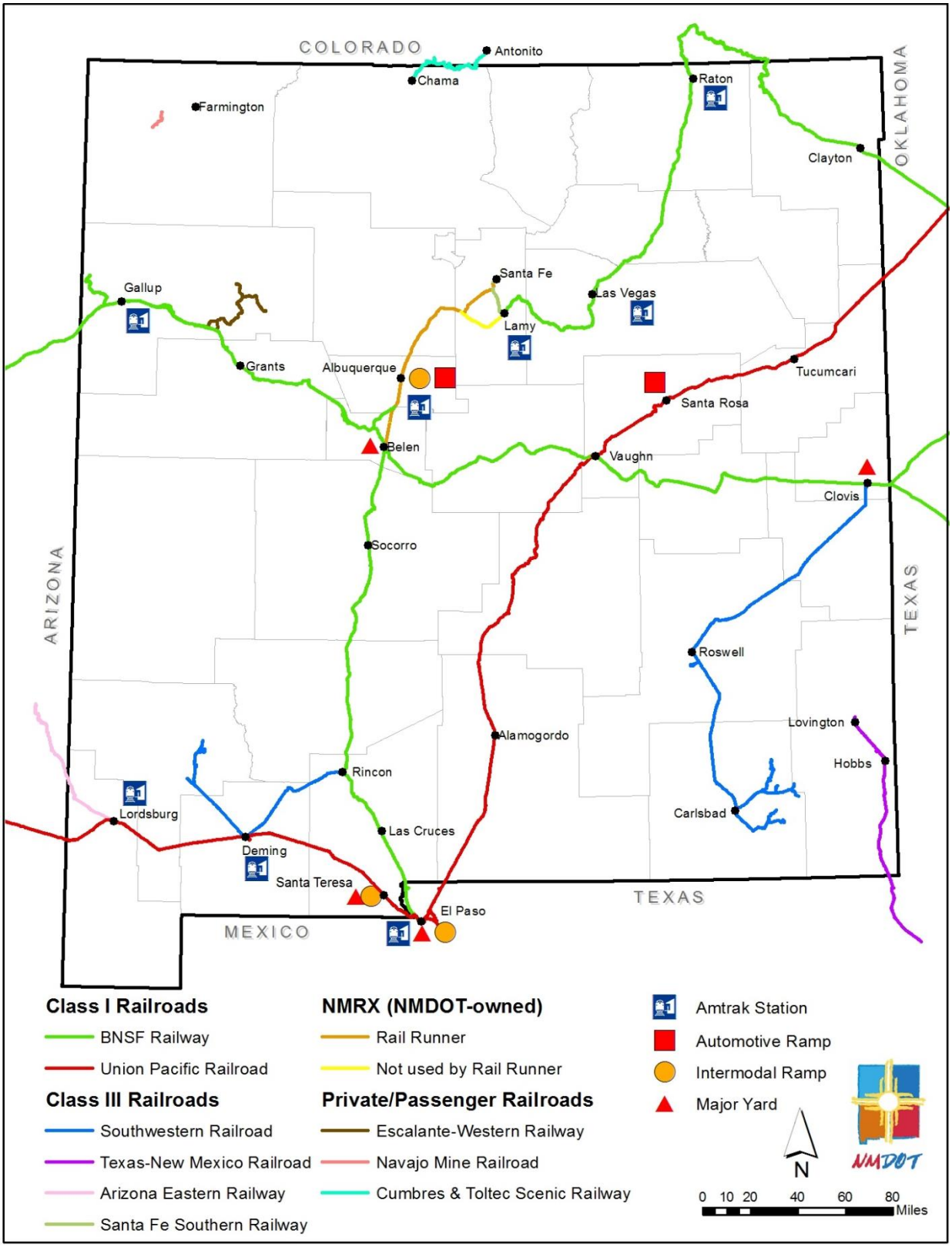
Executive Summary

Railroads have contributed to the development of New Mexico's economy since the first rail line was extended into New Mexico, then a territory, in 1879. Today, the two largest freight railroads in the United States, the BNSF Railway (BNSF) and the Union Pacific (UP), operate in New Mexico, as well as five shortline railroads, two long-distance Amtrak routes, a commuter railroad (New Mexico Rail Runner Express), and the narrow gauge Cumbres and Toltec Scenic Railroad (Figure ES.1). Collectively, this system is critical for the movement of goods on the national rail system, serves the needs of local businesses and industries, and provides a passenger rail alternative as part of New Mexico's multimodal transportation system.

From a freight rail perspective, New Mexico's position as a crossroads within the national freight rail network presents both opportunities and challenges for the State. On one hand, these rail lines generate significant revenues for the railroads, which means that the lines will attract capital spending for maintenance and expansion. On the other hand, the trains themselves are moving fast and bound for long-distance markets. This means that rail shippers in New Mexico will have to struggle harder to attract industrial development or initiate new or expanded local service within the State. On the passenger rail side, the amount of money invested in NMRX constituted a huge investment for the State that must still pay off its debt service. Priority has shifted from providing new and expanded passenger rail services and facilities to maintaining the existing state-owned infrastructure in a state of good repair.

The State of New Mexico's vision for its rail network is a fully integrated and safe multimodal passenger rail system that provides efficient passenger services to, from, and within the State; provides a competitive option for New Mexico shippers; is a vital component of the national transportation network; and supports sustainable, inclusive economic development statewide. Helping the New Mexico Department of Transportation (NMDOT) realize this vision, this State Rail Plan defines goals and objectives for rail in New Mexico, articulates the existing and future role of freight and passenger rail within the State, identifies potential rail improvement projects, and prioritizes future investments as part of a long-range service and investment program. The Plan satisfies the requirements of the Passenger Rail Investment and Improvement Act of 2008 (PRIIA) necessary to make the State eligible for intercity passenger rail Federal funding.

Figure ES.1 New Mexico State Rail System in 2014

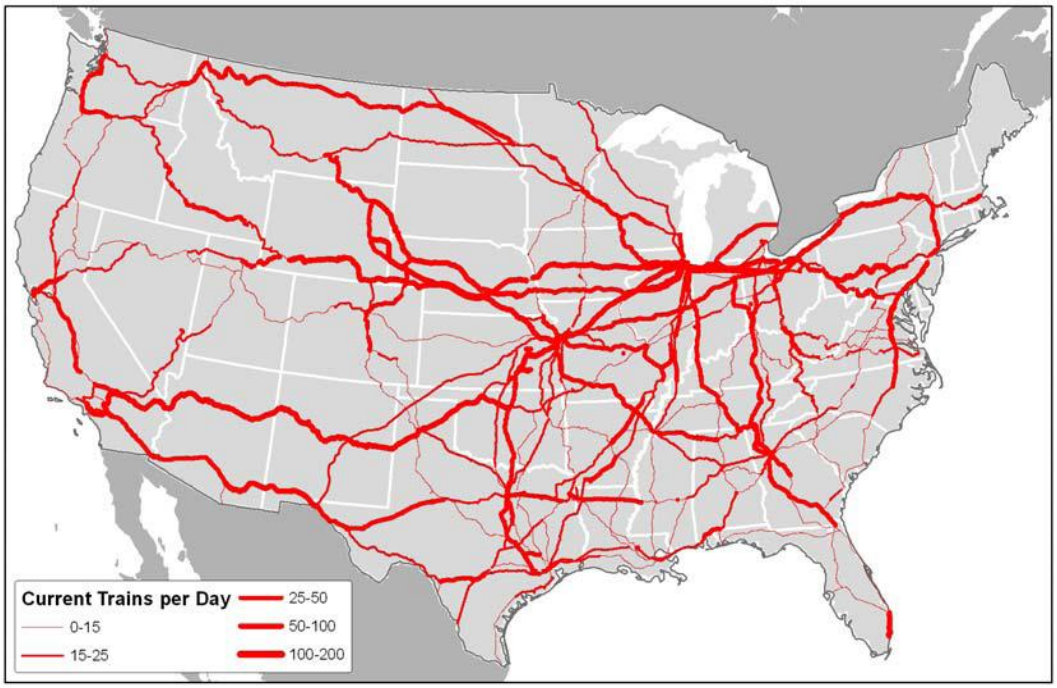


KEY FINDINGS

The New Mexico Rail System Includes Freight and Passenger Lines of National, Statewide, and Regional Significance

The New Mexico rail system includes 2,055 miles of railroad right-of-way, including two major transcontinental rail corridors critical for the movement of goods on the national freight network (Figure ES.2). More than 127 million tons valued at $8.5 billion were hauled on the New Mexico rail system in 2009.[1] Through traffic – trains passing through New Mexico bound for long-distance markets – represents 88 percent of all rail traffic by weight and 95 percent of all rail traffic by value on New Mexico's rail network.[2] The types and quantities of through rail freight traffic are indicative of national and even global economic activity, with New Mexico benefitting from jobs created to maintain the rail lines and to crew and service the trains.

Figure ES.2 Current Corridor Volumes by Primary Rail Freight Corridors, *2005 Freight Train Volumes*



Source: Cambridge Systematics, Inc., from National Rail Freight Infrastructure and Capacity Study, Association of American Railroads, 2007

[1] 2009 Surface Transportation Board (STB) Carload Waybill Sample Data.

[2] Ibid.

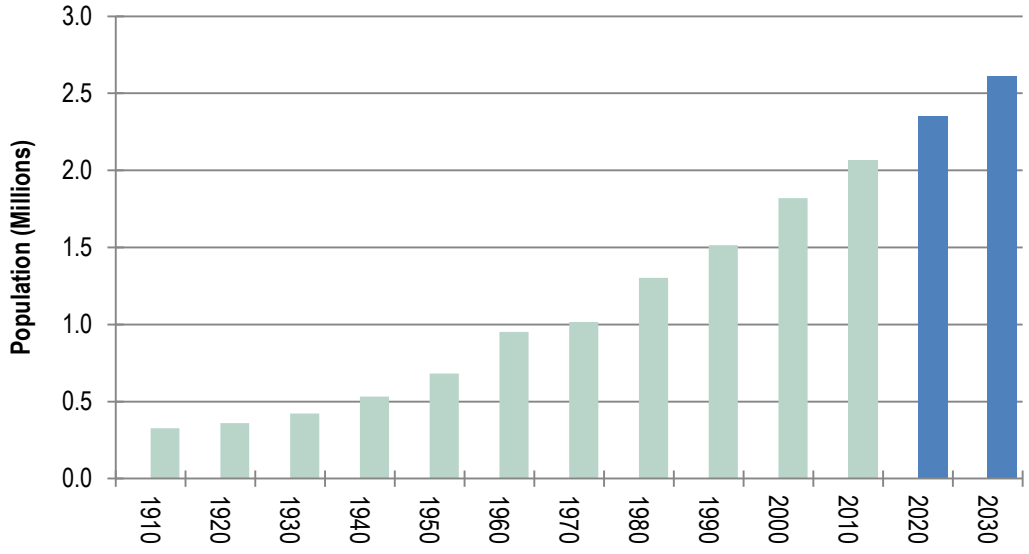
In addition, many of New Mexico's industries are dependent on freight rail transportation to some degree. Rail is particularly important for the State's mining and utilities sectors, with coal accounting for nearly 60 percent of all New Mexico rail tonnage. Rail also supports the State's oil and gas extraction and agriculture industries.

While the predominant use of New Mexico's rail system is for the handling of freight, the State also hosts two long-distance intercity passenger rail routes and commuter rail service in the Albuquerque and Santa Fe regions. Boardings and alightings at the five New Mexico stations served by Amtrak's *Southwest Chief* accounted for approximately one-third of the long-distance route's 355,000 passengers in Fiscal Year (FY) 2012. An additional 1,600 passengers were served by the *Sunset Limited's* two New Mexico stations. The 97-mile Rail Runner commuter rail line, serving the Cities of Belen, Albuquerque, and Santa Fe, carried more than 1.1 million riders in 2012, averaging approximately 3,800 passengers per weekday.

The System Supports the Needs of a Growing Population and Rail-Dependent Industry Base

Population growth in New Mexico has been steady over the past 100 years, a trend that is expected to continue in the coming decades (Figure ES.3). Today, just under one-half of the State's population lives in the four counties served by Rail Runner (Bernalillo, Sandoval, Santa Fe, and Valencia); and population growth rates in these counties are expected to outpace the statewide average over the planning horizon.

Figure ES.3 New Mexico Population, 1910 to 2030



Source: Bureau of Business and Economic Research (BBER), University of New Mexico data.

Note: Data in dark blue represent BBER projections.

Many of the industries that currently rely on rail are expected to grow throughout the plan horizon as well. Coal is expected to remain the single most dominant rail commodity by weight in New Mexico with an average annual growth rate of 3.2 percent. At the same time, growth in New Mexico rail movements by weight is forecasted to outpace the growth in truck tonnage between 2007 and 2020.

In addition, growth in oil production in the Permian Basin has resulted in booming business for the Texas-New Mexico Railroad (TNMR), both in shipping in oilfield supplies and shipping out crude oil by rail, with TNMR now shipping unit trains of crude oil from Lea County. The Southwestern Railroad's Carlsbad Division is also benefiting from this boom and has begun shipping oil by rail as well. The State's northwest corner appears ready to experience major growth in crude oil extraction, and major new transshipment facilities are expected to open in Thoreau and Gallup over the next two to three years.

Geographic Constraints and Physical Chokepoints Affect the Capacity of Both Freight and Passenger Rail Service

New Mexico's terrain exercised considerable influence on where railroads were built and also limits where potential new lines may be constructed. Mountain ranges and steep-walled valleys are formidable barriers to railroad construction, which requires more gradual grades than are acceptable for highways. Steeper grades, in addition to adding to construction costs, require trains to operate at lower speeds and may also require the addition of locomotives to freight trains. Thus, connecting cities by rail that are close and that are connected by highway may not be practical due to the grades that would need to be negotiated. For example, the BNSF rail line from Lamy to the Colorado state line is no longer used by BNSF for freight service due to the slow speeds necessitated by the track grade and curvature.

Physical chokepoints also affect the capacity of the State's freight and passenger rail system:

- **Sidings –** The limited number and length of sidings on the NMRX Albuquerque subdivision causes meet delays and prevents significant expansion of Rail Runner service. With the existing sidings, it is often impossible to adjust the schedule of any Rail Runner train without adjusting the schedule of other trains the train meets, and if any one train gets behind schedule, it has a ripple effect on all other trains.
- **Track Capacity –** In New Mexico, lack of 286,000-pound-capable track limits access to the transcontinental rail network for shippers located in areas not served by a Class I railroad, forcing them to use trucks to access markets. Only a fraction of shortline track in New Mexico is 286,000-pound capable. In the longer term, some shortlines may not remain viable without upgrading to 286,000-pound capacity, further limiting options for the State's rail shippers.

- **Double-Tracking** – With the completion of BNSF's double-tracking project through Abo Canyon, only 38 miles remain for the Transcon's primary route between Los Angeles and Chicago to be completely double-tracked.[3] Two remaining segments are located in New Mexico: a 9.3-mile segment west of Vaughn and a 2.3-mile segment west of Fort Sumner.

Complying with Federal Safety Mandates and Maintaining the State's Existing Rail Infrastructure Remain a Top Priority

Although the State Rail Plan identifies a wide range of potential rail improvement projects, complying with Federal safety mandates and maintaining the State's existing rail infrastructure remain a top priority for NMDOT. The Rail Safety Improvement Act of 2008 (RSIA) requires railroads to install Positive Train Control (PTC) technology on all lines that carry passengers and/or certain hazardous materials (toxic-by-inhalation commodities) by 2015. PTC will improve safety by helping to prevent train to train collisions, over speed derailments, incursions into work zones, and movement of trains through improperly positioned switches. NMDOT has developed a detailed PTC Implementation Plan for NMRX that prioritizes track segments, outlines interoperability issues, and describes the planned PTC technology to be installed. However, NMDOT is concerned that the costs of the upgrades – estimated to be at least $30 million – will cut into funds available for other transportation projects in the State. The other top priority for NMDOT is maintaining the State's existing rail infrastructure in a state of good repair to protect the State's investment long term.

Funding Uncertainties Limit the NMDOT's Ability to Develop Effective Long-Term Capital Maintenance Plans for its Rail Assets

There is continued uncertainty in the future of both the Federal and State transportation funding streams that could be used to support rail. On the Federal side, the current surface transportation program (Moving Ahead for Progress in the 21st Century (MAP-21)), which includes a number of program elements that can be used to fund rail projects, expires in September 2014. The future timing and content of subsequent reauthorization is uncertain. NMDOT receives between $1 million and $2 million annually from the Section 130 program, which is not enough to meet existing needs. The Rio Metro Regional Transit District (Rio Metro), the entity that operates NMRX, will receive $7.8 million from Section 5307 Urbanized Area Formula grants in FY 2013 and will become eligible for Section 5337 State of Good Repair grants in FY 2014.

Other Federal funding may continue to be available through the passenger rail investment programs created by PRIIA (Intercity Passenger Rail Service Corridor

[3] http://www/corridorsofcommerce.com.

Capital Assistance, Congestion Grants, and High-Speed Rail Corridor Program). However, the process for obtaining this funding is highly competitive and no funding has been included since the FY 2010 budget for intercity passenger rail. PRIIA funding expired on September 30, 2013 with no extension imminent. Additionally, no existing Federal programs provide funds to implement Federally-mandated PTC systems on passenger rail corridors. Current congressional discussions regarding future Federal funding for all areas, including transportation, are focused on reductions in appropriations to reduce Federal budget deficits.

At the state level, there are no dedicated funding sources for rail projects or programs, including Rail Runner capital and operating expenses or for capital maintenance on the NMRX rail network. As a result, funding for NMRX and Rail Runner is subject to annual approval in the state budget approved by the Legislature, or in project-specific outlays. Without a dedicated funding stream, the State's rail program must compete with a broad array of annual state priorities, further limiting the ability of NMDOT to develop effective long-term capital maintenance plans for its rail assets.

Additionally, New Mexico has experienced significant revenue declines over the past few years as a result of the economic downturn and is not expecting revenues to rebound to prerecession levels for several more years. Gross receipts taxes from two regional transit districts (Rio Metro and North Central), which are the primary sources of Rail Runner operational funding, have been lower than expected.

Layered on top of the Federal and state funding uncertainties, New Mexico faces unique restraints for the funding of private railroad projects. The New Mexico constitutional Anti-Donation Clause severely restricts the ability of the State or its political subdivisions to invest in privately-owned railroads.

LONG-RANGE SERVICE AND INVESTMENT PROGRAM

As summarized in Figure ES.4, the State Rail Plan identifies a number of proposed freight and passenger rail improvement projects throughout the State. These projects are intended to maintain existing infrastructure and services while also enhancing capacity and improving safety. Given that only a subset of these projects are feasible within the State Rail Plan's planning horizon, NMDOT applied a transparent methodology to prioritize projects for inclusion in the Plan's long-range service and investment program. Several factors affect the prioritization of potential rail projects in the State, including:

- The need to maintain the State's existing railroad infrastructure in a state of good repair;
- The need to comply with Federal safety mandates;

- Limited overall available public funding from Federal, state, and local sources;
- Restrictions on the types of projects on which Federal funding can be used; and
- The restrictions imposed by New Mexico's Anti-Donation Clause against state and local spending on private railroads.

Passenger Rail

Simply put, projects that are not Federally mandated (e.g., NMRX PTC implementation) or that are not necessary to maintain state-owned railroad lines in a state of good repair (e.g., NMRX capital maintenance) are unlikely to occur in the next five years. New Mexico does not anticipate pursuing either new commuter rail services or intercity passenger rail services in the foreseeable future. Neither the demand for such service or funding for building and operating such service is available currently or during the planning horizon of the State Rail Plan.

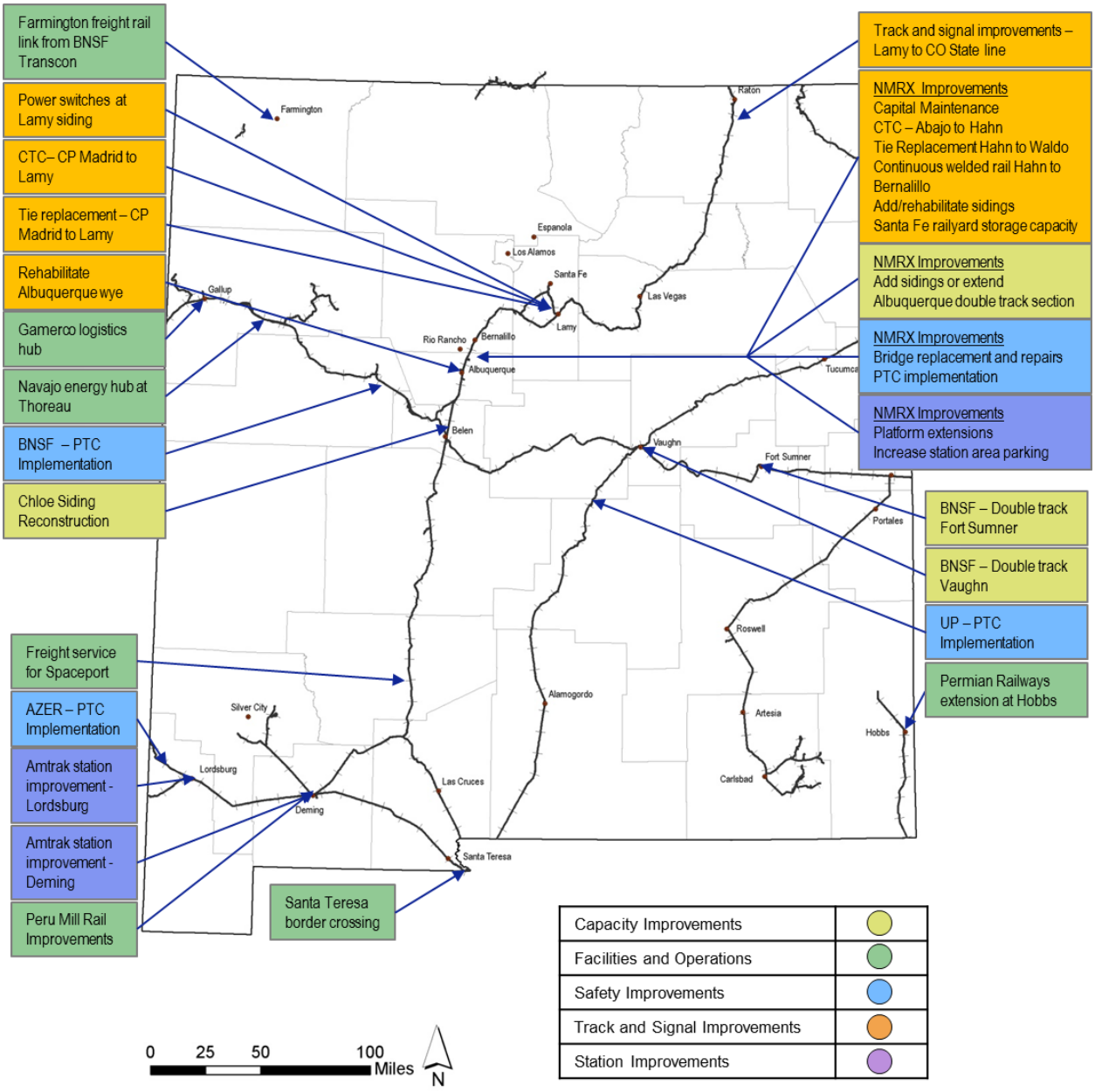
Freight Rail

The expansion to the State's rail system that is occurring is primarily on the freight side, utilizing private funding. BNSF, shippers, the Navajo Nation, and economic development agencies in northwest New Mexico and at the state level are working to determine whether building a potential rail line to the Farmington area from the BNSF Transcon is feasible. A Farmington rail line would be a long-term project, as even if it is determined to be feasible, construction of the line would be at least a decade away.

At the national level, both BNSF and UP are working to improve the capacity of their major rail lines through New Mexico. BNSF completed double-tracking of the Transcon through Abo Canyon in 2011 and has plans to ultimately double track the remaining two single-track sections in Fort Sumner and Vaughn. UP is constructing a major new facility near Santa Teresa that will relieve stress on both its El Paso and Southern California yards. Internationally, Mexico and the United States are looking to open a new rail Port of Entry near Santa Teresa.

The public role in these freight rail projects will primarily be in ensuring that public infrastructure, such as roadway facilities, is adequate to meet the demands of these facilities and their associated economic activity.

Figure ES.4 Locations of Proposed Freight and Passenger Rail Improvement Projects



1.0 Introduction

The Passenger Rail Investment and Improvement Act of 2008 (PRIIA) requires all states to develop state rail plans that meet Federal requirements in order to be eligible for intercity passenger rail Federal funding. The Federal Railroad Administration (FRA) and Congress intended for state rail plans to focus on intercity passenger rail, but since passenger rail service almost always shares right-of-way with freight rail, both types of service must be considered in a state rail plan.

Railroads have contributed to the development of New Mexico's economy since the first rail line was extended into New Mexico, then a territory, in 1879. Railroads built and maintained facilities for servicing and repairing trains and in many cases built the communities for the workers who staffed those facilities. Railroads also encouraged local development through the use of land grants that would generate rail freight to help pay for the costs of extending the rail lines. Since the second transcontinental rail link was completed at Deming, New Mexico in 1881, the State's rail network has also been a major carrier of transcontinental rail passenger and freight movements. Most of the local rail lines in New Mexico were built to serve New Mexico's extraction industries, a purpose that still holds today.

New Mexico's rail lines are an important part of the national rail system, critical for the movement of goods. The Rocky Mountains are a formidable barrier to travel between the West Coast of the United States and the rest of the country, and railroad builders, like the wagon trails before them, sought routes that avoided the steepest ascents and the highest elevations. The topography of New Mexico offered railroad builders a route that avoided the tallest ranges to the north, and the warmer weather in New Mexico meant that winter snows were less of a threat to railroad builders and operations. Currently, the two largest freight railroads in the United States, the BNSF Railway (BNSF), and the Union Pacific (UP), operate in New Mexico, as well as Amtrak, a commuter railroad (NMRX), and several other shortline railroads, and the narrow gauge Cumbres and Toltec Scenic Railroad.

New Mexico's position as a crossroads within the national freight rail network presents both opportunities and challenges for the State. On one hand, these rail lines generate significant revenues for the railroads, which means that the lines will attract capital spending for maintenance and expansion. On the other hand, the trains themselves are moving fast and bound for long-distance markets. This means that rail shippers in New Mexico will have to struggle harder to attract industrial development or initiate new or expanded service within the State.

The New Mexico State Rail Plan is divided into six chapters:

- **Chapter 1** describes the State of New Mexico's vision for rail and describes the State's goals, objectives, policies, and implementation strategies for rail in New Mexico. The major constraints affecting the State's ability to implement strategies affecting its rail system are introduced in this chapter. The process used to develop the New Mexico State Rail Plan, and the role of the Rail Bureau within the Transit and Rail Division of the New Mexico Department of Transportation (NMDOT) as the State's designated agency for developing the New Mexico State Rail Plan are also described.
- **Chapter 2** describes the State's rail system, identifying the railroads that operate in New Mexico and the individual rail lines each operates on, markets served by these railroads, and major rail facilities and intermodal connections.
- **Chapter 3** places the New Mexico rail system within a national and statewide context by characterizing the national significance of the New Mexico rail system. It describes national and State trends that could impact freight and passenger rail demand and could change the role of New Mexico rail in the future. Furthermore, it explores key issues and opportunities that confront the system, potentially impacting rail projects, service, and operations in the State.
- **Chapter 4** provides an assessment of the State's freight and passenger rail infrastructure; describes how well the rail system is serving the needs of New Mexico shippers, receivers, communities, and rail passengers; and identifies current and future rail improvement projects and proposed passenger rail service expansions.
- **Chapter 5** identifies historical, current, and potential future sources of funding for rail investment in New Mexico. The restrictions placed on the State's ability to finance rail projects by New Mexico's Anti-Donation Clause are discussed here.
- **Chapter 6** presents a prioritized list of projects and investments that combines the system needs and potential improvements identified in Chapter 4 with the available funding sources identified in Chapter 5.

Vision Statement

The State of New Mexico's vision for its rail network is a fully-integrated and safe multimodal passenger rail system that provides efficient passenger services to, from, and within the State; provides a competitive option for New Mexico shippers; is a vital component of the national transportation network; and supports sustainable, inclusive economic development statewide.

Goals

The State has four main goals for rail in New Mexico:

1. Support economic growth and development;
2. Improve railroad safety and security;
3. Maintain railroad assets in a state of good repair; and
4. Promote efficient passenger rail service.

Support Economic Growth and Development

The top priority of both business and government leaders in New Mexico has long been to promote economic growth and development for the State. The sharp economic downturn of the last decade and the slow recovery that followed have increased the urgency of New Mexico's leaders in finding ways to foster economic growth and development and improve economic conditions in the State. The State's rail policies support this by seeking to increase the capacity of the State's long-distance freight corridors, developing and promoting local freight connections, promoting rail-related tourism, and linking rail investments to strategies that support economic development.

Improve Railroad Safety and Security

Ensuring the safety and security of New Mexico's railroads goes hand in hand with the goal of supporting economic growth and development. If goods and people cannot be reliably and safely transported where they need to be and when they need to be there, confidence in the rail system will falter. The State's rail policies seek to improve railroad safety and security by developing and implementing rail safety measures included in the Rail Safety Improvement Act of 2008 (RSIA), conducting rail safety public awareness programs, improving highway-rail grade crossing safety, and improving rail security.

Maintain Railroad Assets in a State of Good Repair

The importance of New Mexico as a link in the transcontinental freight rail network ensures that the State's Class I railroads maintain their long-distance routes in top condition, as this provides a clear economic advantage to both railroads and to the shippers that rely on them. However, major capital maintenance and improvement projects are often deferred on Class III rail lines that primarily provide local service. Local industries, especially the extraction industries that are the major shippers on the State's Class III railroads, are often severely affected by changes in national economic conditions, and downturns in these industries lead to revenue losses for the railroads and the deferral of major capital maintenance and improvement projects. Most of the State's Class III railroads are incapable of carrying the 286,000 pound carloads that are becoming the industry standard; improving the State's railroad infrastructure so that all the

State's customers can receive 286,000 pound railcars would benefit the railroads and shippers in New Mexico.

Promote Efficient Passenger Rail Service

New Mexico railroads are host to two Amtrak long-distance routes and to the New Mexico Rail Runner Express (NMRX), a commuter rail service linking the cities of Belen, Albuquerque, and Santa Fe. In the years since Rail Runner began operation, there have been numerous proposals for new passenger rail services in New Mexico. The State's rail policies seek to promote efficient passenger rail service by improving passenger rail options as part of a multimodal transportation system, improving Rail Runner operations, and identifying stable and predictable long-term funding for Rail Runner and the State-owned lines on which it operates.

A complete list of the State's rail goals, objectives, and policies and strategies for achieving these objectives is presented in Table 1.1.

Table 1.1 New Mexico Rail System Goals, Objectives, Policies and Strategies

Objective	Policies and Strategies
Goal: Support economic growth and development	
Increase capacity of long-distance freight corridors	BNSF has completed double-tracking of the Transcon through Abo Canyon and plans to double-track the two remaining segments of single-track mainline on the Transcon in New Mexico
	UP has broken ground on a major refueling yard, block switching facility, and intermodal yard in Santa Teresa that will relieve capacity constraints in Southern California and El Paso
	Railroads and government entities on both sides of the U.S.-Mexico border are investigating the feasibility of establishing a new international rail port of entry at Santa Teresa that would relieve congestion in Ciudad Juarez, increase cross-border capacity for rail shipments, and bring jobs to southwest Doña Ana County
Develop and promote local freight connections	Regional Economic Development Districts, State and local government agencies, tribal governments, chambers of commerce, railroads, and other interested entities should coordinate efforts to identify promising sites for rail-oriented business development, determine the physical improvements and costs for new or rehabilitated rail connections, identify businesses for these sites, and identify viable funding strategies for developing these sites
	BNSF, the Navajo Nation, Four Corners Economic Development Corporation, and business interests in San Juan County are exploring the potential for freight rail service to San Juan County and the Four Corners region
Promote rail-related tourism	Promote and maintain the Cumbres & Toltec Scenic Railroad, a vital part of the local economy in and around Chama, New Mexico and Antonito, Colorado
	Seek opportunities to link tourism promotion with the State's existing conventional passenger rail services (Amtrak, Rail Runner)

Objective	Policies and Strategies
Goal: Support economic growth and development (continued)	
Link rail investments to strategies that support economic development	Clarify legal ability of State and its subdivisions to invest in privately-owned railroads without violating the Anti-Donation Clause in the New Mexico Constitution
	Coordinate among State agencies, regional and local governments, tribal entities, railroads, shippers, and other rail stakeholders to identify rail investment strategies that support economic development as well as rail-related institutional and legal barriers that limit economic development
Goal: Improve railroad safety and security	
Implement Federally mandated safety and security systems	NMDOT will implement federally required safety and security systems on the Rail Runner corridor and Rail Runner locomotives
	BNSF and UP will implement PTC on rail corridors in New Mexico subject to PTC mandate and on locomotives that operate on those corridors
	Class III railroads will either equip locomotives operating on host railroads subject to PTC mandate with PTC or limit operations on those rail lines after December 31, 2015 to no more than 4 train movements per day
	Amtrak will equip its locomotives operating on the Southwest Chief and Sunset Limited with PTC
Develop and implement other safety-related measures included in the Rail Safety Improvement Act of 2008 (RSIA)	NMDOT will develop a Railroad Safety Risk Reduction Program in accordance with RSIA Section 103, complete implementation of a Telephonic Notification System in accordance with RSIA Section 205, and continue Railroad Bridge Safety Assurance efforts in accordance with RSIA Section 417
	Each Class I and Class III railroad will develop and implement programs to address safety-related measures in RSIA that apply to each railroad
	Conduct railroad safety public awareness programs
Improve highway-rail grade crossing safety	Utilize Section 130 program to improve safety at high-priority highway-rail grade crossings
	Railroads, NMDOT, and local highway agencies will coordinate to identify and prioritize candidate crossings for grade separation and subsequent closing of railroad grade crossings and identify funding sources for these projects
	Close private grade crossings where no formal agreement exists between railroad and adjacent landowner and, where feasible, negotiate the closing of private crossings where agreements do exist
	Develop new or revised crossing agreements if needed for private crossings to ensure safe and well maintained crossings
Improve rail security	Rail Runner will continue use of cameras on trains, at passenger stations, and at other locations to provide security for the system and Rail Runner passengers
	Railroads, police, and other agencies responsible for security should coordinate to identify areas where rail security can be improved, identify solutions to improve security, secure funding as needed for these solutions, and implement improvements that improve rail security

Objective	Policies and Strategies
Goal: Maintain railroad assets in a state of good repair	
Improve the conditions of the State's Class III rail lines	Improve weight capacity of rail lines so that 286,000-pound rail cars can be shipped to all customers
	Increase operating speeds on main lines
Improve the conditions of the NMRX rail lines	Ensure that bridges have the capacity to carry 286,000-pound rail cars
	Develop and maintain a comprehensive maintenance program for NMRX facilities, structures and rolling stock
Goal: Promote efficient passenger rail service	
Improve passenger rail options for travel in New Mexico as part of a multimodal transportation system	Amtrak has proposed increasing Sunset Limited service from 3 trips weekly to daily service, which would improve intercity passenger rail service for Deming, Lordsburg, and southern Doña Ana County
	Las Cruces MPO and El Paso MPO are exploring options for establishing commuter rail service linking the two cities
Improve Rail Runner operations	Subject to the identification of funding sources, add sidings to reduce meet delays, increase scheduling flexibility, and reduce scheduled running times for Rail Runner
	Subject to the identification of funding, increase platform lengths, add parking capacity, and improve bus connections at stations to improve passenger access/egress for Rail Runner
	Investigate means for establishing storage facilities near the Belen and Santa Fe ends of the Rail Runner corridor to enable safe and secure overnight and midday storage, reduce the number of deadhead or nearly empty revenue runs, and reduce operating expenses
	Conduct periodic efficiency reviews of Rail Runner operations to identify areas where improvements may occur
Identify stable and predictable funding for Rail Runner and NMRX rail lines	Identify long-range funding sources for capital maintenance of NMRX system
	Develop a long-range service and finance plan for Rail Runner operations and maintenance

Constraints

Several factors affect the prioritization of potential railroad projects for the State of New Mexico. These are:

- The need to maintain the State's existing railroad infrastructure in a state of good repair;
- The need to comply with Federal safety mandates;
- Limited overall available public funding from Federal, State, and local sources;
- Restrictions on the types of projects on which Federal funding can be used; and
- The restrictions imposed by New Mexico's Anti-Donation Clause against State and local spending on private railroads.

The State of New Mexico faces unique restraints for the funding of private railroad projects. The New Mexico constitutional Anti-Donation Clause severely restricts the ability of the State or its political subdivisions to invest in privately owned railroads. The Anti-Donation Clause begins:

> *Neither the state nor any county, school district or municipality, except as otherwise provided in this constitution, shall directly or indirectly lend or pledge its credit or make any donation to or in aid of any person, association or public or private corporation or in aid of any private enterprise for the construction of any railroad except as provided in Subsections A through F of this section.*

The Anti-Donation Clause traces its roots to the 1800s when many states, counties, and municipalities in the United States, including some in the New Mexico Territory, made investments to build railroads only to be left responsible for bonds when the railroads went bankrupt or, worse, when the railroads were never built. In response to these railroad subsidy abuses, New Mexico- like many other states- incorporated anti-subsidy provisions into the State's constitution to protect its public investments. The implications of these provisions found in the State's constitution effectively prohibit public investments in private railroads, save for public investments in land, buildings, and infrastructure to support new or expanding businesses in order to create new job opportunities that is granted pursuant to the Local Economic Development Act or the Statewide Economic Development Finance Act.

Another constraint on improving New Mexico's rail system is that there are no dedicated statewide funding sources for rail. The amount of money invested in NMRX constituted a huge investment for the State that must still pay off its debt service. The State must also ensure maintenance of the rail system and railroad assets at a state of good repair.

Development of the New Mexico State Rail Plan

The Rail Bureau within the Transit and Rail Division of the NMDOT is responsible for developing the New Mexico State Rail Plan. Input to the Rail Plan was primarily obtained from the State's rail stakeholders, which include railroads, shippers, governmental agencies, and rail advocacy groups. Input was also solicited from the public via presentations at meetings of the State's regional and local planning organizations, direct communication to the Rail Bureau staff, and public meetings held in the State's principal metropolitan areas after the draft Rail Plan was published.

A key component to developing a State Rail Plan involves identifying and engaging statewide rail stakeholders to assist in developing the State's rail vision, projects, prioritization, financing, and Plan implementation. It is vital that stakeholders who have an interest in the various freight and passenger corridors and services are given ample opportunity to provide meaningful input into the Plan.

The stakeholder outreach was designed to achieve several objectives:

- Identify the planned rail projects and capital infrastructure and operating needs of the State's public and private railroads;
- Obtain information and build consensus about statewide rail needs, issues, and opportunities from a variety of rail stakeholder perspectives, including shippers, carriers, transit providers, rail advocacy groups, regional and local planning organizations, tribal leaders, economic development organizations, and other public and private sector stakeholders;
- Identify potential performance measures to prioritize passenger and freight rail projects throughout the State; and
- Discuss possible funding sources for passenger and freight rail in New Mexico for infrastructure and operational needs.

The primary stakeholder outreach effort included telephone or in-person interviews with the State's railroad carriers, a web-based survey of stakeholders to identify each stakeholder's relationship to rail and gauge the significance of various rail-related issues, and three stakeholder workshops to bring together the diverse perspectives of the State's passenger and freight rail stakeholders.

Stakeholders continued to be consulted after this primary stakeholder outreach effort concluded as new railroad priorities were identified when underlying conditions changed. Major railroad construction projects in Abo Canyon and Santa Teresa moved from the planning and design stages into construction, while long-dormant proposals to build a new international border crossing near Santa Teresa and a rail line to the Farmington area have been revived and are in the planning stages. Meanwhile, proposed new passenger rail services that were being enthusiastically promoted at the time the Rail Plan was initiated have been placed on hold or dropped from consideration altogether due to the elimination of Federal appropriations for many railroad-related programs, as well as the realization that the high cost of such projects combined with the ridership potential support transit options other than commuter rail in most travel corridors.

The New Mexico State Rail Plan has attempted to keep current with these changes and present a snapshot of the State's rail system, its needs, and prospects for fulfilling those needs as they currently exist.

2.0 Rail System Inventory and Review

There are 2,055 miles of railroad right-of-way in New Mexico. Figure 2.1 shows the State's railroad operators and the major rail facilities as of 2014. Table 2.1 lists the railroads and railroad owners of New Mexico and indicates the railroad right-of-way owned, operated, leased, and operated under trackage rights for each.

Two Class I railroads, BNSF and UP, own 84 percent of the State's railroad right-of-way. The State's five Class III railroads (generally referred to as shortline railroads) own eight percent of the State's railroad right-of-way, while public entities, primarily the NMDOT, own the remaining eight percent of the State's railroad right-of-way.

Twenty percent of New Mexico's rail right-of-ways are not operated by the right-of-way owner and are instead contracted out to third-party railroad operators either through leases or operating agreements. The two Class I railroads, BNSF and UP, operate 71 percent of the State's railroad right-of-way. The State's five shortline railroads operate 22 percent of the State's railroad right-of-way. The remaining seven percent of the State's railroad are managed by two public entities that contract for operations and maintenance: the Rio Metro Regional Transit District (Rio Metro), which manages right-of-way owned by NMDOT and NMRX; and the Cumbres and Toltec Scenic Railroad Commission, which manages the Cumbres and Toltec Scenic Railroad.

Additionally, some railroads have the right to operate their trains on right-of-way they neither own nor operate, a practice known as trackage rights. Amtrak and BNSF are the two railroads that have the largest number of miles of trackage rights in New Mexico.[4]

[4] Reference Appendix A for a glossary of rail-related terms used throughout the Rail Plan.

Figure 2.1 New Mexico State Rail System in 2014

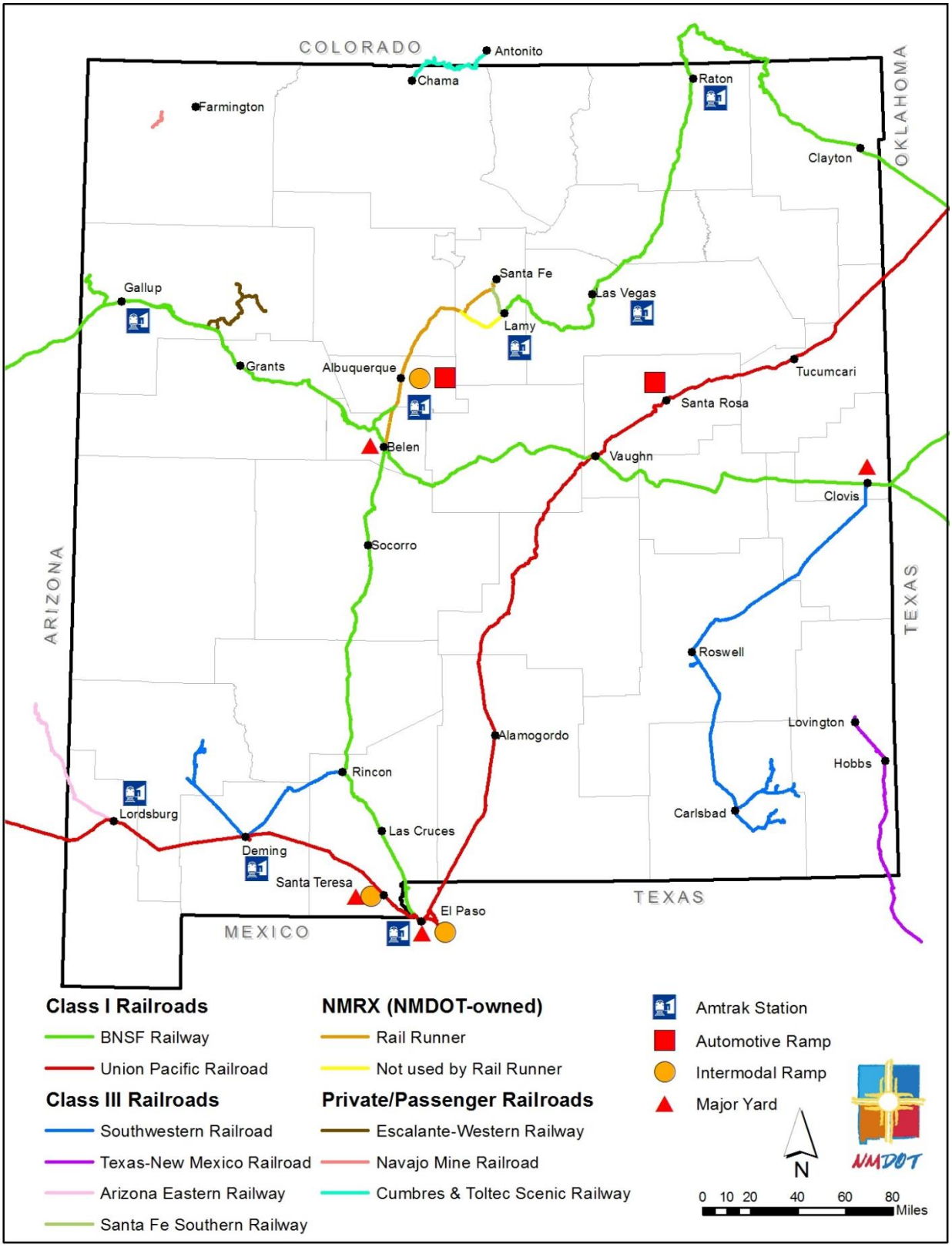


Table 2.1 Railroads in New Mexico

	Miles of Line Owned	Operated, excluding Trackage Rights	Operated, including Trackage Rights[b]	Owned and Operated	Owned but Operated by Others	Operated Under Lease or Contract	Operated Under Trackage Rights[b]
Class I Railroads							
BNSF Railway	1,194.2	917.7	1,379.9	917.7	276.5	0.0	462.3
Union Pacific Railroad	533.6	533.6	618.2	533.6	0.0	0.0	84.6
Subtotal Class I	1,727.8	1,451.3	1,998.1	1,451.3	276.5	0.0	546.9
Shortline Railroads							
Arizona Eastern Railway	25.3	25.3	52.4	25.3	0.0	0.0	27.1
Texas New Mexico Railroad	76.0	76.0	76.0	76.0	0.0	0.0	0.0
Southwestern Railroad	57.1	333.6	333.6	57.1	0.0	276.5	0.0
Santa Fe Southern Railway	0.3	13.5	18.0	0.3	0.0	13.2	4.5
Verde Logistics Railroad, LLC	2.3	0.0	0.0	0.0	2.3	0.0	0.0
Santa Teresa Southern Railway	0.0	2.3	2.3	0.0	0.0	2.3	0.0
New Mexico Department of Transportation	133.4	0.0	0.0	0.0	133.4	0.0	0.0
City of Santa Fe	0.7	0.0	0.0	0.0	0.7	0.0	0.0
Subtotal Class III	295.1	450.7	482.3	158.7	136.4	292.0	31.6
Passenger Railroads							
New Mexico Rail Runner Express[a]	0.0	120.9	120.9	0.0	0.0	120.9	0.0
Amtrak	0.0	0.0	596.0	0.0	0.0	0.0	596.0
Cumbres & Toltec Scenic Railroad	32.0	32.0	32.0	32.0	0.0	0.0	0.0
Subtotal Passenger Rail	32.0	152.9	748.9	32.0	0.0	120.9	596.0
Total	**2,054.9**	**2,054.9**	**3,229.3**	**1,642.0**	**412.9**	**412.9**	**1,174.5**

[a] New Mexico Rail Runner Express is owned by the New Mexico Department of Transportation and is managed by Rio Metro Regional Transit District who contracts for operations and maintenance.

[b] The trackage rights mileage does not include short distances of trackage rights granted for the interchange of freight traffic.

2.1 CLASS I RAILROADS

There are two Class I railroads operating in New Mexico, BNSF and UP. BNSF and UP operate the two largest railroad networks in North America. Both companies are the result of the mergers of western Class I railroads over several decades that culminated in the mid-1990s with the purchase of the Southern Pacific Railroad (SP) by UP and the merger of the Burlington Northern Railroad (BN) and the Atchison, Topeka and Santa Fe Railroad (ATSF) to form BNSF. Each company can trace its roots to the earliest days of railroad development in the west, and each company also is a direct successor of one of the two railroads which together formed the nation's second transcontinental rail link when their lines met in Deming in 1881.

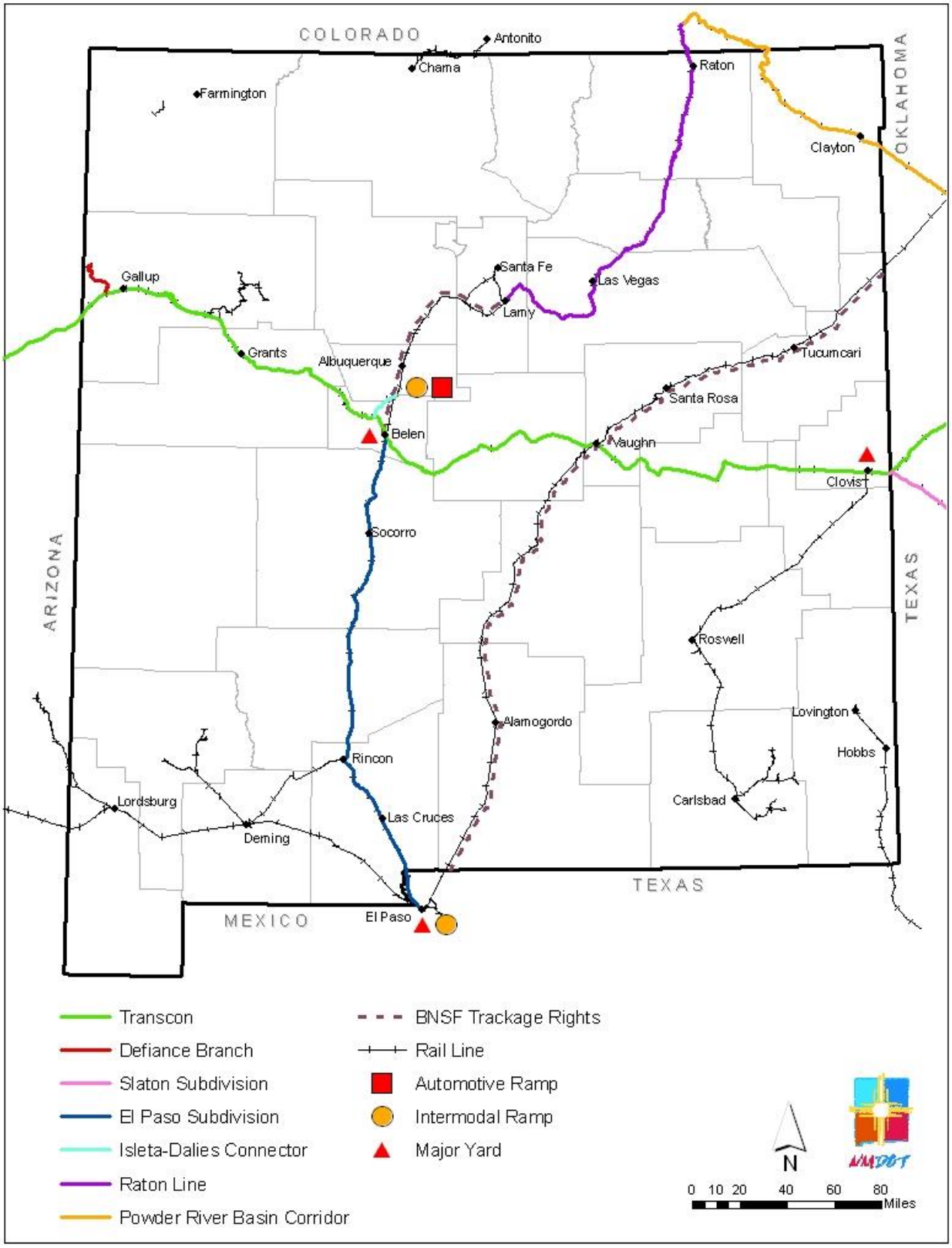
BNSF Railway

BNSF Railway was created by the merger of the BN and ATSF in 1995. Throughout the United States, BNSF operates just over 32,500 miles of track. BNSF has the largest presence of any railroad in New Mexico, either owning, operating, or having trackage rights on 1,656 miles of the State's rail system. BNSF owns and operates 918 miles of right-of-way in the State, owns an additional 277 miles of right-of-way that it leases to Southwestern Railroad, has exclusive freight rights on 98 miles of right-of-way owned by NMDOT, and has trackage rights on 364 miles of mainline right-of-way owned by UP.

Most of the BNSF right-of-way in New Mexico was owned by the ATSF prior to the BN-ATSF merger. ATSF built the first railroad line in New Mexico when the rail line was extended south from Colorado into New Mexico over Raton Pass in 1879. The initial ATSF rail construction extended their lines to Albuquerque and Santa Fe (via a spur) in 1880 and to Deming, Las Cruces, and El Paso, Texas in 1881. The Deming line connected with the SP railroad to create the nation's second transcontinental rail link. ATSF later completed its own transcontinental connection to California by going west from Albuquerque through Grants and Gallup, completing the line in 1885. In the first decade of the twentieth century, ATSF built the Belen Cutoff through Belen and Clovis to avoid the steep mountain grades of the Raton route for transcontinental rail traffic, completing this in 1908. Prior to the merger, BN owned the former Fort Worth and Denver Railway line through Clayton, New Mexico that was completed in 1888.

The New Mexico rail lines that BNSF owns, controls, or operates on via trackage rights, shown in Figure 2.2, are discussed in this section. Major line haul corridors are discussed first, followed by a discussion of secondary mainlines and branch lines. Corridors on which BNSF has trackage rights are discussed at the end of the section.

Figure 2.2 BNSF Railway's New Mexico System Overview



BNSF Transcontinental Route (Transcon)

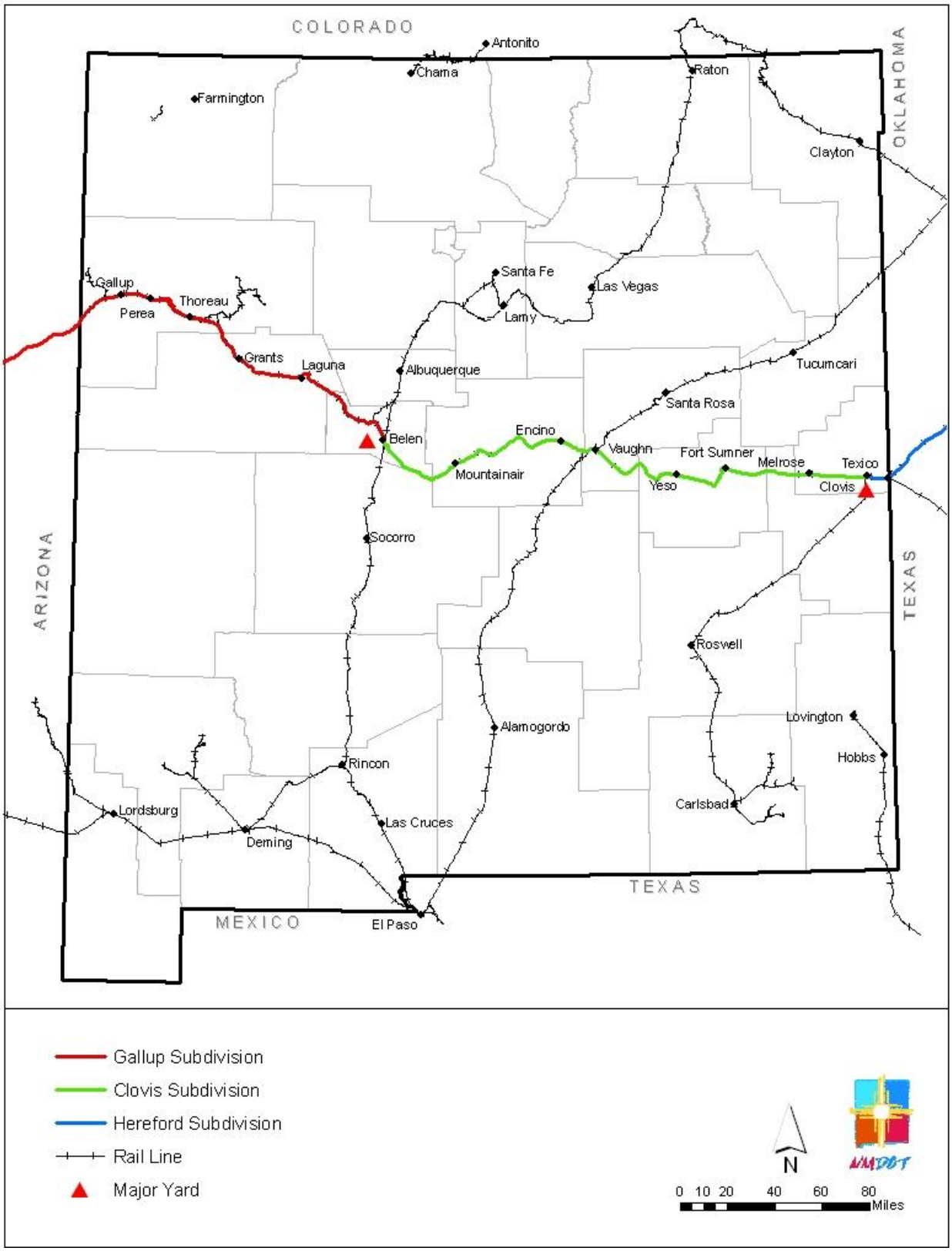
The BNSF Southern Transcontinental Route, or Transcon, is a 2,239-mile freight route linking the Ports of Los Angeles and Long Beach with Kansas City and Chicago (Figure 2.3). The Transcon carries 80 to 120 trains per day. Within New Mexico, this operates on the Gallup, Clovis, and Hereford subdivisions, entering the State from Arizona west of Gallup and proceeding 413 miles to Texas east of Clovis. All but 38 miles of the Transcon route from Los Angeles to Chicago is double-tracked, and two of the remaining single-tracked sections are in New Mexico.[5] The BNSF subdivisions that are part of the Transcon, shown in Figure 2.4, are discussed below.

- **Gallup Subdivision –** The Gallup Subdivision is a 267-mile subdivision extending from Belen, New Mexico to Winslow, Arizona. Within New Mexico, the Gallup Subdivision includes 162 miles of double-tracked main line extending from Belen, New Mexico west to the Arizona state line at Lupton, Arizona. This track is controlled using centralized traffic control (CTC) technology. It is Class 5 track although only portions of the Gallup Subdivision are equipped with automatic train stop (ATS) so that Amtrak's *Southwest Chief*, which operates on the Gallup Subdivision west of Dalies, can operate at speeds between 79 miles per hour (mph) and 90 mph. The distances of ATS-equipped track within New Mexico vary by travel direction, with eastbound track having 97 miles of ATS-equipped track and westbound track having 82 miles of ATS-equipped track. The maximum speed for freight trains on the Gallup Subdivision is 70 mph. Within New Mexico, the Gallup Subdivision connects with the BNSF Clovis and El Paso subdivisions and the NMRX Albuquerque Subdivision at Belen, with the BNSF Isleta-Davies connector northwest of Belen at Dalies, with the BNSF Defiance Subdivision west of Gallup at Defiance, and with the Escalante-Western Railway near Thoreau, New Mexico at the Baca and PEGS sidings. Major yards serving the Gallup Subdivision within New Mexico are located at Gallup and Belen.

[5] BNSF Railway, Corridors of Commerce, http://www.corridorsofcommerce.com/explore-the-corridors/transcon/development.html.

Figure 2.3 BNSF Transcon – National Context

Figure 2.4 BNSF Transcon – New Mexico Subdivisions

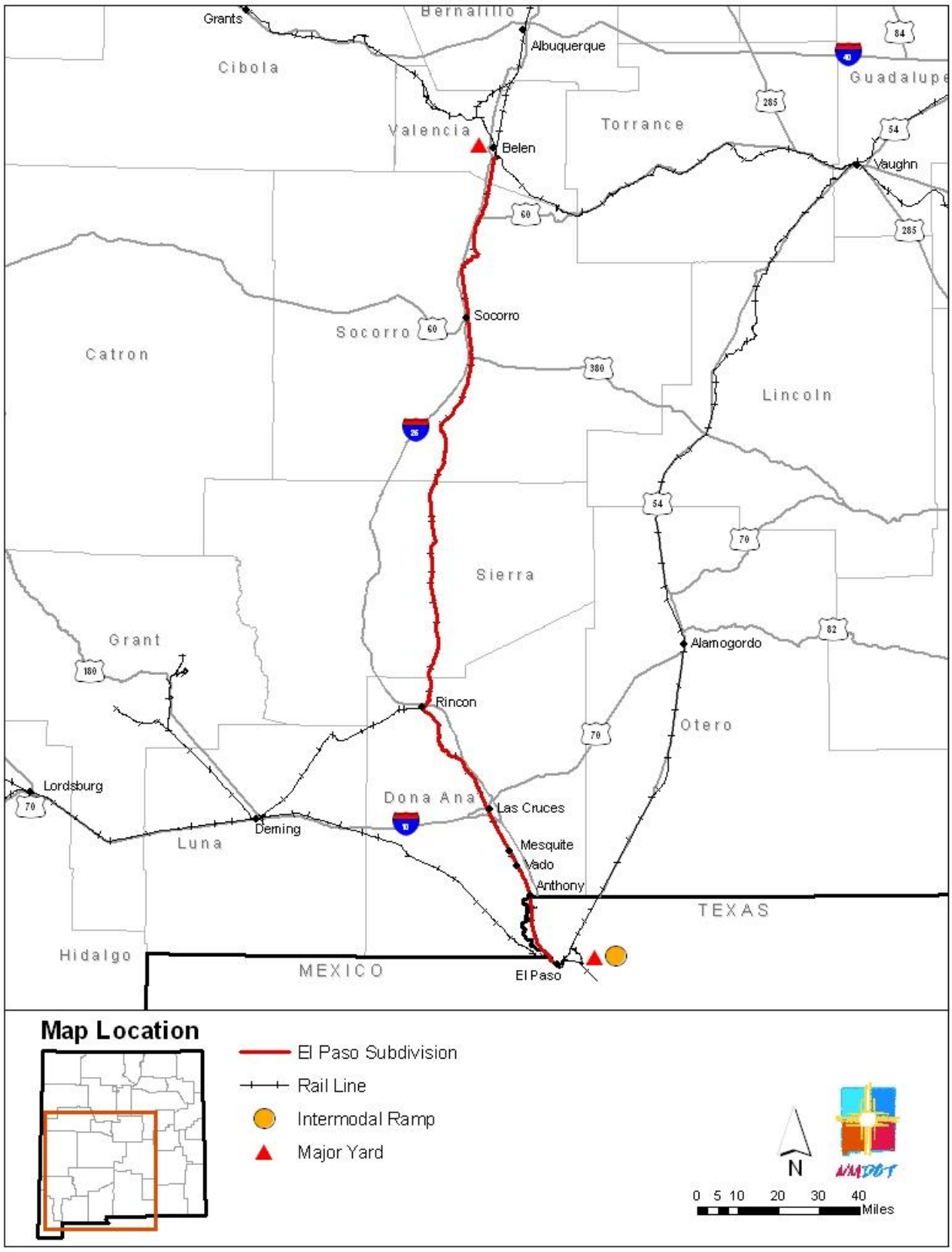


- **Clovis Subdivision –** The Clovis Subdivision is a 241.9-mile subdivision located entirely within New Mexico that extends from Belen to Clovis. Most of the Clovis Subdivision is double-tracked, but there are two sections of single-track mainline on the Clovis Subdivision: 9.3 miles west of Vaughn, which includes the bridge over the UP Tucumcari line and 2.3 miles west of Fort Sumner, which includes the bridge over the Pecos River and an underpass beneath U.S. 60. The Clovis Subdivision is controlled using CTC technology. It is Class 5 track with the maximum speed for freight trains set at 70 mph. No passenger trains operate on the Clovis Subdivision. The Clovis Subdivision connects with the BNSF Gallup and El Paso subdivisions and the NMRX Albuquerque Subdivision at Belen, with the UP Tucumcari Line at Vaughn, and with the BNSF Hereford Subdivision and SWRR Carlsbad Division at Clovis. Major yards serving the Clovis Subdivision are located at Clovis and Belen.
- **Hereford Subdivision –** The Hereford Subdivision is a 102-mile subdivision extending from Clovis, New Mexico to Amarillo, Texas. Within New Mexico the Hereford Subdivision includes 8.4 miles of double-tracked mainline between Clovis and the Texas state line at Texico, New Mexico. The Hereford Subdivision is controlled using CTC technology. It is Class 5 track with maximum freight speeds of 70 mph. No passenger trains operate on the Hereford Subdivision. Within New Mexico, the Hereford Subdivision connects with the BNSF Clovis Subdivision and SWRR Carlsbad Division at Clovis. The only major yard serving the Hereford Subdivision in New Mexico is Clovis.

El Paso Subdivision

The El Paso Subdivision is a 221-mile subdivision extending from Belen, New Mexico south to the Mexican border in El Paso, Texas that serves as one of BNSF's primary rail connections between the United States and Mexico. Within New Mexico, as shown in Figure 2.5, the El Paso Subdivision includes 201.8 miles of single-tracked main line extending from Belen south to the Texas state line at Anthony, New Mexico. This track is unsignalized and is controlled using track warrant control (TWC). It is generally Class 4 track with a maximum speed of 49 mph although there are several sections with permanent speed restrictions where the El Paso Subdivision operates as Class 3 track. No passenger trains operate on the El Paso Subdivision. Approximately four to eight trains per day use this freight-only line, with major intermodal and bulk transfer facilities located in El Paso and grain loading facilities along the way. Within New Mexico, the El Paso Subdivision connects with the BNSF Gallup and Clovis subdivisions and the NMRX Albuquerque Subdivision at Belen and with the SWRR Deming-Rincon secondary main line at Rincon. Major yards serving the El Paso Subdivision within New Mexico are at Belen and Rincon.

Figure 2.5 BNSF El Paso Subdivision



Twin Peaks Subdivision

The Twin Peaks Subdivision is a 139-mile subdivision extending from the Texas state line west of Texline, Texas to Trinidad, Colorado. Within New Mexico, this includes 83.3 miles of single-tracked main line extending from the Texas state line to the Colorado state line at Emery Gap, south of Branson, Colorado (Figure 2.6). The Twin Peaks Subdivision is Class 4 track with a maximum speed of 50 mph, although speeds are lower northeast of Des Moines due to curvature and grades. Southeast of Des Moines, trains operate using TWC with an automatic block system (ABS); northeast of Des Moines CTC is in effect. The Twin Peaks Subdivision carries traffic in the northbound direction only, averaging eight trains per day.

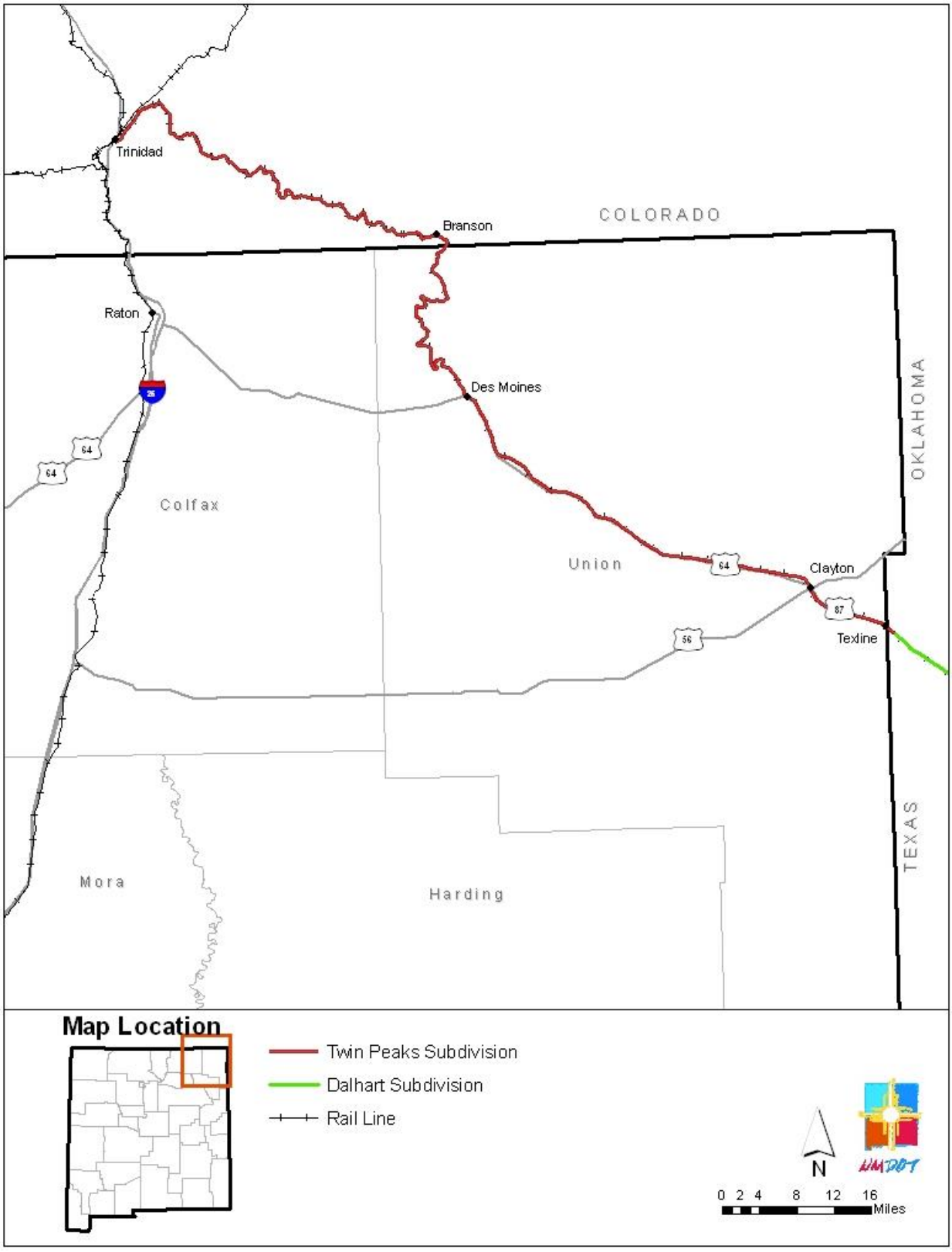
The Twin Peaks Subdivision is part of a rail corridor used by both BNSF and UP to transport coal from the Powder River Basin of Wyoming and Montana to Texas and Gulf Coast ports. The rail corridor passes through Denver, Colorado Springs, Pueblo, and Amarillo, with loaded southbound trains and empty northbound trains utilizing different routes between Pueblo and Amarillo to eliminate delays from train meets. Southbound trains are routed east from Pueblo through La Junta and Las Animas, Colorado before heading south through Boise City, Oklahoma to Amarillo and do not enter New Mexico. Northbound trains head northwest from Amarillo through Dalhart, Texas, Clayton, New Mexico, and Trinidad, Colorado to Pueblo. BNSF and UP have trackage rights on each other's right-of-way in this corridor.

Raton Line

The Raton Line refers to parts of two BNSF subdivisions, the Raton Subdivision and the Glorieta Subdivision, which include 182.1 miles of single-tracked mainline extending from Lamy, New Mexico to the Colorado state line at Wootton, Colorado. This track is controlled using CTC technology. It is generally Class 4 track with a maximum speed of 79 mph for passenger trains although there are several sections with permanent speed restrictions due to mountain grades or sharp curvature where the Raton Line operates as Class 3 or even Class 2 track.

The Raton Line has been more important as a passenger rail corridor than a freight corridor since the completion of the Belen Cutoff a century ago. Today the only regular rail service on the Raton Line within New Mexico is Amtrak's *Southwest Chief*, which makes one trip per direction daily. No local rail freight service has been provided within New Mexico since the York Canyon mine ceased operations in 2002. The Raton Line functions as a backup route for BNSF in case service on the Transcon east of Belen is interrupted. During the recent economic downturn, rail freight activity was primarily movements of empty cars to and from storage on the York Canyon line.

Figure 2.6 BNSF Twin Peaks Subdivision



- **Raton Subdivision –** The Raton Subdivision is a 215-mile subdivision extending from La Junta, Colorado to Las Vegas, New Mexico. Within New Mexico this includes 118.2 miles of single-tracked mainline extending from the Colorado state line at Wootton, Colorado to Las Vegas. The Raton Subdivision is Class 4 track with a maximum speed of 79 mph, although curvature and grade along the subdivision reduce portions of the route to Class 3 or Class 2 speeds. Trains operate using CTC between the Colorado state line and Springer, New Mexico, and use TWC with ABS between Springer and Las Vegas.
- **Glorieta Subdivision –** The Glorieta Subdivision is a 170-mile subdivision extending from Las Vegas, New Mexico to Dalies, New Mexico. The Glorieta Subdivision includes right-of-way owned by the NMDOT between Lamy, New Mexico and Isleta Junction, New Mexico that is part of the Albuquerque Subdivision and the Isleta-Dalies connector, each of which are described separately. Only the 63.9 miles of the Glorieta Subdivision between Las Vegas and Lamy are considered part of the Raton Line. The Glorieta Subdivision is Class 4 track with a maximum speed of 79 mph, although curvature and grade along the subdivision reduce portions of the route to Class 3 or Class 2 speeds. Trains operate using TWC with ABS between Las Vegas and Rowe, and use CTC between Rowe and Lamy.

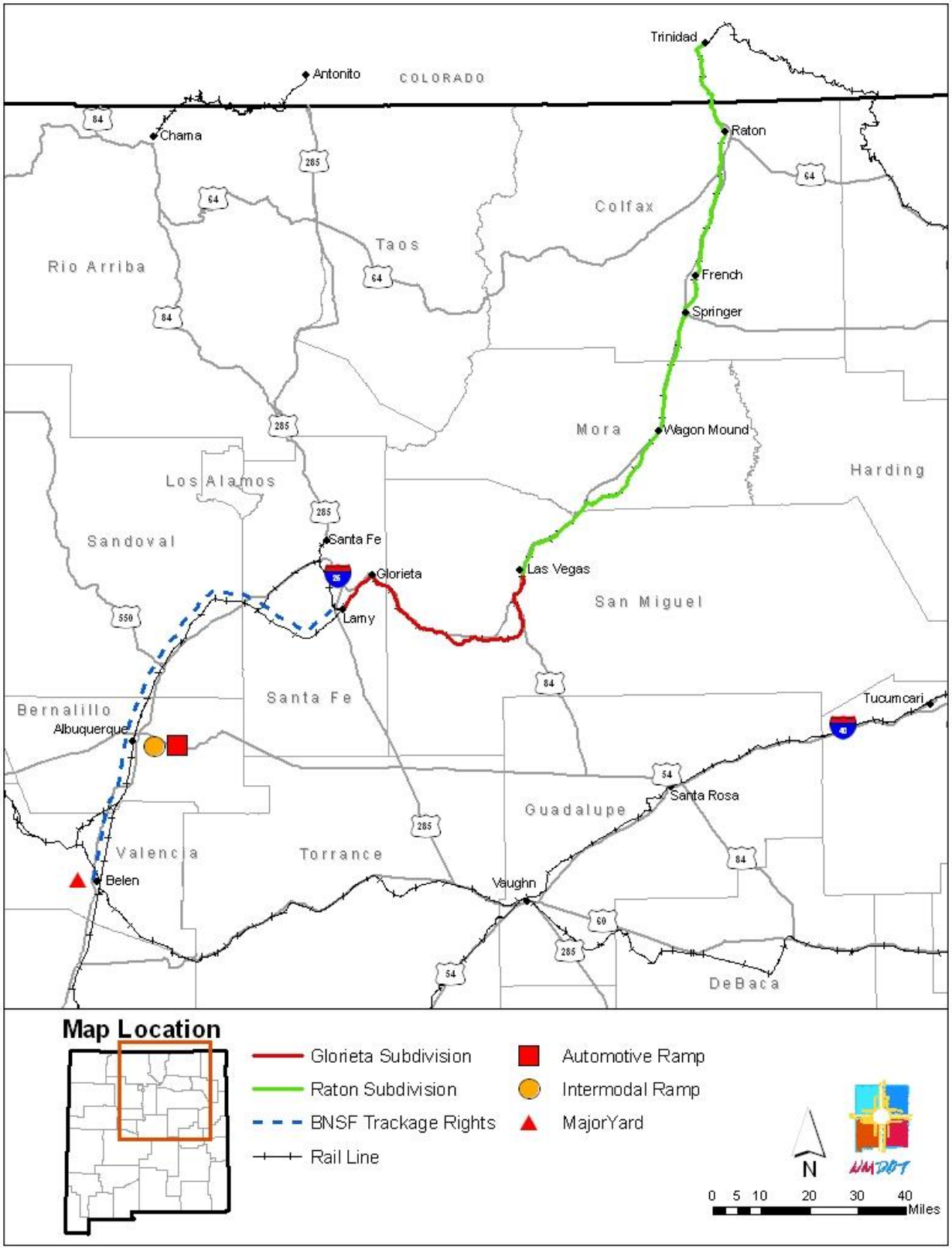
Both of the subdivisions that comprise the Raton Line are shown in Figure 2.7.

Other BNSF lines

BNSF owns several additional rights-of-way in New Mexico that are not part of significant corridors. These include secondary main lines as well as branch lines providing local service only. Some of the lines below are controlled by BNSF and others are leased to Southwestern Railroad (SWRR), a shortline railroad.

- **Isleta-Davies Connector –** The Isleta-Davies connector is a 14.8-mile single-track main line operated by BNSF that extends from Isleta on the NMRX Albuquerque Subdivision to Dalies on the BNSF Gallup Subdivision (Figure 2.2). It is part of the Glorieta Subdivision in BNSF timetables, although there is no scheduled freight traffic on the line. The only scheduled service on this line is Amtrak's Southwest Chief, which operates one train per direction daily. The Isleta-Davies connector is controlled using CTC technology. It is Class 5 track but is not ATS-equipped, so the maximum speed for Amtrak's Southwest Chief is 79 mph.

Figure 2.7 BNSF Raton Line



- **Defiance Subdivision –** The Defiance Subdivision is a 21.7-mile branch line operated by BNSF that extends from Defiance on the BNSF Gallup Subdivision to the McKinley Mine near Tse Bonito, New Mexico. This subdivision is shown in Figure 2.2. The Defiance Subdivision track is controlled using TWC technology. It is Class 2 track with a maximum speed of 25 mph for freight. The McKinley Mine ceased operations in December 2009 and the owner, Chevron Mining Inc., began full reclamation efforts at the mine in 2010. In August 2012, BNSF filed an Abandonment Exemption Notice to abandon the northern 5.11 miles of this line.
- **Carlsbad Subdivision –** The Carlsbad Subdivision is a 223-mile subdivision that was mostly leased to SWRR in 2004. BNSF retains control of the northernmost 0.5 miles of the Carlsbad Subdivision, but the remaining 222.5 miles of right-of-way operates as the SWRR Carlsbad Division. The leased right-of-way includes 182.5 miles of single-tracked main line extending from Clovis, New Mexico on the BNSF Clovis Subdivision junction to Carlsbad, New Mexico and two 20-mile sections of industrial track serving potash mines near Carlsbad and Loving, New Mexico.
- **Deming-Rincon Line –** The Deming-Rincon line is a 54.4-mile secondary main line extending from Rincon, New Mexico on the BNSF El Paso Subdivision to Deming, New Mexico where it connects with both the UP Sunset Route and the SWRR Whitewater Line. BNSF retains control of the first 0.4 miles of the line west of Rincon and leased the remaining 54 miles of right-of-way to SWRR in 2001. The leased line is a single-tracked main line.

BNSF Trackage Rights

BNSF has trackage rights on the following 462 miles of right-of-way:

- **UP Tucumcari Line –** BNSF was granted trackage rights over this line, which was then owned by SP, as a condition of the 1995 merger of BN and ATSF that formed BNSF.
- **NMRX Albuquerque Subdivision –** BNSF retained an exclusive freight easement on the Albuquerque Subdivision as part of the sale of the line to NMDOT in 2005 and 2007. Rail freight shipments to local customers are routed via Belen to the Abajo yard in Albuquerque, and local rail freight service operates seven days per week from Abajo yard to customers in the Albuquerque area. BNSF also interchanges freight cars with Santa Fe Southern Railway at Lamy. BNSF owns an intermodal yard for trailer on flatcar (TOFC) shipments on Woodward Avenue in Albuquerque that operates seven days per week. Rail freight shipments to the Woodward TOFC yard come directly from Belen.

The locations of these BNSF trackage rights are shown in Figure 2.2.

Union Pacific Railroad

Union Pacific Railroad (UP), which was originally chartered by the United States Congress in 1862, largely attained its current size and form with its purchase of SP in 1996. Throughout the United States, UP operates just under 32,000 miles of track. UP has the second-largest presence of any railroad in New Mexico, either owning or having trackage rights on 618 miles of the State's rail system. UP owns and operates 534 miles of right-of-way in the State and has trackage rights on 85 miles of mainline right-of-way owned by BNSF.

All of the UP right-of-way in New Mexico was owned by SP prior to its 1996 acquisition by UP. SP laid its first track in New Mexico in 1880, entering from Arizona through Steins Pass and building eastward towards El Paso, which it reached in 1881 before continuing construction eastward to complete a link to New Orleans in 1883. The SP-ATSF meet at Deming in March 1881 formed the nation's second transcontinental railroad link. SP also purchased the Tucumcari Line linking El Paso and Kansas City, completed in 1902, by separately purchasing the El Paso-Tucumcari line from the El Paso and Southwestern Railroad in 1924 and the Tucumcari-Kansas City line during the liquidation of the Chicago, Rock Island and Pacific Railroad in 1980. Today, the core UP freight corridor passing through New Mexico connects Los Angeles/Long Beach on the West Coast to Midwestern markets such as Chicago, Kansas City, St. Louis, Memphis, Dallas/Fort Worth, El Paso, Houston, and New Orleans (Figure 2.8).

The New Mexico rail lines UP owns or operates on via trackage rights are discussed below. The two major line haul corridors are discussed first, followed by a section of one branch line UP owns and one corridor on which UP has trackage rights.

Sunset Route

The UP Sunset Route is a 760-mile freight route linking the Ports of Los Angeles and Long Beach with El Paso. The Sunset Route carries 40 to 50 trains per day. UP is in the process of double-tracking the entire Sunset Route, and has completed double-tracking within New Mexico; of the entire 760-mile length of the Sunset Route, 62 percent is presently double-tracked. Within New Mexico this operates on the Lordsburg Subdivision, entering the State from Arizona west of Steins and proceeding 166.4 miles to Texas at El Paso (Figure 2.9). The Lordsburg Subdivision is Class 5 track and uses CTC technology.

Figure 2.8 UP Regional Context – Connectivity to National Markets

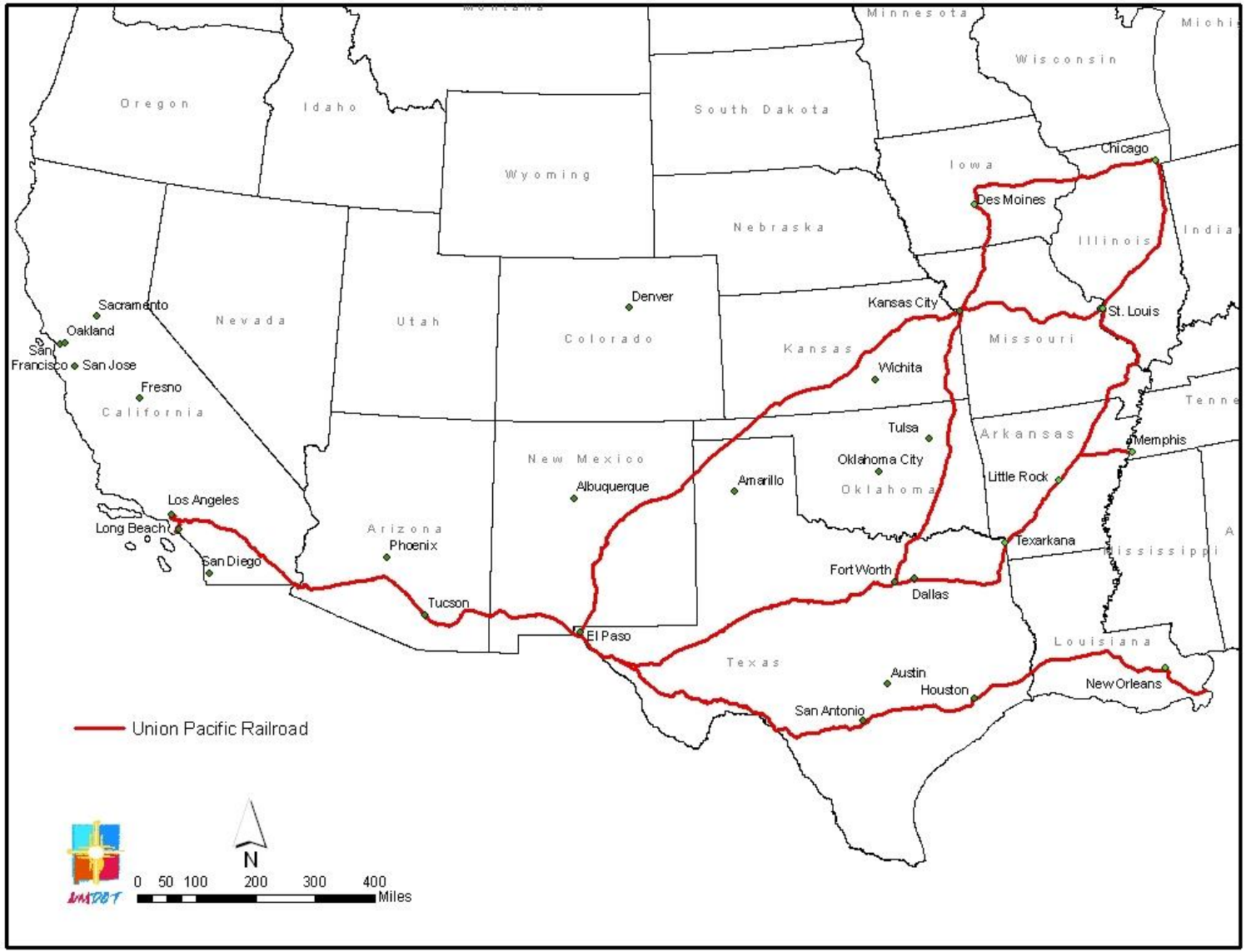
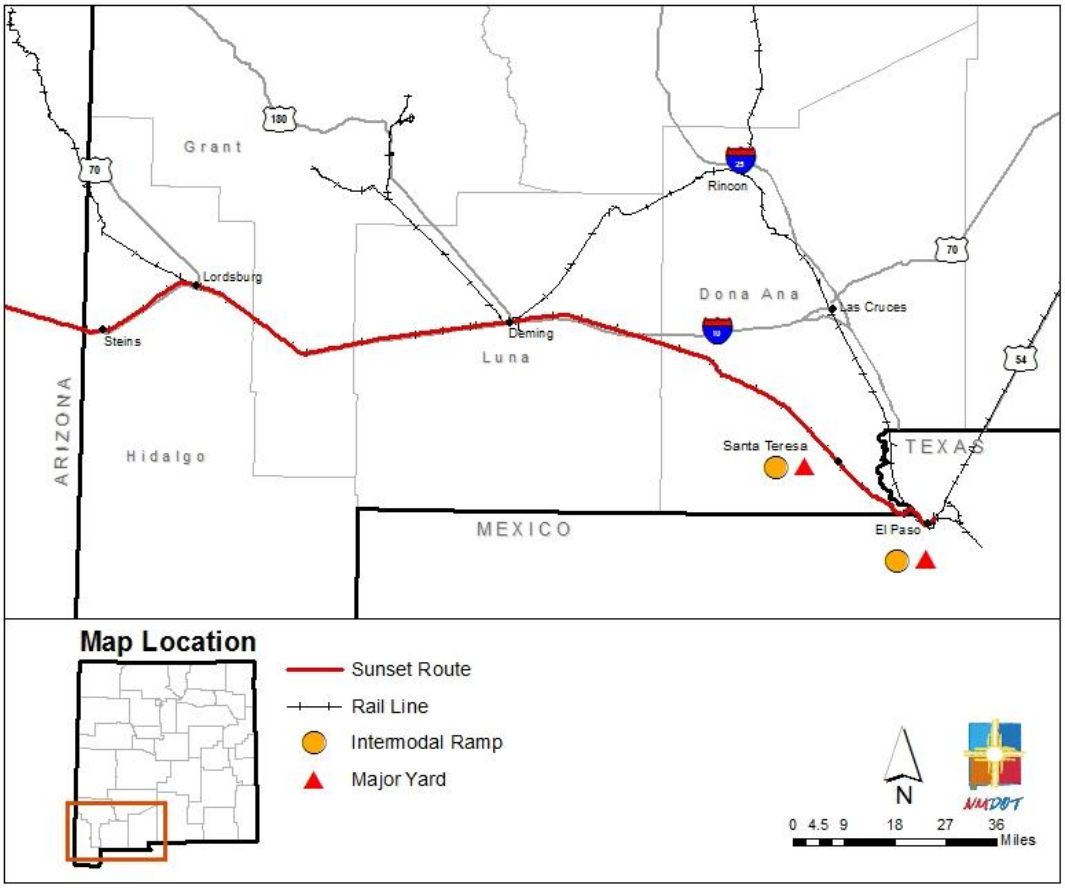


Figure 2.9 UP Sunset Route



There are no major yard facilities on the Sunset Route in New Mexico presently. Major intermodal and bulk transfer facilities that serve New Mexico shippers are located in El Paso. The Sunset Route does interchange with the Arizona Eastern Railway (AZER) Clifton Branch at Lordsburg and with the SWRR Whitewater Branch and Deming-Rincon line at Deming. UP began construction of a new rail facility near Santa Teresa, New Mexico in 2011 which will become operational in May 2014. The new rail facility will relocate many yard activities from El Paso, including a fueling facility; a block swap yard for sorting long-haul trains arriving from Southern California and bound for Midwest, East Coast, and Gulf Coast destinations; and an intermodal facility that would supplement the existing intermodal facility in El Paso. Santa Teresa will also replace El Paso as the base for crews operating long-haul trains out of the area.

Tucumcari Line

The UP Tucumcari Line is one of three rail mainlines heading east or northeast from El Paso and is part of UP's rail corridor connecting Southern California with Kansas City, St. Louis, Chicago, and other Midwestern cities.

The Tucumcari Line runs from El Paso, Texas to Topeka, Kansas and includes 364 miles of track within New Mexico on the Carrizozo and Tucumcari subdivisions. The Tucumcari Line, sometimes referred to as the Golden State Route, begins at its junction with the Sunset Route in El Paso and heads northeast, entering New Mexico at Newman and passing through Alamogordo, Carrizozo, Vaughn, Santa Rosa, and Tucumcari before reentering Texas northeast of Nara Visa (Figure 2.10). The Tucumcari Line is single-tracked and hosts 10 to 20 trains a day. A major automobile transfer facility is located in Santa Rosa. The Tucumcari Line crosses beneath BNSF's Transcon line at Vaughn, and there is essentially no freight interchange between the two routes. There is no passenger service on this route.

- **Carrizozo Subdivision –** The Carrizozo Subdivision is a 229-mile subdivision extending from El Paso, Texas to Vaughn, New Mexico. Within New Mexico, this includes 210.7 miles from the Texas state line at Newman, New Mexico to Vaughn. The Carrizozo Subdivision is single-tracked mainline which is primarily Class 5 track and uses CTC technology.
- **Tucumcari Subdivision –** The Tucumcari Subdivision is a 196-mile subdivision extending from Vaughn, New Mexico to Dalhart, Texas. Within New Mexico this includes 153.1 miles from Vaughn to the Texas state line northeast of Nara Visa, New Mexico. The Tucumcari Subdivision is single-tracked mainline which is primarily Class 5 track and uses CTC technology.

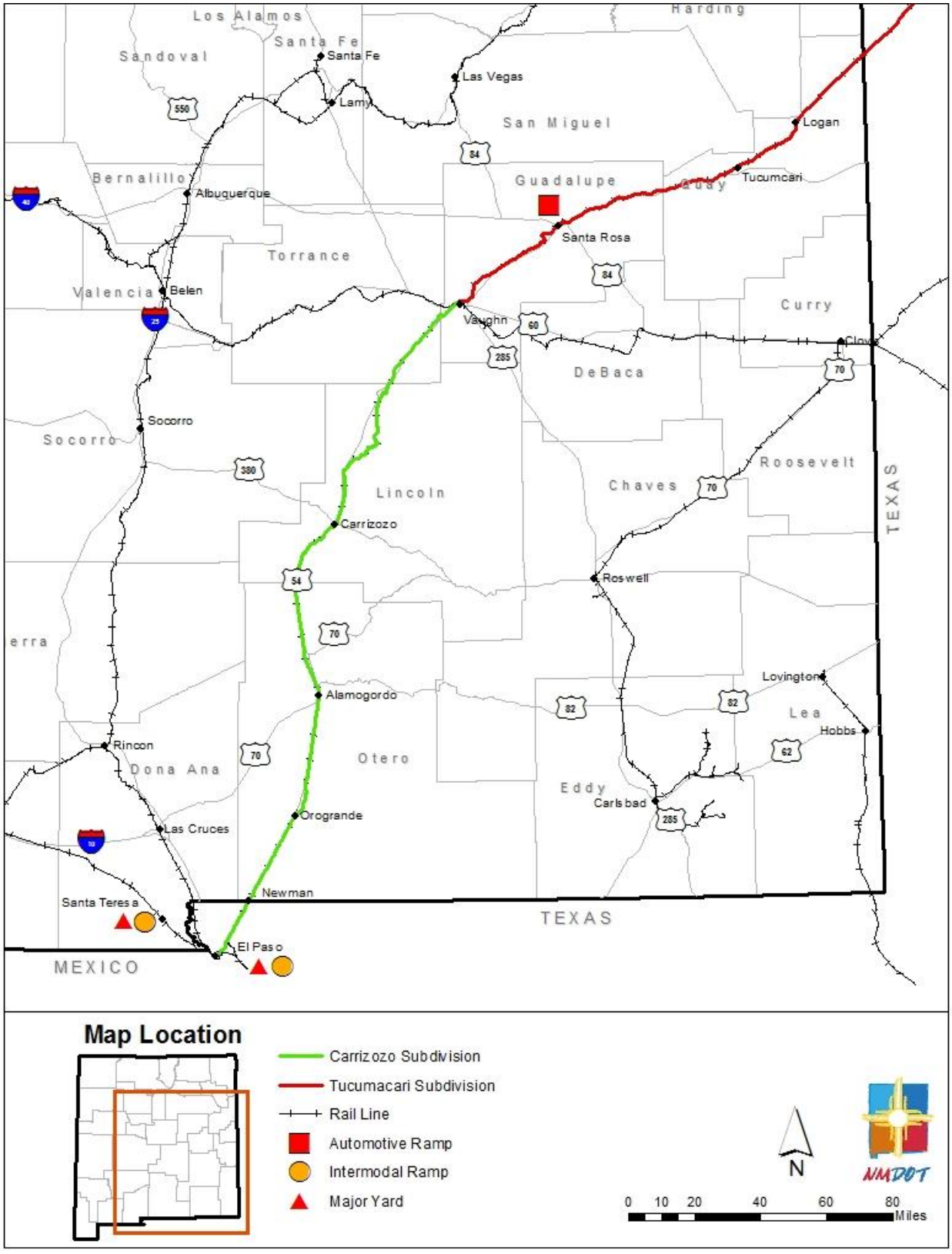
Clifton Industrial Lead

In 2008, UP sold most of the 71-mile Clifton Branch to AZER, but retained ownership and control of the 3.4-mile Clifton Industrial Lead at the southernmost end of this line. The Clifton Branch extends from a junction with the Sunset Route in Lordsburg, New Mexico to Clifton, Arizona where it serves the Morenci Mine, one of the largest open pit copper mines in the world. The Clifton Industrial Lead has a maximum speed of 10 mph.

UP Trackage Rights

UP has trackage rights on 85 miles of New Mexico right-of-way owned by BNSF that is part of the Powder River Basin Corridor to Texas. The rail lines in this corridor are owned by BNSF and UP, and each railroad has trackage rights on the other's right-of-way.

Figure 2.10 UP Tucumcari Line



2.2 SHORTLINE RAILROADS

The Surface Transportation Board (STB) classifies five railroads in New Mexico as Class III railroads (commonly referred to as shortline railroads).[6] Four are privately owned freight railroads that operate common carrier freight service in the State; the fifth is right-of-way owned by NMDOT on which common carrier freight service is provided by BNSF and SFS and on which Rail Runner Express service is operated by the Rio Metro RTD.

Southwestern Railroad

Southwestern Railroad (SWRR) owns or leases 334 miles of the State's rail system. SWRR, a subsidiary of the Western Group, owns and operates 57 miles of right-of-way in the State and leases an additional 277 miles of right-of-way from BNSF. SWRR began operations in New Mexico in 1992 when it purchased the northern part of the Whitewater Line serving the copper mines of Grant County from ATSF. SWRR purchased additional right-of-way from ATSF in 1994 and from BNSF in 2001, and leased two lines from BNSF in 2001 and 2004.

SWRR today controls two separate networks in New Mexico, one based in Deming and the other based in Carlsbad.

Deming Operations

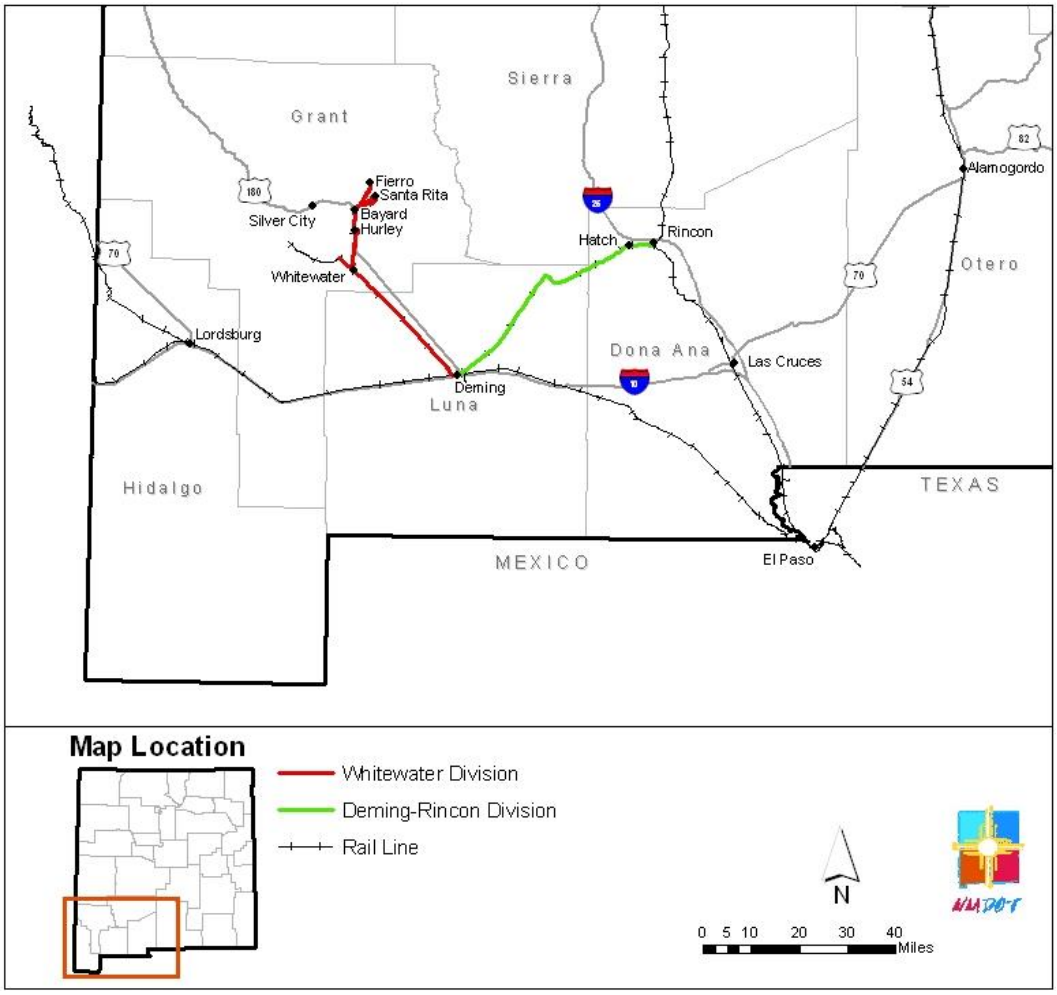
As shown in Figure 2.11, two SWRR subdivisions intersect at Deming:

- **Whitewater Line –** The Whitewater Line includes 57.1 miles of single-track mainline and industry track in Luna and Grant counties northwest of Deming, New Mexico primarily serving mining operations in Grant County. The Whitewater Line includes a 30.6-mile mainline from Deming to Whitewater, the 16.3-mile Santa Rita Subdivision from Whitewater to Santa Rita via Hanover, the 6.5-mile Fierro Spur from Hanover to Fierro, and the 3.7-mile Tyrone spur from Whitewater to Burro Mountain Junction. SWRR purchased the lines north of Whitewater from ATSF in 1992, purchased most of the mainline to Deming from ATSF in 1994, and purchased the remainder of the mainline to Deming in 2001. In Deming, the Whitewater line interchanges with the UP Sunset Route and with the Deming-Rincon line. SWRR has yards at Hurley and Deming serving this line. The Whitewater Line consists of Class 2 and Class 3 track and has a maximum speed of 30 mph.
- **Deming-Rincon Line –** The Deming-Rincon line is a 54-mile single-track mainline between Deming, New Mexico and Rincon, New Mexico that SWRR leased from BNSF in 2001. The Deming-Rincon line connects with the BNSF

[6] Reference the glossary in Appendix A for a description of the STB railroad classification.

El Paso Subdivision at Rincon with the UP Sunset Route and SWRR Whitewater Line at Deming. SWRR also leases the yard facilities owned by BNSF at Deming and interchanges with BNSF at the BNSF Rincon yard.

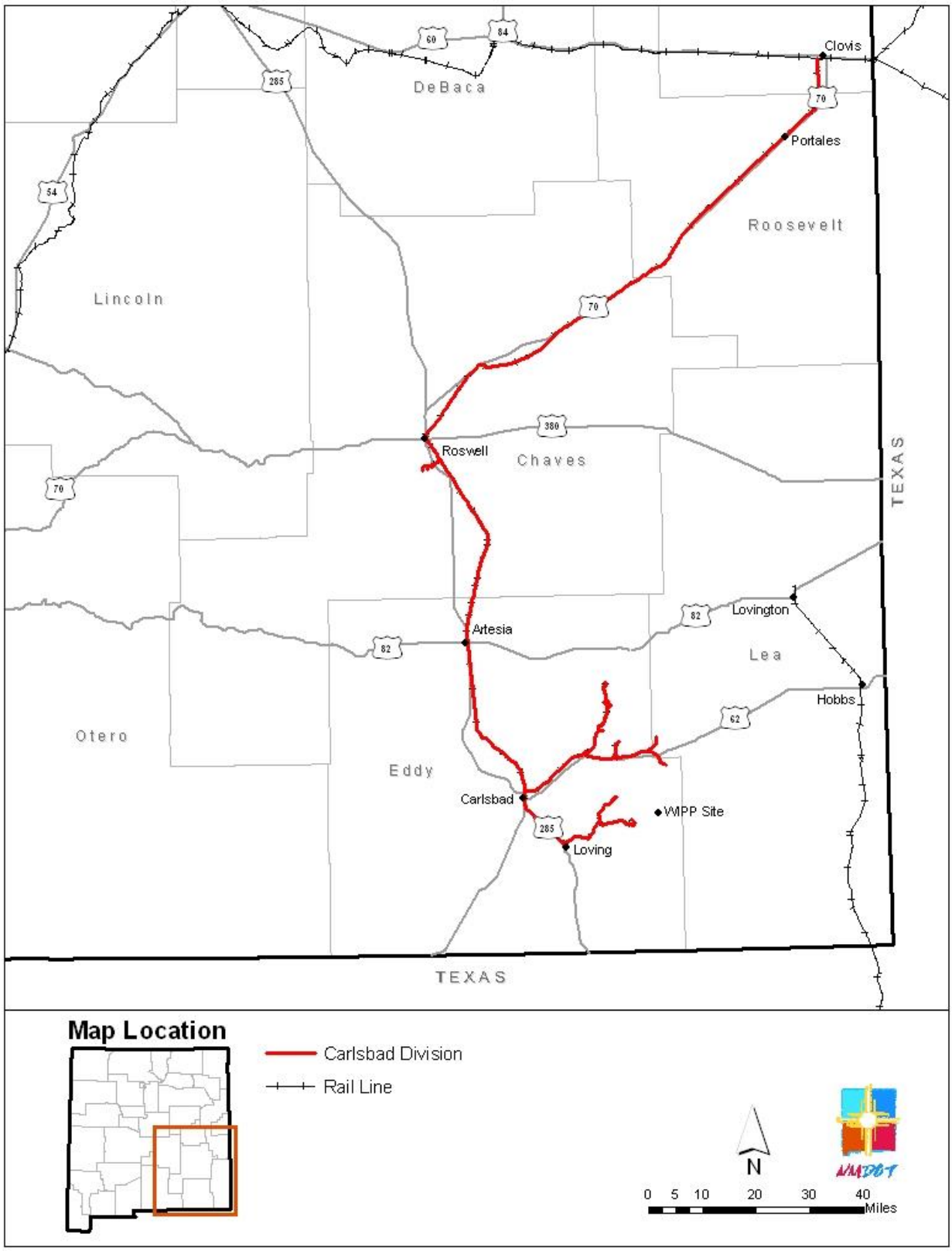
Figure 2.11 SWRR Deming Operations



Carlsbad Operations

The Carlsbad Division is a 222.5-mile branch line that SWRR leased from BNSF in 2004. As shown in Figure 2.12, the SWRR Carlsbad Division includes 182.5 miles of single-track mainline connecting the BNSF Clovis Subdivision at Clovis, New Mexico and Carlsbad, New Mexico and 40 miles of industry spurs primarily serving potash mines near Carlsbad and Loving, New Mexico. SWRR has yards in Carlsbad and Artesia and interchanges with BNSF at the BNSF Clovis yard. The Carlsbad Division mainline is Class 4 track with a maximum speed of 49 mph, while the industrial spurs operate at Class 3 speeds or lower. The Carlsbad Division operates using TWC.

Figure 2.12 SWRR Carlsbad Division

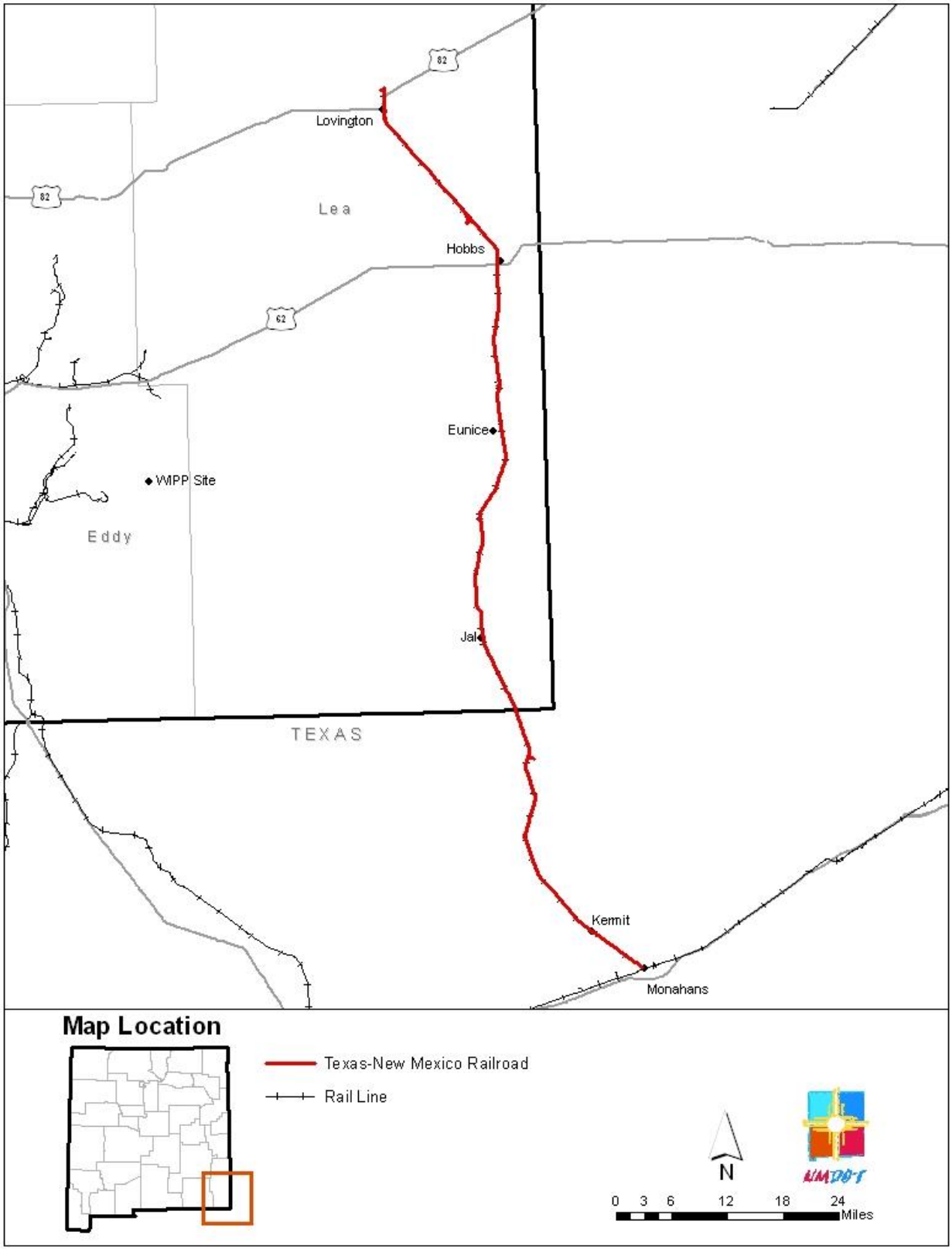


Texas-New Mexico Railroad

Texas-New Mexico Railroad (TNMR) owns 104 miles of single-tracked mainline between Monahans, Texas and Lovington, New Mexico, of which 76 miles are in New Mexico. The TNMR alignment is shown in Figure 2.13. TNMR, which is owned by Iowa Pacific Holdings, purchased the line in 2002. TNMR connects with UP at Monahans and primarily serves the oil drilling industry. Historically, TNMR most often carries oil field supplies (including fracturing sand and acid) and scrap steel, but TNMR also ships crude oil from the oil fields and began shipping unit trains of crude oil in January 2013. Other commodities carried by TNMR include waste soil, petroleum products, aggregate, and occasionally fertilizer. The TNMR is Class 1 track with a maximum speed of 10 mph. TNMR has invested more than $25 million over the past three years to install new, heavier rail that support increased volumes of rail traffic as well as other facilities.

TNMR has seen its business grow exponentially since 2010 as hydraulic fracturing techniques have greatly increased the amount of crude oil and gas extracted from the Permian Basin. TNMR carried 7,000 carloads of traffic in 2011, more than triple the amount it carried in 2010, and expects traffic could increase to as many as 50,000 carloads of traffic annually with the development of a crude oil unit car facility. In September 2011, Iowa Pacific Railroad announced their undertaking of extensive upgrades to the TNMR Line that include heavier rail, new locomotives, and a locomotive maintenance facility in Eunice, New Mexico.

Figure 2.13 Texas-New Mexico Railroad



Arizona Eastern Railway

Arizona Eastern Railway (AZER) owns 25 miles of single-tracked mainline in New Mexico and has trackage rights on an additional 27 miles of mainline owned by UP (Figure 2.14). AZER, which is owned by Genesee and Wyoming Inc., purchased the northern 67.7 miles of the 71-mile Clifton Branch from UP in 2008, which includes 25.3 miles within New Mexico. The Clifton Branch extends from an interchange with the UP Sunset Route in Lordsburg, New Mexico to Clifton, Arizona where it serves the Morenci Mine, one of the largest open pit copper mines in the world. AZER has trackage rights on the remaining 3.4 miles of the Clifton Branch and on the UP Sunset Route between Lordsburg and Bowie, Arizona, where AZER's other branch line interchanges with the Sunset Route which includes 24 miles within New Mexico. The Clifton Branch is Class 3 track with a maximum speed of 40 mph.

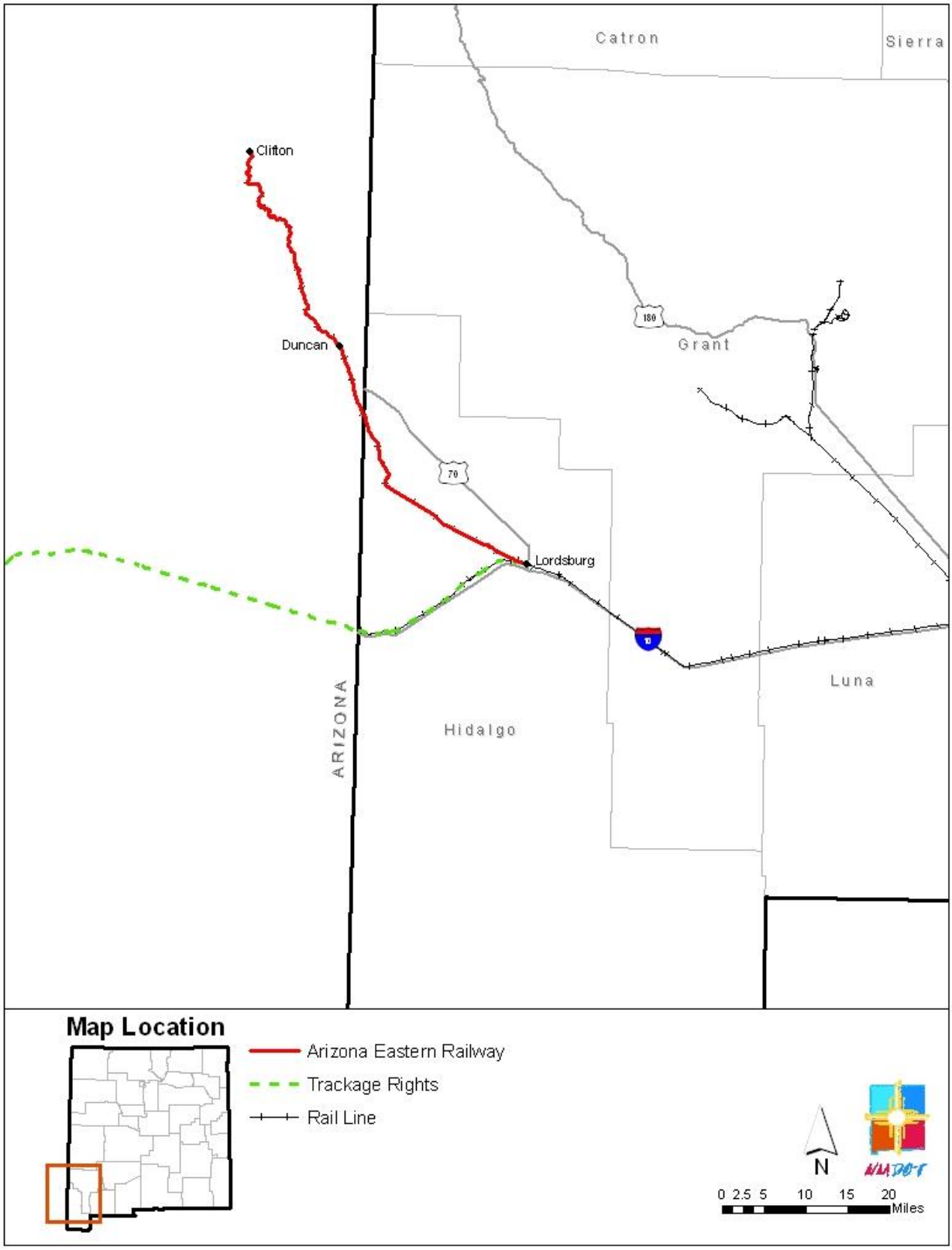
Santa Fe Southern Railway

Santa Fe Southern Railway (SFS) provided freight and year-round passenger excursion rail service on right-of-way between Santa Fe and Lamy, New Mexico prior to suspending operations in October 2012. SFS purchased this right-of-way from ATSF in 1992 but has since sold most of its right-of-way to NMDOT and the City of Santa Fe, retaining ownership of only 0.3 mile of the Eldorado Subdivision right-of-way within the Lamy yard. SFS operates and maintains the remaining 13.2 miles of the NMDOT-owned Eldorado Subdivision between Lamy and the Santa Fe Subdivision. SFS also has trackage rights on the northernmost 4.5 miles of the NMRX Santa Fe Subdivision.

In recent years, 90 percent of SFS' revenue has come from passenger excursion rail services operating from the Santa Fe Depot in the Santa Fe Railyard. Passenger excursion boardings occur at the Santa Fe Depot within the Santa Fe Railyard. Prior to the start of construction to bring Rail Runner to Santa Fe, SFS carried up to 25,000 passengers annually, but in 2009, the first full year of Rail Runner service, this dropped to about 12,000 passengers. SFS suspended passenger excursion operations in October 2012 and these remained suspended through the end of 2013.

Freight operations for SFS occur at Lamy, where SFS interchanges with BNSF freight trains from the BNSF Albuquerque yard, and at the Sawmill yard, a NMDOT-owned freight facility in Santa Fe off of Sawmill Road. Freight business on the SFS line has dropped considerably over the past decade and presently totals fewer than 50 carloads annually. SFS may resume freight shipments from the Lamy yard in 2014.

Figure 2.14 Arizona Eastern Railway



Santa Teresa Southern Railroad

Santa Teresa Southern Railroad (STS), owned by Ironhorse Resources Inc., is a new railroad in Santa Teresa, New Mexico. STS operates 2.3 miles of rail line owned by Verde Logistics Railroad, LLC. STS provides service to the Santa Teresa Logistics Industrial Rail Park and interchanges with the UP Sunset Route near the Santa Teresa yard facility UP is building and the proposed Santa Teresa international rail crossing. STS filed papers with the STB in March 2012 to commence operations, and completed installation of new track to handle 286,000-pound car loads in April 2013.

New Mexico Department of Transportation/Rio Metro Regional Transit District

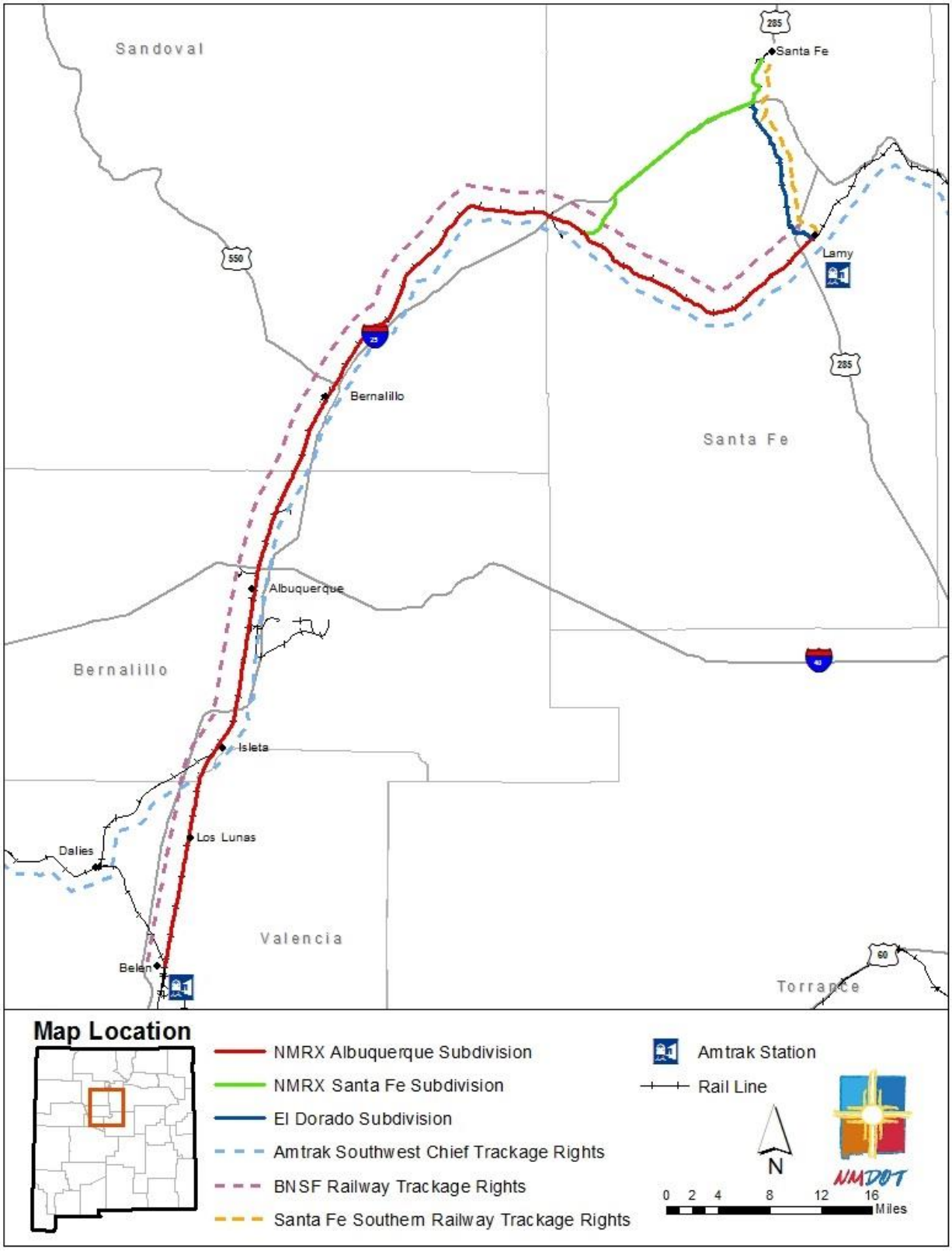
The NMDOT owns 133 miles of right-of-way in Valencia, Bernalillo, Sandoval, and Santa Fe counties which was purchased or newly constructed during the 2005-2008 period to facilitate the development of the New Mexico Rail Runner Express, the State's first commuter rail service, which it also owns. The NMDOT-owned rail alignment is shown in Figure 2.15. NMDOT does not operate rail service directly, but has operating agreements with Rio Metro Regional Transit District (Rio Metro) and SFS for rail operations and maintenance on its right-of-way.

Prior to the initiation of Rail Runner service, the STB decided on the matter of whether NMDOT would be a common carrier if it acquired the BNSF rail line. The decision was that NMDOT was not a common carrier and stated;

> *The record shows that BNSF would not be transferring common carrier rights or obligations and the NMDOT would not hold itself out as a common carrier performing rail freight service. The agreements between NMDOT and BNSF show that NMDOT would acquire only the physical assets but not the contractual rights necessary to conduct, control or interfere with common carrier freight operations on the line. BNSF would continue to provide its freight service over the line. Under the circumstances, we find that NMDOT would not become a rail carrier subject to the Board's jurisdiction as a result of the transaction. Therefore, this transaction does not require Board authorization, and NMDOT's notice of exemption will be dismissed and this proceeding will be discontinued.*[7]

[7] STB Finance Docket No. 34793, decided February 3, 2006.

Figure 2.15 NMDOT-Owned Rail Alignment



Rio Metro operates the New Mexico Rail Runner Express and maintains the Albuquerque and Santa Fe subdivisions, the two NMDOT-owned subdivisions Rail Runner Express operates on, using the American Association of Railroads reporting mark NMRX. Rio Metro includes the counties of Sandoval, Bernalillo and Valencia; the cities of Rio Rancho, Albuquerque, and Belen; the town of Bernalillo; and the villages of Los Ranchos de Albuquerque, Bosque Farms, Los Lunas, and Corrales. It was certified by the State Transportation Commission on March 29, 2005, and its service plan was approved on November 4, 2008. In 2008, voters in those three counties approved a 0.125 percent increase in the gross receipts tax to fund transit operations, with revenues divided equally between bus and commuter rail. A similar tax increase was approved by the North Central Regional Transit District, which pledged half of the revenue raised by the 0.125 percent GRT increase in Santa Fe County to Rail Runner. The GRT tax for transit began July 1, 2009, and on October 20, 2009, Rio Metro assumed responsibility from the Mid-Region Council of Governments (MRCOG) for operating the NMRX service and for maintaining the two NMDOT-owned subdivisions on which the NMRX operates.

Albuquerque Subdivision

The Albuquerque Subdivision is a 98.5-mile right-of-way extending from Belen to Lamy, New Mexico that NMDOT purchased from BNSF in two stages completed in 2005 and 2007. The Albuquerque Subdivision is single-tracked save for a 4.7-mile segment within Albuquerque that is double-tracked. Most of this right-of-way is controlled using CTC technology, but two sections totaling 33.8 miles operate using TWC and a 2.7-mile section in Albuquerque operates using restricted limits. The Albuquerque Subdivision is generally Class 4 track, although there is a 12.6-mile section of Class 5 track south of Albuquerque and there are several sections with permanent speed restrictions where the Albuquerque Subdivision operates as Class 3 or even Class 2 track. Rio Metro dispatches and maintains the Albuquerque Subdivision under an operating agreement with NMDOT.

The maximum speed for passenger trains on the Albuquerque Subdivision is 79 mph. The Albuquerque Subdivision is equipped with ATS north of Albuquerque that would permit higher-speed operations of up to 90 miles per hour, were the track upgraded to Class 5. However, the existing section of Class 5 track south of Albuquerque and Isleta is not equipped with ATS.

Three railroads operate on the Albuquerque Subdivision. BNSF retains exclusive and perpetual freight rights on the entire Albuquerque Subdivision as a condition of selling the line to NMDOT, although BNSF trains operate only as needed north of the City of Albuquerque. Rail Runner operates between Belen Station and CP Madrid (where the Santa Fe Subdivision joins the Albuquerque Subdivision), a distance of 74 miles. Amtrak's *Southwest Chief* operates between Lamy and Isleta Junction, a distance of 81 miles.

Santa Fe Subdivision

The Santa Fe Subdivision is a 22.4-mile right-of-way extending from the Albuquerque Subdivision at MP 858 (CP Madrid) to the end of the tracks in the Santa Fe Railyard. NMDOT owns 21.7 miles of the Santa Fe Subdivision, while 0.7 miles within the Santa Fe Railyard at the northern end of the line are owned by the City of Santa Fe. All of this right-of-way is controlled using CTC technology except for the northern 0.6 miles within the Santa Fe Railyard that is not signalized and that operates using restricted limits. Rio Metro dispatches and maintains the Santa Fe Subdivision under an operating agreement with NMDOT.

The southern 17.9 miles of the Santa Fe Subdivision consists of new right-of-way completed in 2008 that is Class 4 track with a maximum speed of 79 mph. The new right-of-way begins at MP 858 (CP Madrid) of the Albuquerque Subdivision at the base of the La Bajada Escarpment and climbs La Bajada via Waldo Canyon. From the top of Waldo Canyon, the right-of-way is located in the median of I-25 until it curves north shortly before the junction of the Santa Fe Subdivision with the Eldorado Subdivision at CP Hondo. The track through Waldo Canyon is considered mountain-grade as it includes grades as high as 3.24 percent. Freight trains are prohibited from using this section of the Santa Fe Subdivision, and the only regular service on this route is by Rail Runner.

The northern 4.5 miles of track is part of the original rail right-of-way from Lamy to Santa Fe completed by the ATSF in 1881. ATSF sold the railroad to SFS in 1992, and SFS subsequently sold the right-of-way to the City of Santa Fe and NMDOT in separate transactions in 1995 and 2005, respectively. This track, which proceeds north from the junction of the Santa Fe Subdivision and Eldorado Subdivision at CP Hondo, was rebuilt to Class 4 standards in 2008 although it operates at Class 3 or Class 2 speeds due to grades and curvature on this section. Both Rail Runner and SFS operate regularly in this section of the Santa Fe Subdivision.

Eldorado Subdivision

The Eldorado Subdivision is a 13.5-mile single-tracked right-of-way extending from the Albuquerque Subdivision at Lamy to the Santa Fe Subdivision at MP 17.9 (CP Hondo). In 2005, NMDOT purchased the northern 13.2 miles of the Eldorado Subdivision from SFS, which retains ownership of 0.3 miles at the southern end within the Lamy yard. The Eldorado Subdivision operates using restricted limits and is Class 1 or Class 2 track. SFS dispatches and maintains the Eldorado Subdivision under an operating agreement with NMDOT. The Eldorado Subdivision was placed out of service in 2012 when SFS suspended operations.

2.3 PASSENGER RAILROADS

Amtrak

The National Passenger Railroad Corporation, or Amtrak, operates two long-distance routes in New Mexico, the Southwest Chief and the Sunset Limited, shown in Figure 2.16.

Southwest Chief

The Southwest Chief operates one train daily per direction linking Chicago, Kansas City, Albuquerque and Los Angeles, a distance of 2,256 miles that includes 431 miles within New Mexico, operating on right-of-way owned by BNSF and NMDOT within New Mexico. Westbound trains enter New Mexico from Colorado on the BNSF Raton Line, travel on the NMRX Albuquerque Subdivision between Lamy and Isleta, and return to BNSF right-of-way on the Isleta-Dalies connector and Gallup Subdivision before entering Arizona west of Gallup. Station stops for the Southwest Chief in New Mexico are at Raton, Las Vegas, Lamy, Albuquerque, and Gallup. Travel time for the *Southwest Chief* within New Mexico is approximately nine and one-half hours, with eastbound trains arriving in Albuquerque shortly before noon and westbound trains arriving in Albuquerque around 4:00 p.m. The train is typically comprised of nine cars with three coach cars and 2.25 sleeping cars.

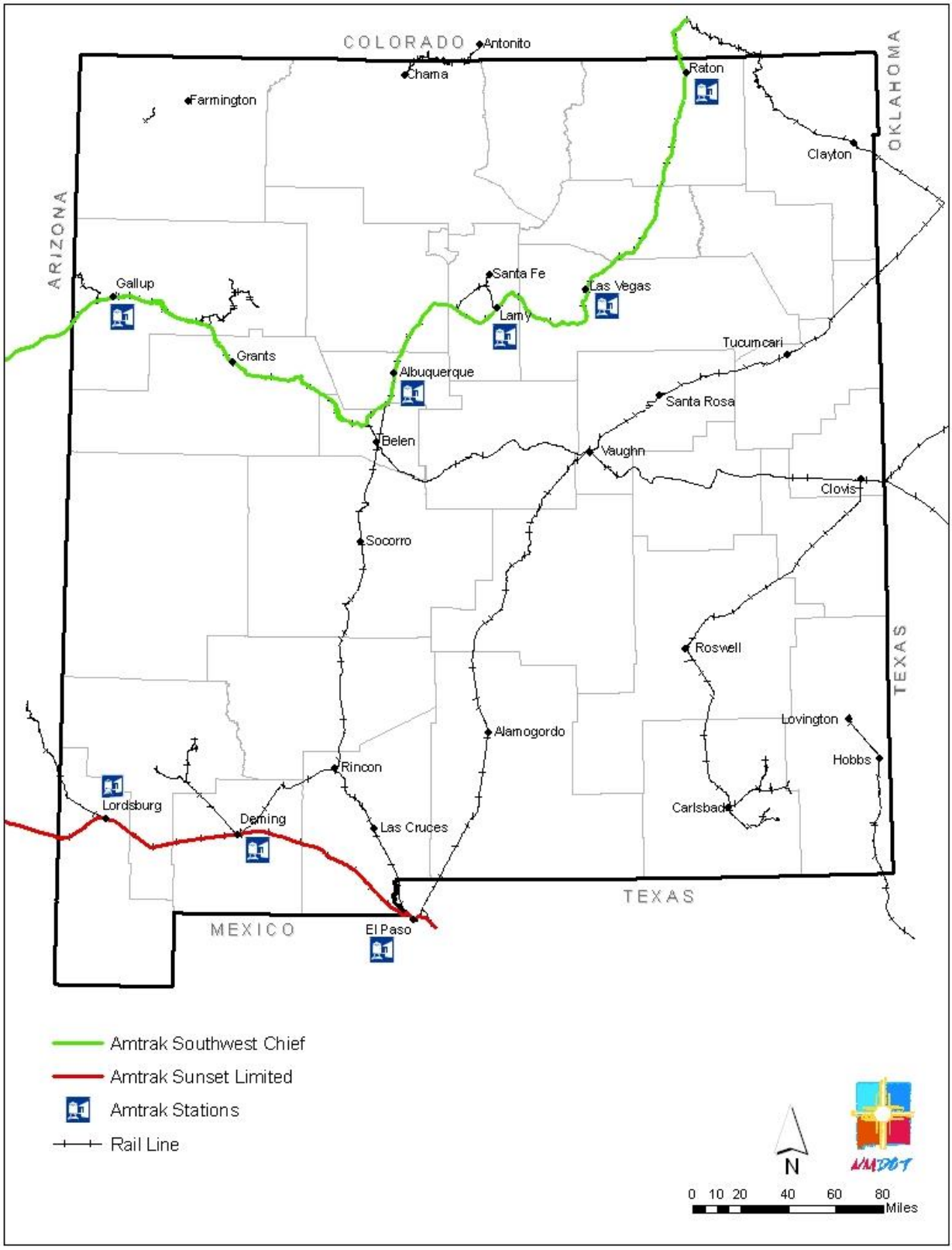
In Federal Fiscal Year (FFY) 2012, there were 129,404 boardings and alightings at the five New Mexico stations served by the Southwest Chief, accounting for roughly one-third of the 355,316 passengers the Southwest Chief carried in FY 2012.

Table 2.2 Southwest Chief Boardings and Alightings by NM Station

	FY 2012	FY 2011	FY 2010	FY 2009	FY 2008
Raton	16,292	16,794	18,025	15,066	15,037
Las Vegas	5,653	4,952	4,491	4,456	4,280
Lamy	12,589	12,579	13,056	13,012	13,976
Albuquerque	78,324	75,779	71,848	67,751	72,434
Gallup	16,446	14,433	13,431	12,340	12,517
Subtotal NM	129,304	124,537	120,851	112,625	118,244
Total Southwest Chief	**355,316**	**354,912**	**342,403**	**318,025**	**331,143**

Source: Amtrak.

Figure 2.16 Amtrak Routes in New Mexico



Amtrak provides motor coach connections at Raton (along I-25 north to Pueblo, Colorado Springs, and Denver and a connection with Amtrak's California Zephyr) and Albuquerque (along I-25 south to Truth or Consequences, Las Cruces and El Paso and a connection with Amtrak's Sunset Limited). Shuttle van services also are provided between Lamy and Santa Fe.

Albuquerque is Amtrak's busiest station stop in New Mexico, with more boardings and alightings than all other Amtrak stations in New Mexico combined. More than 20 percent of all riders on the Southwest Chief either boarded or alighted at Albuquerque in each of the past five years. The Albuquerque station is located at the Alvarado Transportation Center, the major intermodal passenger transportation facility in New Mexico, which offers direct transfers to Rail Runner, Greyhound, and local and commuter bus services. Albuquerque also serves as a fueling and servicing location for the Southwest Chief, and often keeps a spare locomotive in Albuquerque.

Sunset Limited

The *Sunset Limited* operates three trains per direction weekly linking New Orleans, Houston, San Antonio, El Paso, Tucson, and Los Angeles, a distance of 1,995 miles that includes 167 miles within New Mexico on the UP Sunset Route right-of-way. Westbound trains enter New Mexico from Texas at El Paso and make station stops at Deming and Lordsburg before entering Arizona west of Steins Pass. Travel time for the Sunset Limited in New Mexico is a little over two hours, with westbound trains passing through New Mexico in the early evening on Tuesdays, Thursdays, and Saturdays and eastbound trains passing through the State in the early morning on Mondays, Thursdays, and Saturdays.

In FY 2012, there were 1,653 boardings and alightings at the two New Mexico stations served by the Sunset Limited, accounting for less than two percent of the 101,217 passengers the Sunset Limited carried in FY 2012.

Table 2.3 Sunset Limited Boardings and Alightings by NM Station

	FY 2012	FY 2011	FY 2010	FY 2009	FY 2008
Deming	1,170	1,047	869	844	812
Lordsburg	483	510	472	404	393
Subtotal NM	1,653	1,557	1,341	1,248	1,205
Total Sunset Limited	**101,217**	**99,714**	**71,719**	**63,336**	**71,719**

Source: Amtrak.

Deming and Lordsburg are both flag stops for the Sunset Limited. Trains stop at these stations only if there are passengers boarding or alighting at the stations. There are no station facilities at either station, and because they are flag stops the stations are not required to comply with the American with Disabilities Act (ADA).

New Mexico Rail Runner Express

New Mexico Rail Runner Express (Rail Runner) is New Mexico's first commuter rail service. Inaugurated in 2006, Rail Runner today provides service seven days per week to 13 stations in a 97-mile corridor serving Valencia, Bernalillo, Sandoval, and Santa Fe counties and serving the cities of Belen, Albuquerque, and Santa Fe. Much of this corridor utilizes preexisting right-of-way shared with BNSF and SFS trains, but the corridor includes 18 miles of new right-of-way restricted to passenger rail use only between the former BNSF mainline near the base of Waldo Canyon and the former SFS line just north of Interstate 25.

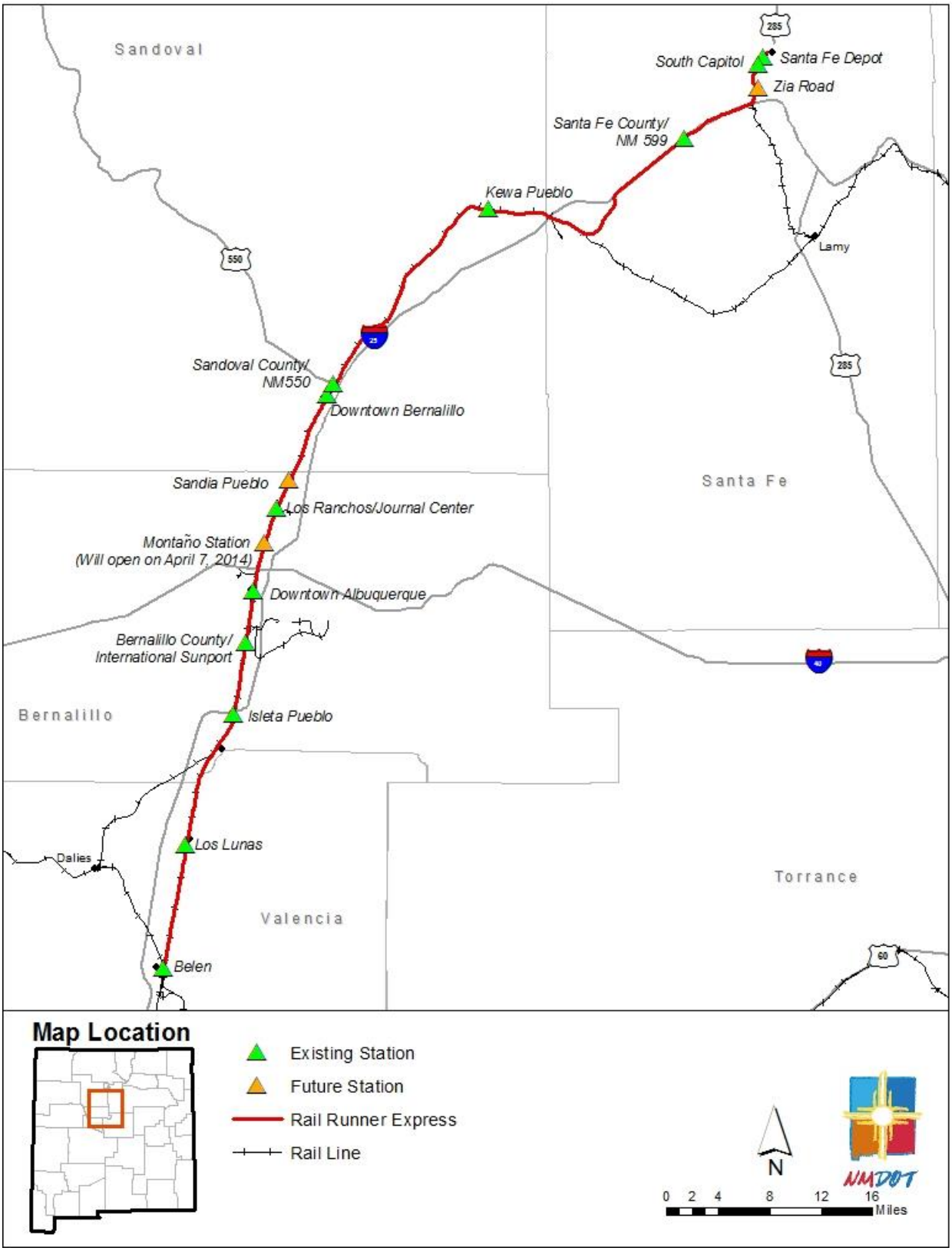
Service was developed in two phases, with Phase I of Rail Runner serving the Albuquerque metropolitan area only, operating within the existing BNSF right-of-way from Belen to Bernalillo. Phase II of the service extended the initial rail service to Santa Fe.

Rail Runner operates 22 trains each weekday, 11 trains on Saturday, and seven trains on Sunday. Service between Bernalillo and Sandoval counties began on July 14, 2006, expanded to Valencia County in December 2006 and to Santa Fe on December 17, 2008.

From south to north, Rail Runner serves the following 13 stations, shown in Figure 2.17:

- Belen;
- Los Lunas;
- Isleta Pueblo;
- Bernalillo County/International Sunport;
- Downtown Albuquerque;
- Los Ranchos/Journal Center;
- Sandia Pueblo
- Bernalillo;
- Sandoval County/U.S. 550;
- Kewa Pueblo;
- Santa Fe County/NM 599;
- South Capitol; and
- Santa Fe Depot.

Figure 2.17 New Mexico Rail Runner Express



Connections to fixed route bus service exist at the Belen, Los Lunas, Bernalillo County/International Sunport, Downtown Albuquerque, Los Ranchos/Journal Center, Sandoval County/U.S. 550, Kewa Pueblo, Santa Fe County/NM 599, South Capitol, and Santa Fe Depot stations (Table 2.4). The Downtown Albuquerque station, located at the Alvarado Transportation Center, serves as an intermodal transfer location for intercity rail and intercity bus services as well as local bus service.

Table 2.4 Local Transit Connections

Station	Transit Connections
Santa Fe Depot	• Santa Fe Trails Routes 2, 4, M • Santa Fe Pick-Up • Buffalo Thunder Resort and Casino Shuttle • Taos Express
South Capitol	• Santa Fe Trails Routes 2, 4 • South Capitol Shuttle • NM Park and Ride – Blue, Red, Orange, and Green Routes • NCRTD Espanola to Santa Fe Route • Taos Express
Santa Fe County/ NM 599	• NM Park and Ride Purple Route to Los Alamos • NM 599 Station Shuttle • Santa Fe Trails Route 22 (limited) • NCRTD 599 Route (limited)
Kewa Pueblo	• Rio Metro Route 202 • San Felipe Hollywood Casino Shuttle
Sandoval County/ U.S. 550	• Rio Metro Routes 201 and 204 • Santa Ana Star Casino Shuttle • San Felipe Hollywood Casino Shuttle
Downtown Bernalillo	
Sandia Pueblo	• Sandia Resort and Casino Shuttle
Los Ranchos/Journal Center	• ABQ Ride Routes 251, 505B
Downtown Albuquerque	• ABQ Ride Rapid Routes 766 and 777 • ABQ Ride Route 40 – Free "D Ride" • ABQ Ride Routes 53, 217, 250 • ABQ Trolley Company • NM Park and Ride Turquoise Route to Moriarty • UNM Campus Shuttle • UNM Hospital Shuttle • Greyhound • Amtrak *Southwest Chief*
Bernalillo County/ International Sunport	• ABQ Ride Route 222 • Rio Metro Route 504

Station	Transit Connections
Isleta Pueblo	• Rio Metro Route 504 • Isleta Resort and Casino Shuttle
Los Lunas	• Rio Metro Routes 207, 504 • Rio Metro Dial-a-Ride
Belen	• Rio Metro Routes 206, 504 • Dial-A-Ride • Socorro Shuttle

Two additional stations are under development:

- **Montaño Station –** The City of Albuquerque has obtained a Federal grant to develop a multimodal transit facility on Montaño Road that would include a Rail Runner station. The station is scheduled to open on April 7, 2014.
- **Zia Road Station –** A station platform was constructed at Zia Road in Santa Fe in 2008 but has not yet opened. Paved access to the platform, parking and passenger drop-off facilities have not been built. NMDOT has identified several safety concerns related to the proposed improvements, and will not permit Zia Station to open unless these are addressed in the final design and construction. NMDOT is in discussions with the City of Santa Fe regarding the opening of the station.

Rail Runner ridership increased dramatically after service was extended to Santa Fe in December 2008, as shown in Table 2.5. Approximately 60 percent of weekday trips and 85 percent of weekend trips have one trip end in Santa Fe County and the other in Valencia, Bernalillo, or Sandoval Counties. Rail Runner carried more than 1.1 million riders during 2012, and averaged approximately 3,800 passengers per weekday in 2012.

Table 2.5 Rail Runner Ridership by Calendar Year

	Average Weekday	Annual Ridership
2007	1,761	500,951
2008	2,299	676,790
2009	4,204	1,349,990
2010	3,877	1,165,985
2011	4,215	1,242,174
2012	3,838	1,129,253
2013	3,647	1,082,373

Rail Runner utilizes nine locomotives and a total of 22 passenger cars. Of the 22 passenger cars, nine are bi-level cab cars and 13 are bi-level coaches. Each car contains approximately 150 seats with bicycle and wheelchair accommodations.

Rail Runner trains vary between two and five passenger cars in length, depending on average ridership for each run. Station platforms vary between three and five cars in length.

Santa Fe Southern Railway

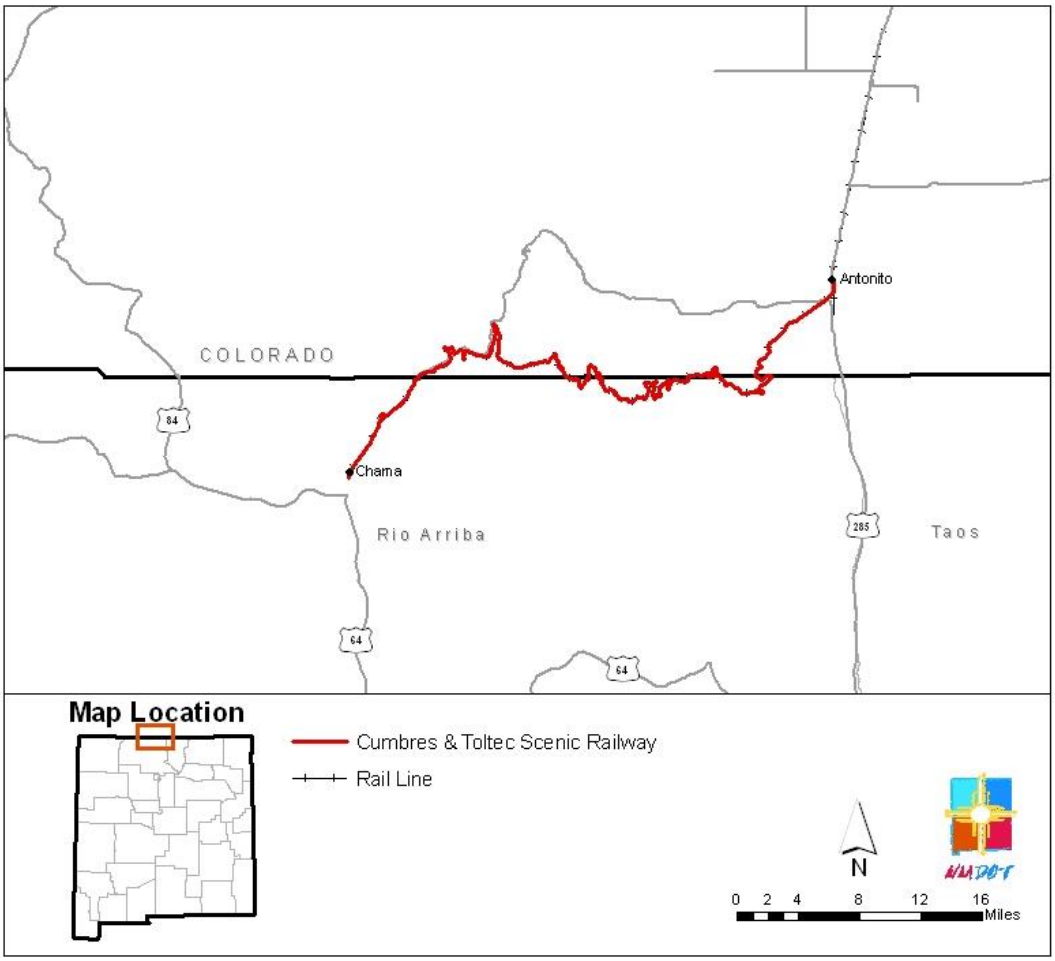
See Section 2.2 for a discussion on SFS passenger excursion services.

Cumbres & Toltec Scenic Railroad

The Cumbres & Toltec Scenic Railroad (C&TS), jointly owned by the States of New Mexico and Colorado, is a 64-mile narrow gauge tourist-hauling excursion steam railroad that operates between Chama, New Mexico and Antonito, Colorado. The right-of-way, shown in Figure 2.18, crosses the state line numerous times and about 32 miles of right-of-way is located in each state. Constructed in 1880 by the Denver and Rio Grande Railroad to serve mining camps in the San Juan Mountains, the line was abandoned in 1969 and purchased by the States of New Mexico and Colorado for use as a passenger excursion line. C&TS is no longer part of the common carrier rail network and carries no freight. C&TS operates scheduled passenger excursions between Memorial Day weekend and mid-October, seven days per week, and also operates special excursions during other months of the year. C&TS often carries more than 40,000 passengers a year, but carried 30,000 passengers in 2012.

A June 10, 2010 fire severely damaged the Lobato Trestle, a 310-foot bridge approximately three miles from Chama and prevented trains from using the bridge until repairs were completed. This significantly reduced ridership in 2010. Funding was secured in late 2010 for repairs to the Lobato Trestle from a variety of sources, including the States of New Mexico and Colorado, private donations raised by the Friends of the Cumbres & Toltec Scenic Railroad, and C&TS' insurance. A contract was awarded in March 2011 for the repairs, and the Lobato Trestle was repaired and reopened shortly after the scheduled opening of the C&TS in May 2011.

Figure 2.18 Cumbres & Toltec Scenic Railroad



2.4 PRIVATE RAILROADS

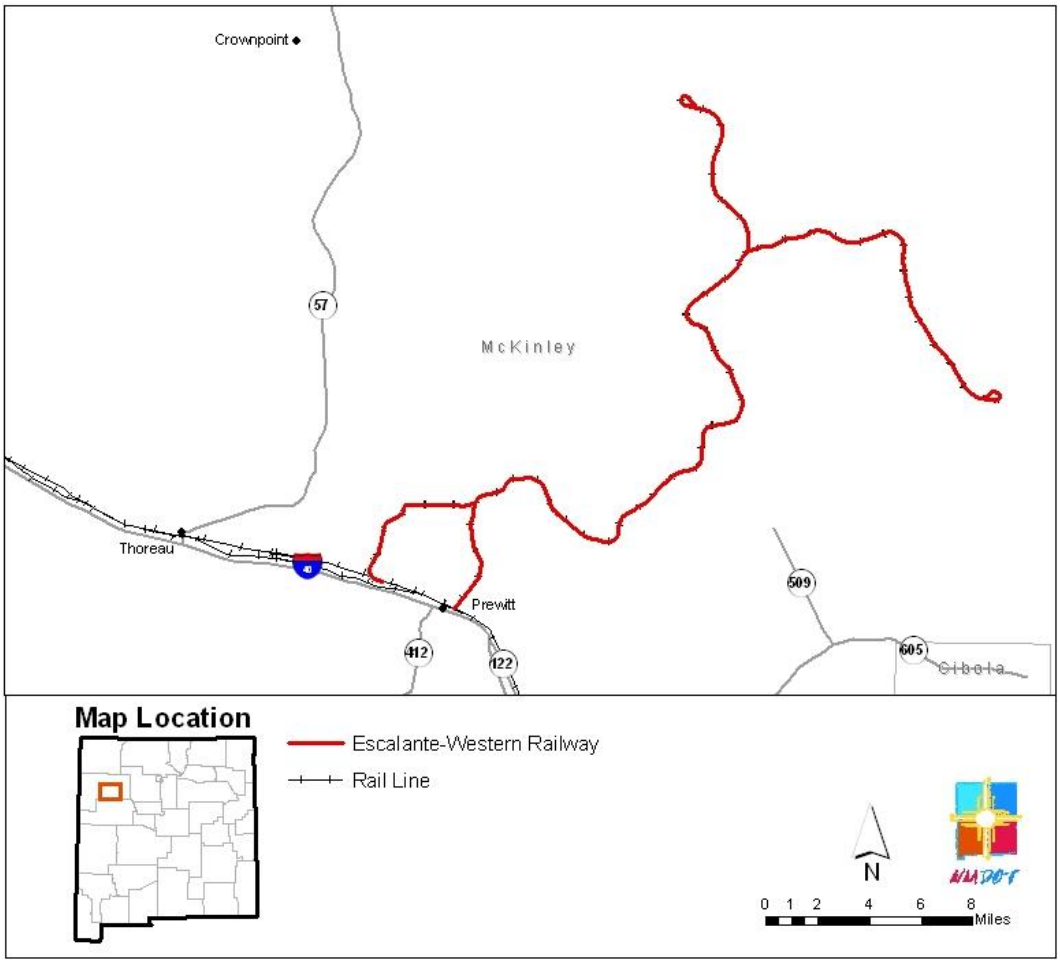
There are two private freight railroads in New Mexico which carry only a single commodity and are not subject to Federal regulation. Each of these railroads transports coal mined in the northwest part of New Mexico.

Escalante-Western Railway

Escalante-Western Railway is a subsidiary of Western Fuels Association, Inc. It owns and operates a 55-mile network within McKinley County, New Mexico (Figure 2.19) serving the Lee Ranch Mine, El Segundo Mine, and Escalante Generating Station that connects with the BNSF Gallup Subdivision at two locations near Prewitt, New Mexico. Escalante-Western trains transport coal from the Lee Ranch Mine to the Escalante Generating Station. BNSF does not serve the Escalante Generating Station but does transport coal from both mines

to more distant customers. The 46 miles of the Escalante-Western right-of-way used by BNSF is listed as the Lee Ranch Subdivision in the BNSF timetable.

Figure 2.19 Escalante-Western Railway

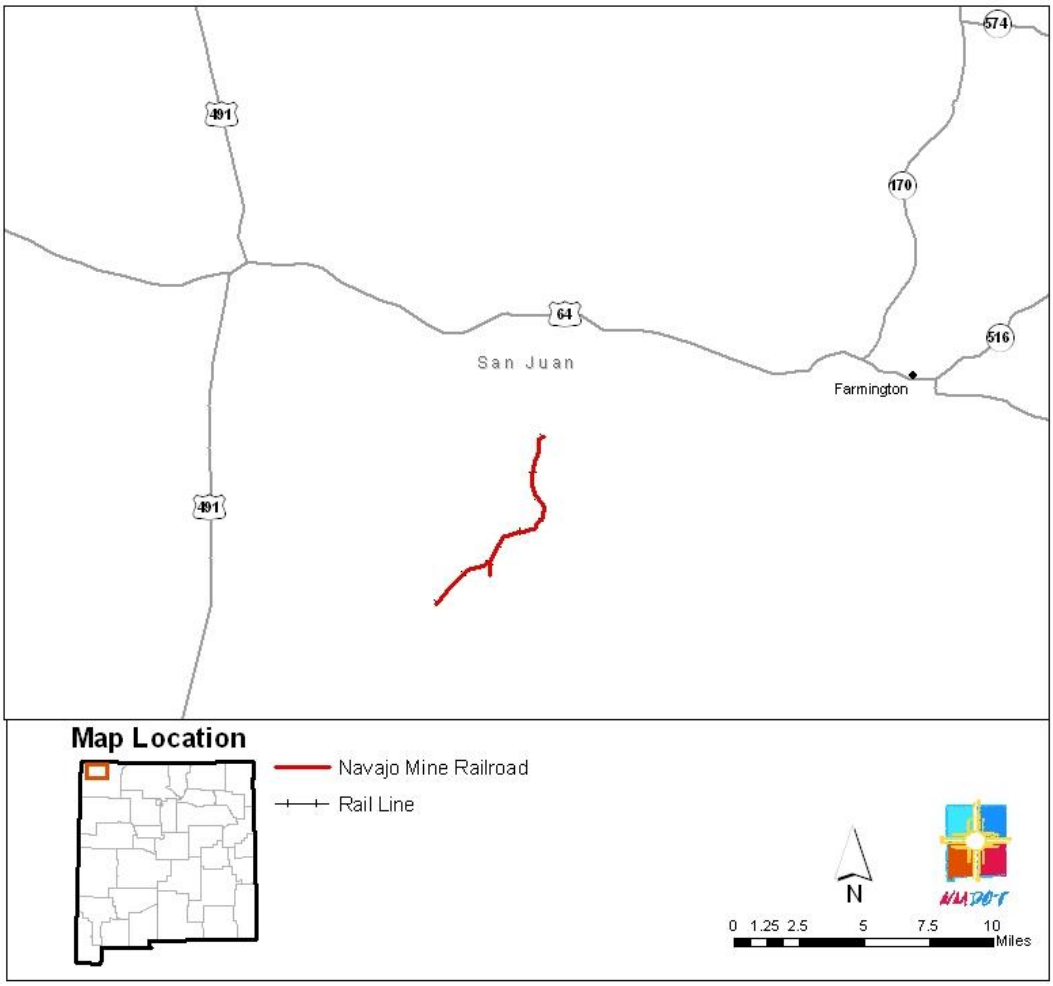


Navajo Mine Railroad

The Navajo Mine Railroad is a 13-mile electrified railway within San Juan County, New Mexico that transports coal from the Navajo Mine to the Four Corners Power Plant.[8] BHP Billiton sold the Navajo Mine and the Navajo Mine Railroad to the Navajo Nation on December 30, 2013.

[8] BHP Billiton, *Our Strategy Delivers, Annual Report 2010*, page 49.

Figure 2.20 Navajo Mine Railroad



2.5 ABANDONMENTS

Railroads may choose to abandon railroad lines that are no longer in use by filing a Notice of Exemption with the STB. The railroad states in its Notice that no local rail service has been provided to customers on the line for two or more years and that there has either been no through service during that period or that any through service can be rerouted to other rail lines. The railroad states its intent to abandon the line and what steps it will take to salvage the existing railroad infrastructure. The STB will open a docket for the abandonment and place a notice of this in the Federal Register. Any parties interested in purchasing the rail line or in providing subsidies to the carrier to continue providing service on the rail line may make an offer of financial assistance to the railroad. If no acceptable offers of financial assistance are made for the rail line, the STB will grant the railroad authority to begin salvaging the line. Procedures also exist for those who would like to see the rail corridor made into a public trail or who would like to put the right-of-way to another public use.

There have been relatively few rail abandonments within New Mexico since 1996, when the last New Mexico Rail Plan Update prepared in accordance with the Local Rail Freight Assistance Act was published. In 2003, BNSF abandoned and salvaged 46.54 miles of right-of-way between Loving, New Mexico and Rustler Springs, Texas. Approximately 22 miles of this line were located in New Mexico. In 2007, BNSF abandoned 36.1 miles of right-of-way on the York Canyon Line between French, New Mexico and the York Canyon mine after the closing of the mine in 2002 and completion of reclamation efforts. Adjacent landowners purchased the line and it is now used for car storage. In August 2012, BNSF filed an Abandonment Exception Notice for the northern 5.11 miles of the Defiance Branch. BNSF intends to salvage the line unless it is rail banked.

Raton Line

The entire Raton Line between Lamy and the Colorado state line is a potential candidate for abandonment. This line has had no local freight service since the York Canyon Mine ceased operation in 2002 and presently is used only by Amtrak's Southwest Chief. BNSF and Amtrak are negotiating a new long-term operating agreement to replace the current agreement that is set to expire at the beginning of 2016. BNSF is requesting that Amtrak pay the full incremental cost of maintaining the rail line between Lamy and Hutchinson, Kansas at 79 mph, which is estimated to exceed $10 million per year. BNSF has offered to have Amtrak reroute the Southwest Chief to the Transcon alignment through Amarillo, Texas; Clovis; and Belen that is already maintained at levels that support 79 mph operations.

Should the Southwest Chief be rerouted to the Transcon alignment, BNSF has stated it could abandon the Raton Line. This would result in either the salvaging of the railroad infrastructure or the purchase of the line by a railroad that believed it could find enough local business to profitably operate and maintain the line. Abandonment of the Raton Line would also cause a significant reduction in property tax revenues for Colfax, Mora, and San Miguel counties. BNSF could also elect to keep the Raton Line operating as a freight only line, operating at lower speeds with lower maintenance costs, where it would remain available as an alternate route to the Transcon. The sale or lease of the Raton Line to a Class III railroad that would have lower operations costs and a strong incentive to develop local freight business is also a possibility.

3.0 Rail Issues and Opportunities

To place the New Mexico rail system within a national and statewide context, this chapter characterizes the national significance of the New Mexico rail system and describes national and State trends that could impact freight and passenger rail demand and change the role of New Mexico rail in the future. It also describes key issues and opportunities that confront the system, potentially impacting rail projects, service, and operations in the State.

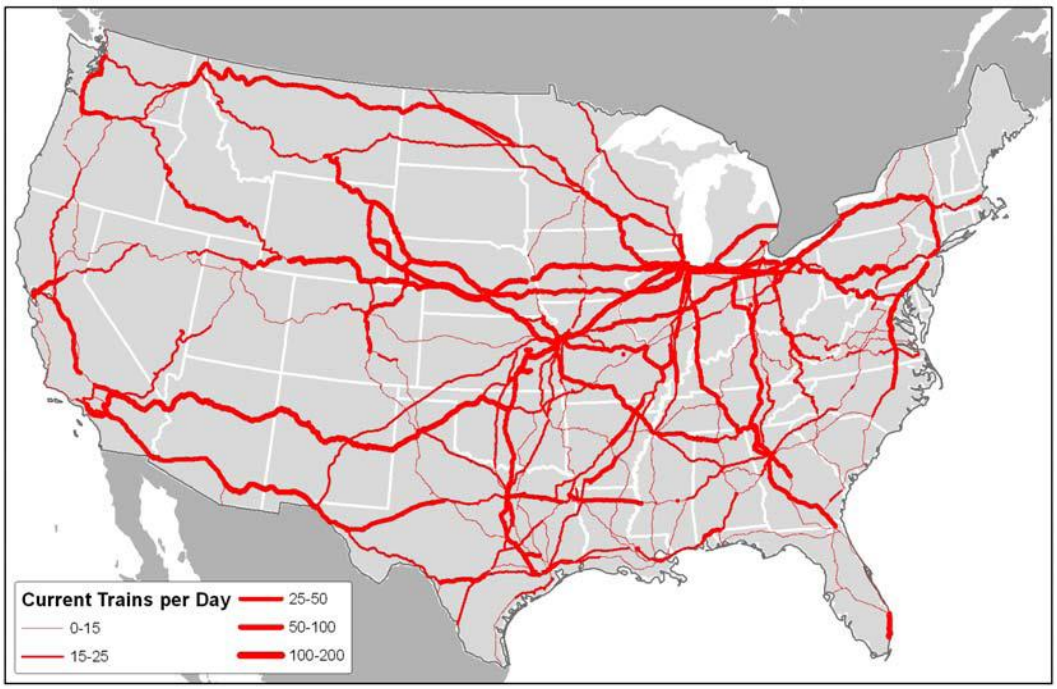
3.1 ROLE OF NEW MEXICO IN THE NATIONAL RAIL SYSTEM

New Mexico's rail lines are an important part of the national rail system, critical for the movement of goods. The Rocky Mountains are a formidable barrier to travel between the West Coast of the United States and the rest of the country, and railroad builders, like the wagon trails before them, sought routes that avoided the steepest ascents and the highest elevations. The topography of New Mexico offered railroad builders a route that avoided the tallest ranges to the north, and the warmer weather in New Mexico meant that winter snows were less of a threat to railroad builders and operations. In the twentieth century, the trends of urbanization and rural depopulation, the growth of the sunbelt South and the Southwest, and the increase in U.S./Asian trade and manufacturing meant that travel routes connecting Southern California to Chicago (and from there to the Northeast), Memphis, Atlanta, Houston, and New Orleans became much more important for goods movement.

By the 1990s, freight flows were being influenced by high rates of U.S. domestic economic growth, population, and retail concentration in large metro areas, globalization in manufacturing sourcing, increased global trade, and utilization of standardized shipping containers as the dominant means of freight transport. These trends led to the explosion in Asian container traffic into the Ports of Los Angeles and Long Beach, and the increasing volumes of this trade traveling across New Mexico along I-40 and I-10 and across the BNSF transcontinental line and UP's former Southern Pacific route through El Paso to Dallas or Houston (Figure 3.1).

New Mexico's position as a crossroads within the national freight rail network presents both opportunities and challenges for the State. On one hand, these rail lines generate significant revenues for the railroads, which means that the lines will attract capital spending for maintenance and expansion. On the other hand, the trains themselves are moving fast and bound for long-distance markets. This means that rail shippers in New Mexico will have to struggle harder to attract industrial development or initiate new or expanded service within the State.

Figure 3.1 Current Corridor Volumes by Primary Rail Freight Corridors
2005 Freight Train Volumes



Source: Cambridge Systematics, Inc., from National Rail Freight Infrastructure and Capacity Study, Association of American Railroads, 2007

This chapter outlines the national and State trends, issues, and opportunities that will continue to shape the role of freight and passenger rail in New Mexico.

3.2 NATIONAL CONTEXT

There are several national trends related to the financial performance of railroads, Federal rail policy, and other industry trends that impact railroad performance and investment in New Mexico.

Railroad Financial Performance and Investment

The current U.S. freight rail network is a remnant of the system that once was the dominant means of transporting people and goods across the nation. The national rail network expanded dramatically from 1870 to 1900, growing by almost a factor of four, from 53,000 miles to 193,000 miles, in 30 years. The network grew another 31 percent until it reached its apex in 1916 with a total of 254,000 miles.

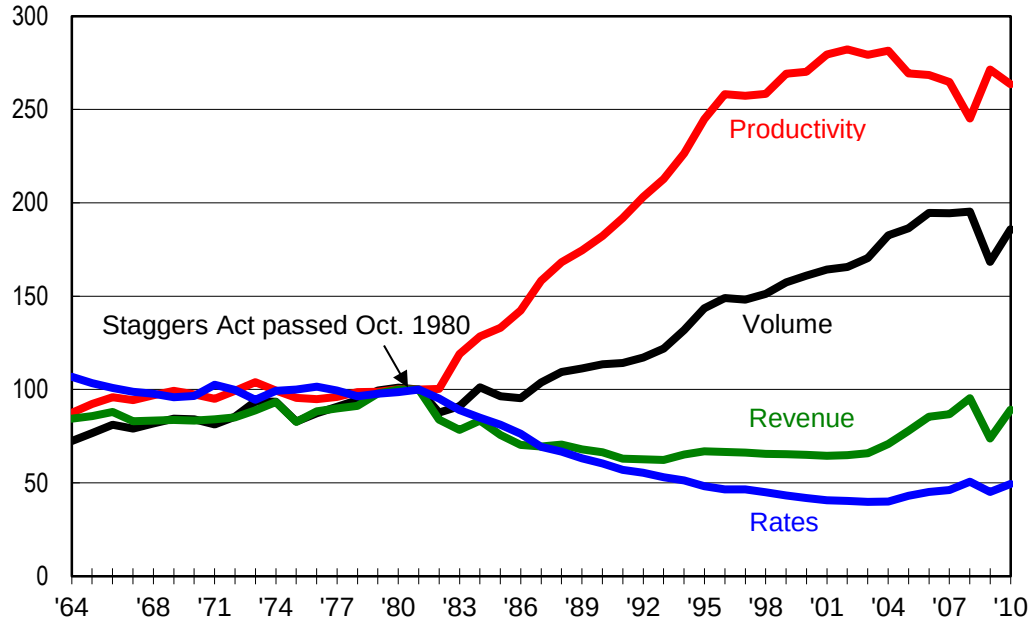
The reasons for the subsequent decline of the railroads are many. Some were self-inflicted - the aggressive expansion of the railroad network was undertaken by a multitude of firms venturing into markets of dubious value and with varying levels of infrastructure quality. The number of railroad operating

companies declined along with the number of railroad miles. National transportation policy also contributed to the railroads' decline, particularly after 1945 when construction of Federally funded interstate highways and commercial airports enabled expansion of automobile and aviation travel. This changed passenger travel patterns and altered goods movement by expanding motor carrier freight. Railroad mileage declined by 30 percent between 1916 and 1980, and railroad employment fell from 1.5 million in 1947 to 0.5 million in 1980. Passenger rail service was effectively nationalized in 1971 when the majority of passenger rail routes were transferred to Amtrak.

Rail Regulation

The regulatory structure of the transportation industry also impacted railroad performance and investment. All commercial transportation services—rail, truck, aviation—were tightly regulated through the mid-1970s, with Federal agencies deciding matters of market entry for new carriers, prices to shippers and passengers, and communities to be served. The Federal government significantly reduced economic regulation of railroads, motor carriers, and commercial aviation between 1978 and 1980, and the effects have been to expand productivity, expand economic activity, and reduce freight rates and air fares. The effect on freight railroads, which were deregulated by the Staggers Rail Act of 1980, has been dramatic. Figure 3.2 shows the effects of rail deregulation, representing indexed values of rail productivity (revenue ton-miles per constant dollar operating expenses), volume (revenue ton-miles), revenue (operating revenue in constant dollars), and price (revenue in constant dollars per ton-mile).

Figure 3.2 Railroad Economic Performance as Affected by the Staggers Act (1981=100)



Source: Association of American Railroads, 2010 data is preliminary.

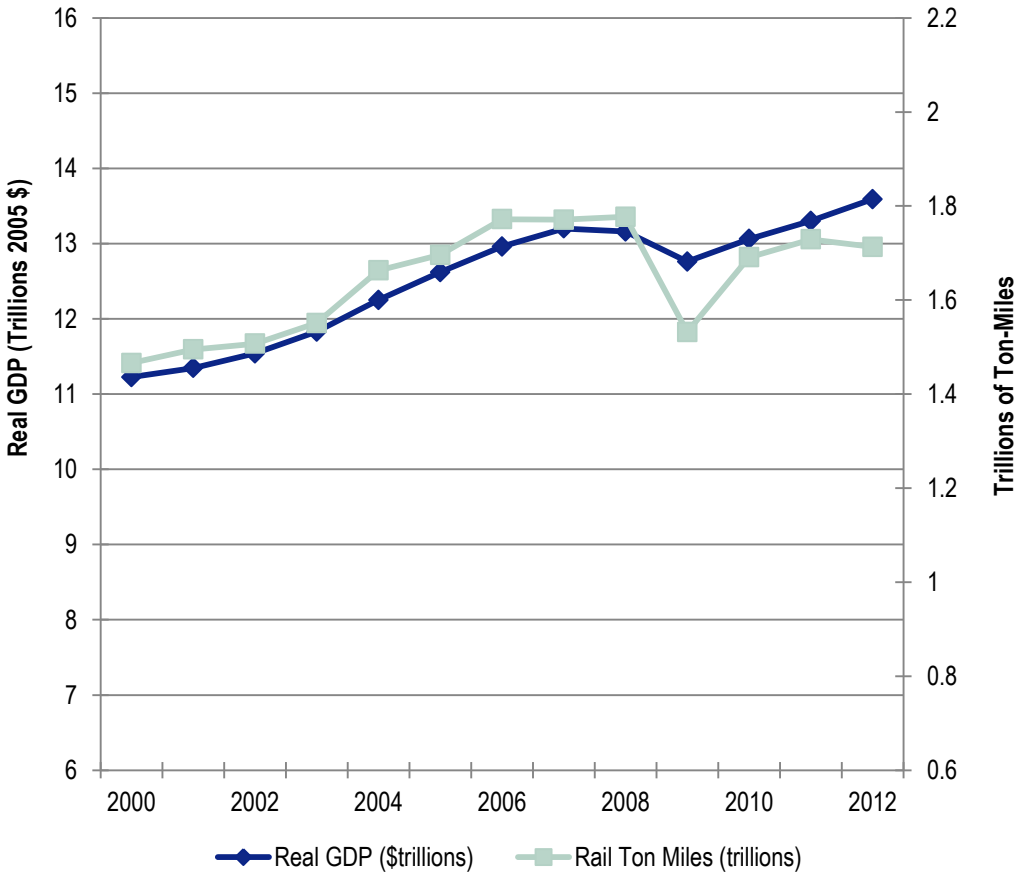
Note: Indexed values include rail productivity (revenue ton-miles per constant dollar operating expenses), volume (revenue ton-miles), revenue (operating revenue in constant dollars), and price (revenue in constant dollars per ton-mile)

Railroads took advantage of their regulatory freedom, and the number of major freight railroads (referred to as Class I railroads by the STB) reduced from 41 to 7 since 1980 and railroad employment has fallen from 518,000 to 223,000. Deregulation has also made it easier for railroads to rid themselves of unprofitable or redundant lines, leading to a reduction in Class I route mileage from 164,822 in 1980 to 95,573 in 2010.[9] No new mergers have been proposed since new regulatory procedures were enacted by the STB after significant merger activity during the 1990s. New technologies and changing operating and economic practices have changed how railroads conduct their business: heavier freight cars, centralized train control centers, consolidated grain loading facilities, longer distance unit trains of coal and grain, the growth of containerized intermodal freight, and changes in railcar ownership.

[9] National Transportation Statistics, Bureau of Transportation Statistics, Research and Innovative Technology Administration, http://www.rita.dot.gov/bts/sites/rita.dot.gov.bts/files/publications/national_transportation_statistics/html/table_01_01.html.

The result has been increases in rail traffic, which generally follow macroeconomic trends in the national economy. Figure 3.3 shows the relationship of real gross domestic product growth and freight rail traffic in rail ton-miles.

Figure 3.3 Real GDP and Freight Rail Traffic, 2000 to 2012

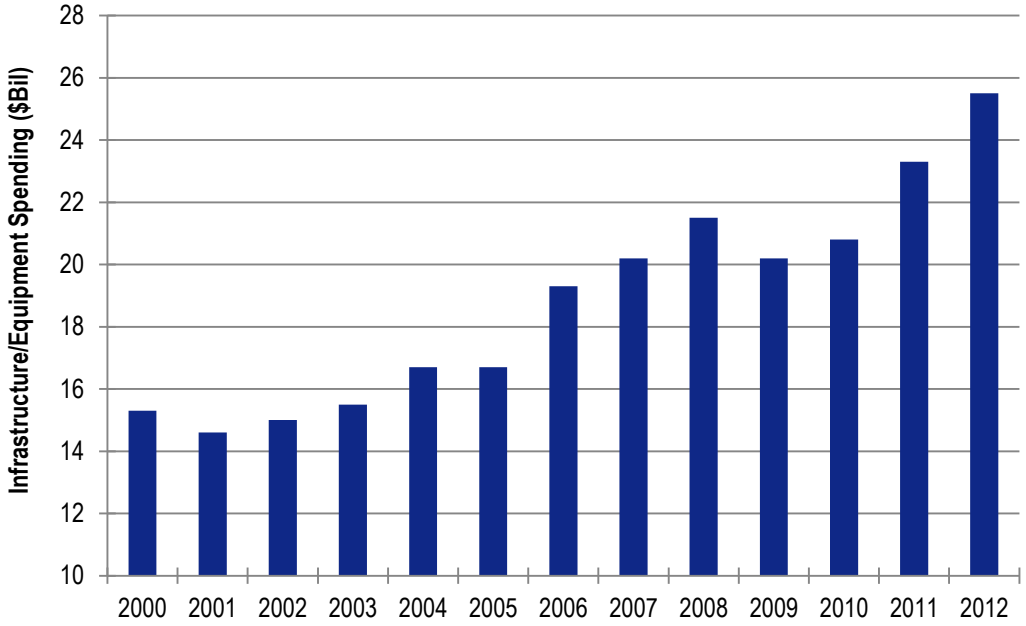


Source: Real Gross Domestic Product from Economic Indicators, Council of Economic Advisors, April 2013, stated in chained 2005 dollars. Rail Ton Miles from AAR, Railroad 10-Year Trends, page 44 and Class I Railroad Statistics, July 2013.

Railroad Investments

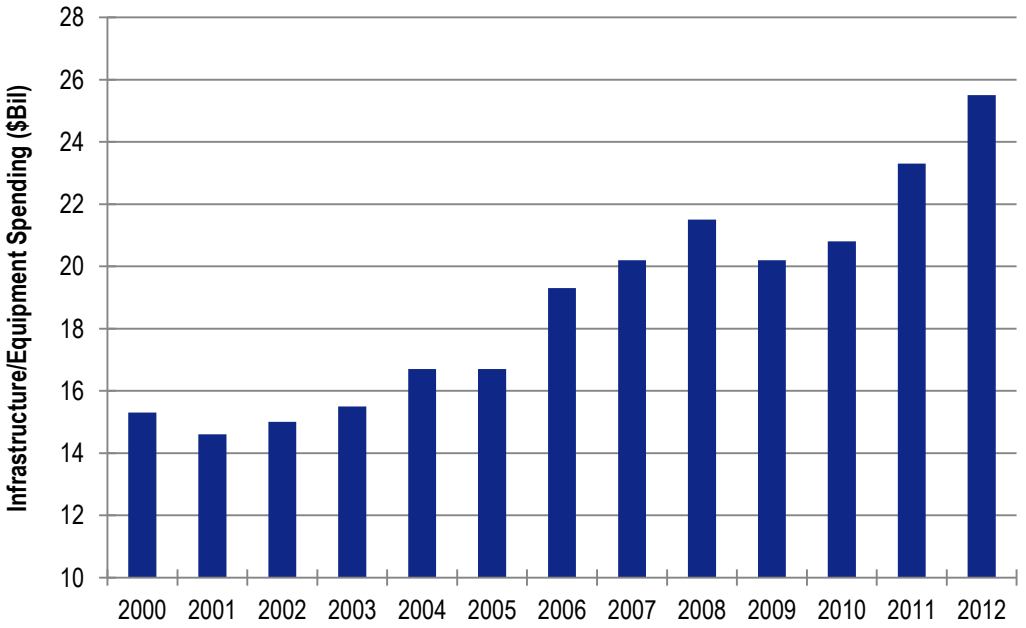
Railroads are a capital-intensive business, with significant investments in rolling stock, train control and signal systems, and railroad track needed to carry carloads and tons of rail traffic. Figure 3.4 shows that railroad investments in infrastructure and equipment exceeded $25 billion in 2012 and have grown as railroad revenues have increased in recent years. Figure 3.5 shows that this capital expenditure growth has been made possible by an increase in rail net income, as railroads have been able to pass on some of the volatility in diesel fuel prices through rate premiums and pricing.

Figure 3.4 Freight Railroad Infrastructure and Equipment Spending, 2000 to 2012



Source: AAR, Capital Spending plus Maintenance Expenditures minus Depreciation, Class I U.S. railroads.

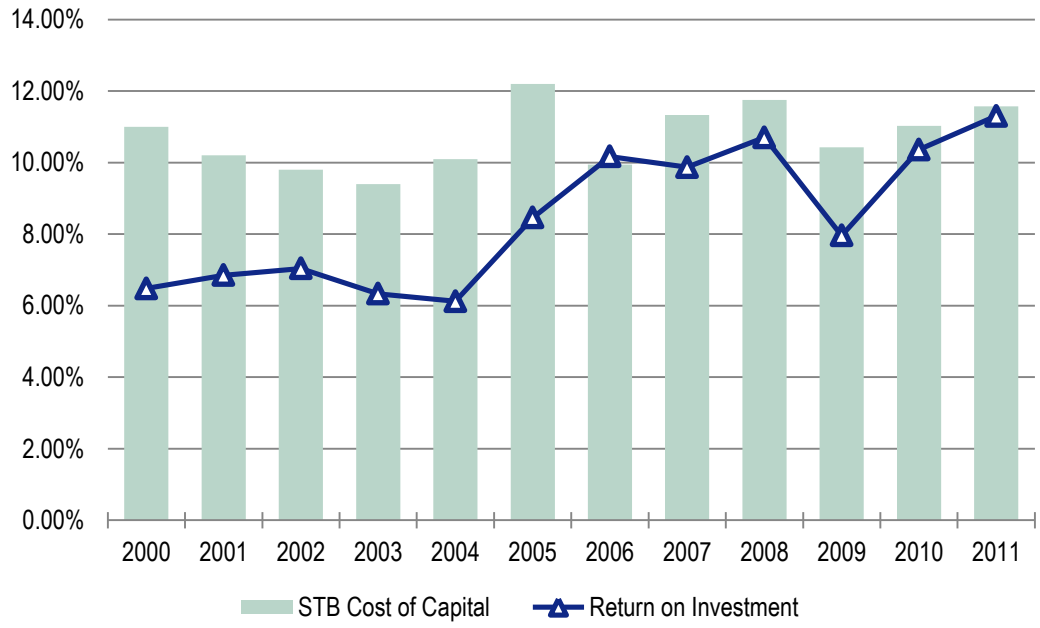
Figure 3.5 Freight Railroad Net Income, 2000 to 2012



Source: AAR, Class I U.S. railroad data.

Because railroads are such a capital intensive industry and so much of the cash flows of railroads are reinvested in capital spending, the cost of capital in the financial markets has long exceeded the railroads' return on investment. This recent relative growth in net income increased the railroads' overall return on investment, and reduced the gap between the cost of capital and return on investment, as shown in Figure 3.6. If a railroad's return on investment begins to exceed the cost of capital for consecutive years, it is reasonable to believe the STB would conduct hearings regarding lowering prices.

Figure 3.6 Rate of Return on Net Investment and Cost of Capital, Class I Railroads, 2000 to 2011



Source: AAR, Railroad Ten Year Trends, page 86. Figures based on STB's decisions in Revenue Adequacy and Cost of Capital proceedings, plus the Railroads' Schedule 250 submissions.

National Rail Policy

The passage of the Rail Safety Improvement Act of 2008 (RSIA) and the Passenger Rail Improvement and Investment Act of 2008 (PRIIA) in October 2008 marked a major statement about rail in Federal transportation policy. This legislation reauthorized the Federal rail safety program, reauthorized support for Amtrak, and authorized a new Federal/state program for high-speed and intercity passenger rail. PRIIA requires state rail plans, like this New Mexico State Rail Plan, to be integrated into the state's long-term multimodal transportation planning processes.

PRIIA also requires the development of a National Rail Plan by the Federal Railroad Administration (FRA) that addresses more than passenger rail issues. Section 307 of PRIAA directs the Administrator of the FRA to:

> *… develop a long-range national rail plan consistent with approved State rail plans and the rail needs of the Nation as determined by the Secretary [of Transportation] in order to promote an integrated, cohesive, efficient, and optimized national rail system for the movement of goods and people.*

The National Rail Plan is currently under development, with the last public release being a progress report in September 2010. The FRA has developed background information related to capacity needs, safety, fuel needs, and population growth to inform goals for high-speed rail and freight rail as well as those goals outlined by the U.S. Department of Transportation (DOT). The FRA indicates the next steps are working on identifying regions wherein various passenger rail activities will be well suited and estimating both the investments needed and return on investments associated with a tiered passenger rail network.

Grant Programs

The recent legislation also transformed the FRA, expanding its rail safety authority and creating a major transportation grant program. Previously, the FRA had been responsible for administering grants to provide operating and capital funds for Amtrak, and the 2008 Federal appropriations acts authorized the FRA to administer a small grant program for passenger rail improvements ($30 million). The passage of PRIIA authorized a Federal grant program for intercity passenger rail and high-speed rail, and the American Recovery and Reinvestment Act of 2009 (ARRA) appropriated $8 billion for passenger rail. During the 2009-2010 FRA grant application cycles, NMDOT submitted multiple grant applications for passenger rail funding through the High Speed/Intercity Passenger Rail (HSIPR) program, but was not selected as a recipient for project-oriented grants. Three of those applications were:

- **Albuquerque Subdivision Trackwork**, which included a compilation of seven projects to improve performance, safety, and ride quality along 98 miles of right-of-way on which Amtrak, Rail Runner, and BNSF operate. The application sought $20.1 million in Federal funding with a 10.3 percent non-Federal funding match.[10] Two additional trackwork projects, for CTC between CP Hahn and CP Abajo and for tie replacement between CP Madrid and Lamy, were included in supplemental applications.
- **New Mexico-Albuquerque Subdivision Positive Train Control (PTC)**, requesting funding for implementation of PTC between Lamy and Isleta

[10]This application for construction funding was submitted as a Track 1a/Track 4 funding grant in July 2009, requesting ARRA funding.

Junction and for equipment and software in the dispatching center for the NMDOT system. This application sought $8 million with no local match.[11]

- **Denver-Albuquerque-El Paso High-Speed Rail Intercity Passenger Rail Corridor Investment Plan**, which requested $8 million in Federal funding (to accompany a $2 million non-Federal match) to fund a feasibility study for new high-speed passenger rail service.[12]

Future national railroad policy is presently being considered by Congress. Both RSIA and PRIIA will expire on September 30, 2013. It is not expected that Congress will enact new long-term legislation to replace either RSIA or PRIIA by then, and that authorization for programs funded by RSIA and PRIIA will be extended for short periods via continuing resolutions as has occurred with other transportation authorization legislation in recent years.

Positive Train Control

RSIA requires railroads to install Positive Train Control (PTC) technology on all lines that carry passengers and/or certain hazardous materials (toxic-by-inhalation commodities) by 2015.[13] PTC systems are integrated control and communications systems for controlling train movements. PTC will improve safety by helping to prevent train to train collisions, over speed derailments, incursions into work zones, and movement of trains through improperly positioned switches. The technology combines GPS locating of all trains, infrastructure switches, crossings, and junctions; computer cataloging of speed restrictions and traffic conditions; and wireless communications between all operating units, including engineers, dispatchers, and work crews. Within New Mexico, these installations are proceeding as follows:

- **UP's** PTC implementation plan identifies installing PTC on its Sunset Route (Lordsburg Subdivision) by 2013, and on its Tucumcari Line (Carrizozo and Tucumcari Subdivisions) by 2015.[14] UP, citing the need to obtain separate approval for each antenna tower that must be installed, has since indicated this schedule will not be met but that it does not know how long this will delay PTC implementation.
- **BNSF** is installing the technology on its Transcon line, as well as its tracks in the El Paso, Twin Peaks, and Albuquerque subdivisions. The railroad has not provided a timeline for making these upgrades, but it does aim to have PTC System Certification on all lines that require it by the 2015 deadline. BNSF

[11] This application for PTC funding was submitted as a Track 2 funding grant in July 2009, requesting ARRA funding.

[12] This application for FY 2010 Planning funds was submitted in March 2010.

[13] *U.S. Rail Safety Improvement Act of 2008*, Pub. L. 110-432.

[14] Union Pacific Railroad, *Positive Train Control Implementation Plan Version 1.2*, June 2010.

also has an outstanding exclusion request for its Twin Peaks Subdivision on the basis that it does not carry passengers or poisonous by inhalation/toxic by inhalation cargoes.[15]

- **NMDOT** has developed a detailed PTC Implementation Plan for the Rail Runner route between Belen and Santa Fe that prioritizes track segments, outlines interoperability issues, and describes the planned PTC technology to be installed by 2015. NMDOT estimated its PTC costs at $15 million in its PTC Implementation Plan[16], but is concerned PTC costs may be as high as $30 million. NMDOT received exemptions to the PTC requirement on the other lines owned by the State.
- **Arizona Eastern** will invest in PTC-compliant locomotives in order operate on the UP Sunset Line, which also hosts Amtrak trains.
- **SFS** does not intend to install PTC on locomotives it employs on the NMRX Santa Fe subdivision in Santa Fe. After December 31, 2015, SFS will be restricted to no more than four one-way movements on any given day on the Santa Fe subdivision unless they install PTC devices on their locomotives.

While railroads across the country are committed to meeting the PTC requirement, they are concerned that the costs of the upgrades – estimated at over $13 billion nationwide by the FRA – will cut into funds available for infrastructure renewal or expansion as well as other safety projects.[17] Research by the FRA and others has called the merits of PTC into question.[18] Under FRA's economic analysis, the costs of PTC implementation outweigh the benefits by a ratio of 15:1.[19] In response, the FRA amended its PTC rule in May 2012 to reduce the number of miles that would be part of the core PTC territory by allowing Class I railroads to remove from the core PTC territory track that carried poisonous by inhalation (PIH) freight in 2008 but will no longer carry PIH freight in 2015. Additionally, efforts are underway in Congress to extend the December 31, 2015 deadline for implementation of PTC by at least three years, citing both unresolved technical issues with PTC and expected delays in manufacturing key components as railroads across the country compete for resources as the deadline

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[15] BNSF Railway, *Electronic Train Management System PTC Implementation Plan*, July 2010.

[16] New Mexico Department of Transportation, *New Mexico Rail Runner Express PTC Implementation Plan*, August 2010.

[17] Association of American Railroads, "Positive Train Control," Issue Paper dated March 2011. Cost estimate includes installation plus maintenance over 20 years.

[18] Federal Railroad Administration, *Positive Train Control Systems Economic Analysis.* (*http://www.fra.dot.gov/downloads/PTC_%20RIA_%20Final.pdf*).

[19] Federal Railroad Administration, *Positive Train Control Systems Final Rule, Section 236.1001,* pp. 45-46. (*http://www.fra.dot.gov/downloads/safety/PTC_Final_Rule_20100112_(FedReg)_(final).pdf*).

approaches. NMDOT and several other smaller commuter rail system owners have also asked FRA to increase the number of passenger trains per day that can be operated on a line before the line becomes part of the core PTC territory.

Given the uncertainty surrounding how PTC will eventually be implemented, it is hard to say for certain how it will impact rail volumes in New Mexico. However, the estimated cost does suggest that the railroads will have to divert resources that could otherwise be used for capacity enhancement, which may limit tonnage growth to some extent.

Truck Size/Weight Regulations

Truck size and weight limits on Federal highways have been largely static since 1991, when the Intermodal Surface Transportation Efficiency Act (ISTEA) prohibited states from increasing the size and weight of trucks beyond what they already allowed.[20] Trucks operating on the Interstate system can weigh no more than 80,000 pounds under current law. "Longer combination vehicles" (tractor-trailer configurations with two or more trailers that can weigh more than 80,000 pounds) are permitted on certain highways in 21 states (mostly Western states), having been "grandfathered in" under ISTEA. New Mexico has a grandfathered weight restriction of 86,400 pounds for combinations with two trailers. If truck size and weight limits were increased, it would probably lead to significant mode shift from rail to truck and could impact rail industry financial performance, particularly shortline and regional railroads.[21] Past efforts to relax the size and weight limits to improve truck productivity by allowing more freight to be carried in a single trip have not been successful due to concerns about safety, road and bridge deterioration, and emissions. New Mexico, however, offers commercial truck overweight zones at the Santa Teresa and Columbus ports of entry. The overweight zone is a six-mile zone that allows commercial trucks entering the state from Mexico to come in at up to 96,000 pounds. In the Santa Teresa area, both the UP intermodal facility and the Santa Teresa Logistics Industrial Rail Park served by Santa Teresa Southern Railway are within this six-mile zone.

Re-Regulation

As discussed previously, the Class I railroads have enjoyed nearly three decades of substantial productivity growth since the passage of the Staggers Rail Act in 1980, driven by a series of mergers and acquisitions and the abandonment or sale of underperforming lines. Since 2006, however, STB, the body within the U.S. DOT responsible for resolving freight railroad rate and service disputes among other regulatory functions, has adopted a more "shipper-friendly" stance, for

[20] 23 CFR 658.23.

[21] Association of American Railroads.

instance by issuing a number of rate decisions in favor of shippers which probably would have been resolved in favor of the railroads in previous years.

In January 2011, the STB announced that it would conduct a review of competition in the railroad industry to assess whether rail market power is threatening economic efficiency, and the STB held hearings on the subject in June 2011 and left the docket open for comments ("Competition in the Rail Industry, EP 705"). Moreover, recent Congresses – including the current one – have introduced legislation that would remove anti-trust exemptions for railroads and offer other economic relief to shippers. The immediate prospects for passage of such legislation are uncertain, but if additional economic regulation of the rail industry does pass in the future it would be very unlikely to benefit the railroads.

Other National Trends

In addition to the railroad profitability and Federal policy trends described previously, there are a number of other rail industry trends and developments that may impact New Mexico freight rail operations and volumes in the future. These trends are summarized below.

Shortline Issues

Shortline and regional railroads operate 30 percent of the American rail industry's route mileage supported by just nine percent of industry revenues.[22] This mismatch means that they frequently struggle to maintain their physical networks to sufficient standards to retain, let alone attract, new business. A critical concern is the need to upgrade track to handle the 286,000-pound railcars that have become the industry standard. This makes it increasingly difficult for shortline railroads to competitively handle certain types of traffic, as much of the shortline system is inadequate to handle the new standard. While most Class I tracks and bridges are capable of carrying 286,000-pound railcars (some are even designed to 315,000-pound standards), about half of shortline and regional railroad tracks are designed only for the old industry standard of 263,000-pound cars. The Association of American Railroads' (AAR) 2007 National Rail Freight Infrastructure Capacity and Investment Study estimated it would cost approximately $7.2 billion to upgrade all shortline and regional railroads to 286,000-pound capabilities at a cost of $300,000 per mile.[23]

In New Mexico, lack of 286,000-pound-capable track limits access to the transcontinental rail network for shippers located in areas not served by a Class I railroad, forcing them to use trucks to access markets. Only a fraction of

[22] American Short Line and Regional Railroad Association, http://www.aslrra.org/about_aslrra/index.cfm.

[23] Association of American Railroads, *National Rail Freight Infrastructure Capacity and Investment Study*, September 2007.

shortline track in New Mexico is 286,000-pound capable, including the SWRR's Clovis Line and TNMR track between Monahans, Texas and Hobbs, New Mexico, and STS' track which provides service to the Santa Teresa Logistics Industrial Rail Park. SFS track is limited to 200,000 pounds and both AZER track and the portion of TNMR track between Hobbs and Lovington have a maximum weight restriction of 263,000 pounds. In the longer term, some shortlines may not remain viable without upgrading to 286,000-pound capacity, further limiting options for the State's rail shippers.

Additionally, contractual agreements with the prior owners of shortline track – often Class I railroads – sometimes restrict independent rate making, car supply, and the interchange of cars to the line's original owner, even if connections to other railroads are available. This creates what is known as a "captive" shortline. Although these restrictive terms are negotiated in the private marketplace – and normally benefit both parties – they can sometimes lead to insufficient revenue yields which may threaten the shortline's financial viability.

Viability of Small Rail Shippers

Small-volume shippers frequently find it difficult to secure adequate rail transportation. These issues commonly revolve around the availability of suitable railcars and sufficient service. Even though railcar supply has exceeded demand in recent years, some smaller rail carriers have difficulty obtaining proper equipment in a timely and cost-effective basis. This is often complicated when the shipper is only served by a single railroad or located along a "captive" shortline. When shippers are unable to obtain railcars, they are effectively cut off from the national rail network.

Small shippers face more issues than car supply, however. More rail traffic is being transported in longer trains with homogenous rail cars and common long-distance destinations or connections. These "unit trains" of coal, grain, or intermodal containers can offer shippers faster service and reduced rates because some of the railroad's costs are lower for trains that do not require handling in each major yard. Smaller rail shipments, what the railroads refer to as "carload" business, in the aggregate can represent significant revenue for the railroads, but are more time consuming and expensive to handle, and can result in inconsistent rail service to shippers. Additionally, many New Mexico shippers are located on major long-distance freight routes and serving these local shippers may create conflicts with long-distance freight trains. Collectively, the impacts of these service issues often mean that shippers have little choice but to ship by truck. In New Mexico, this would raise shipping costs for shortline shippers and could divert natural rail cargo to truck. It would also adversely impact shortline financial performance.

3.3 NEW MEXICO CONTEXT

This section describes the socioeconomic and industry trends that support freight and passenger rail service in New Mexico and outlines the policy and institutional context in which the system operates.

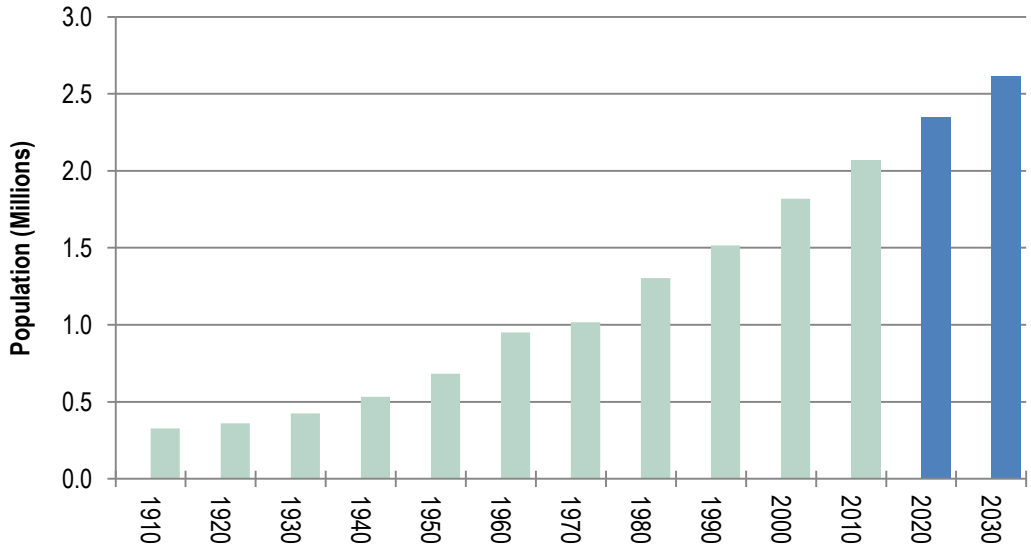
Socioeconomic and Industry Trends

Trends in New Mexico's population, employment, income, and economic activity provide the socioeconomic context for current and future rail volumes in the State. Understanding these trends is critical in understanding how demand for rail transportation- both freight and passenger- may evolve in the future.

Population

New Mexico is the fifth largest state in land area, but with a population of just over two million in the 2010 Census, ranks 36th in population and 45th in population density. However, population growth in New Mexico has been steady in the past 100 years, and is expected to continue growing in the future, as shown in Figure 3.7.

Figure 3.7 New Mexico Population, 1910-2030



Source: Bureau of Business and Economic Research (BBER), University of New Mexico data.

Note: Data in blue represent BBER projections.

Figure 3.8 illustrates the distribution of State population among counties over time. Whereas population was distributed relatively evenly throughout the State early in the 20th century, population gradually shifted to concentrate in a few urban counties. Today, just under half the population lives in the four counties served by Rail Runner (Bernalillo, Sandoval, Santa Fe, and Valencia).

Albuquerque is New Mexico's largest metropolitan area with 860,000 residents in 2010.[24] The Santa Fe metropolitan area had a 2010 population of 150,000.[25]

Other urbanized population centers outside of the four counties served by Rail Runner include Las Cruces (2010 population of 211,000) and Farmington (population of 125,000). Both of these cities have established a metropolitan planning organization (MPO). As of the 2010 U.S. Census, Roswell remains slightly below the 50,000 population threshold necessary for establishing an MPO. No other New Mexico cities have populations approaching this threshold.

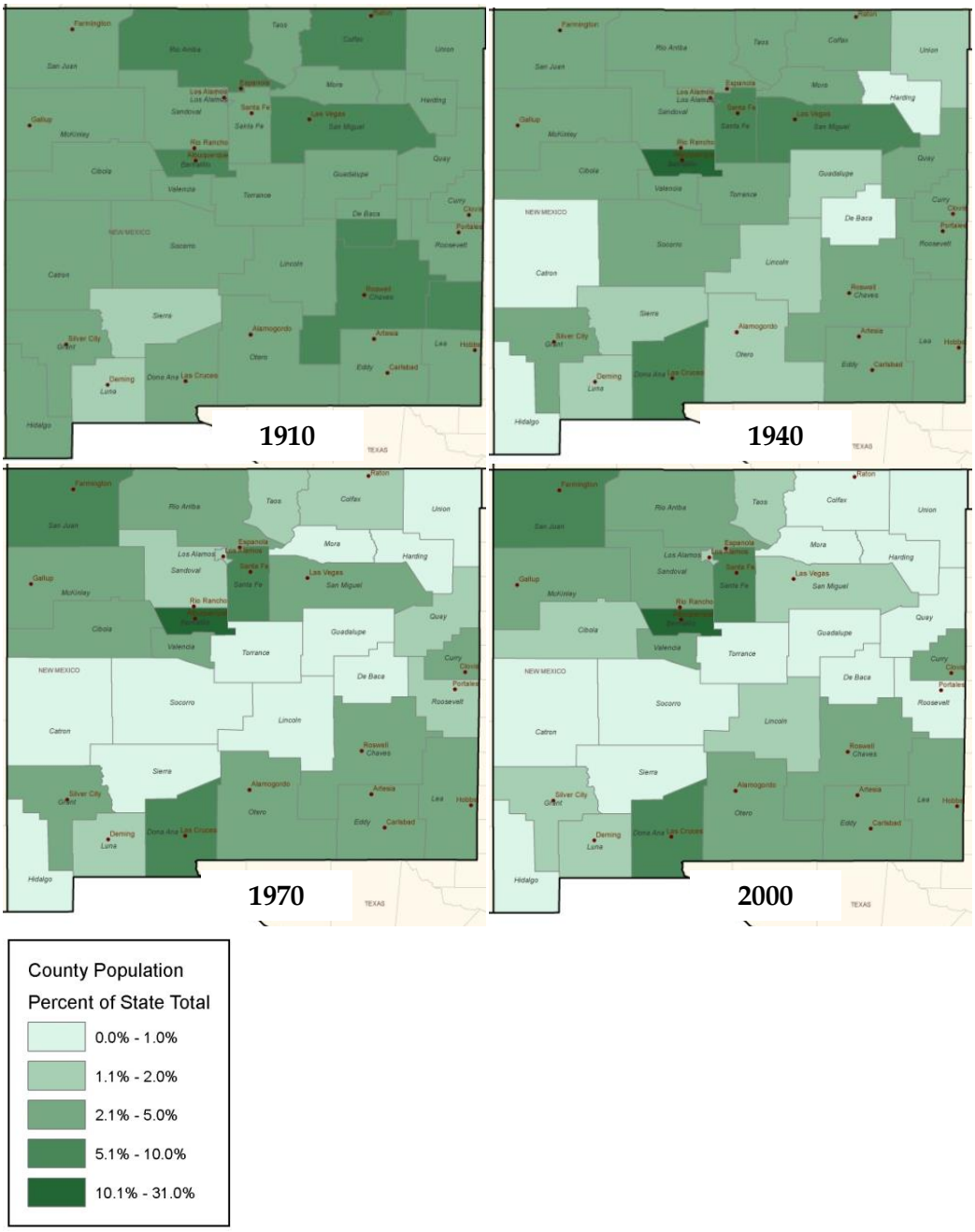
Outside of the State's urbanized areas, the population of New Mexico is quite sparse. Severe terrain and lack of water make many areas unsuitable for development or even occupation. Additionally, half of New Mexico land area belongs either to the Federal government or to the State's 23 Native American pueblos, tribes, and nations and is generally unavailable for development.

Population growth projections are expected to follow similar trends, with the highest growth rates occurring in the State's urban counties. Table 3.1 lists projected population by county from 2010 to 2030. Projected growth rates are more conservative in out years, but urban counties will continue to grow and some counties will cross the urban population threshold.

[24] U.S. Department of Commerce, Bureau of the Census. The Albuquerque metropolitan statistical area is comprised of Bernalillo, Sandoval, Torrance and Valencia counties.

[25] These figures represent the population of the metropolitan areas, not the incorporated cities.

Figure 3.8 New Mexico Population Distribution by County, 1910 to 2000



Source: U.S. Department of Commerce, Bureau of the Census.

Table 3.1 New Mexico County Population Growth Projections Annual Rates of Growth, 2010 to 2040

County	2010-2015	2015-2020	2020-2025	2025-2030	2030-2035	2035-2040
NEW MEXICO	1.34	1.26	1.12	0.99	0.85	0.72
Bernalillo	1.63	1.58	1.36	1.19	1.00	0.80
Catron	0.53	0.43	0.34	0.12	0.02	0.03
Chaves	0.82	0.88	0.88	0.81	0.70	0.62
Cibola	0.74	0.63	0.53	0.48	0.47	0.46
Colfax	-0.06	-0.12	-0.18	-0.31	-0.45	-0.56
Curry	0.82	0.73	0.70	0.69	0.66	0.60
De Baca	-0.35	-0.38	-0.42	-0.32	-0.42	-0.41
Dona Ana	1.49	1.39	1.25	1.10	0.95	0.84
Eddy	0.73	0.73	0.69	0.62	0.56	0.52
Grant	0.03	0.03	-0.02	-0.08	-0.10	-0.04
Guadalupe	0.23	0.10	0.06	-0.01	-0.01	-0.05
Harding	-0.06	-0.26	-0.41	-0.70	-0.69	-0.58
Hidalgo	-0.15	-0.16	-0.23	-0.39	-0.54	-0.64
Lea	1.98	1.85	1.80	1.77	1.71	1.61
Lincoln	0.58	0.44	0.27	0.09	-0.02	-0.06
Los Alamos	0.04	0.01	-0.05	-0.15	-0.31	-0.45
Luna	1.07	1.13	1.16	1.16	1.19	1.27
McKinley	0.25	0.22	0.13	-0.04	-0.22	-0.39
Mora	-0.07	-0.16	-0.30	-0.37	-0.51	-0.56
Otero	0.39	0.25	0.14	0.07	0.01	-0.07
Quay	-0.19	-0.14	-0.12	-0.08	-0.04	0.04
Rio Arriba	0.20	0.12	0.02	-0.09	-0.18	-0.25
Roosevelt	1.55	1.36	1.13	0.95	0.85	0.79
Sandoval	3.02	2.70	2.42	2.16	1.91	1.71
San Juan	1.24	1.11	1.02	0.95	0.88	0.79
San Miguel	-0.05	-0.11	-0.26	-0.43	-0.55	-0.61
Santa Fe	1.37	1.16	0.94	0.71	0.48	0.26
Sierra	0.05	0.05	0.09	0.19	0.33	0.50
Socorro	0.15	0.01	-0.14	-0.29	-0.40	-0.49
Taos	1.22	0.98	0.75	0.54	0.32	0.11
Torrance	0.65	0.77	0.76	0.65	0.50	0.47
Union	1.09	1.07	0.97	0.86	0.78	0.69
Valencia	1.48	1.34	1.17	1.01	0.87	0.74

Source: New Mexico County Population Projections July 1, 2010 to July 1, 2040, Geospatial and Population Studies Group, University of New Mexico. Released November 2012.

Note: Light Green: growth rate > 1.0; Dark Blue: growth rate < 0.25.

Employment and Income

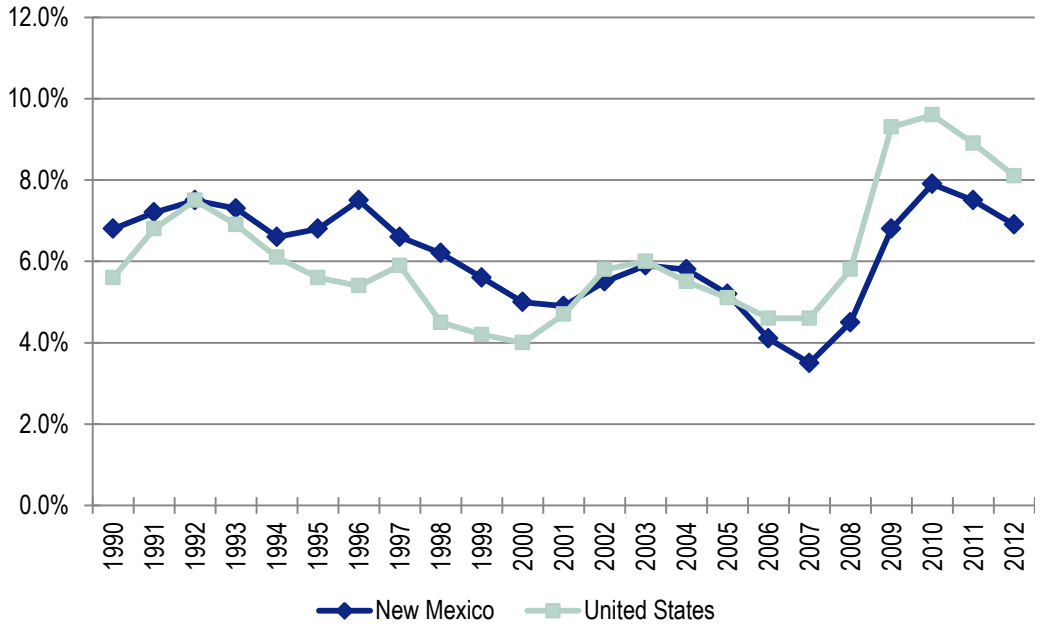
In addition to being one of the least densely populated states, New Mexico is also one of the country's poorest. The State's per capita income as measured in the 2010 Census ranked 43rd among the 50 states. The percentage of New Mexicans living below the poverty level is 18.2 percent, compared to 14.3 percent for the United States as a whole.[26] Only four of New Mexico's 33 counties (Los Alamos, Sandoval, Santa Fe, and Eddy) have a poverty rate above the national average,

[26] U.S. Census Data.

while six counties (Luna, McKinley, Socorro, Sierra, Guadalupe, Cibola) have more than 25 percent of their population living below the poverty level.

During the twentieth century, New Mexico's unemployment rate was consistently higher than the national rate, but this trend reversed itself over the past decade and New Mexico's unemployment rate has been lower than the national rate for the past seven years, as shown in Figure 3.9. The New Mexico unemployment rate remains high following the recent recession, much as it does nationally. Recovery within industries that are rail-dependent will help the State bring its employment levels back to pre-recession levels

Figure 3.9 Unemployment Rates, National and New Mexico, 1990 to 2012



Source: Data from New Mexico Department of Workforce Solutions

Table 3.2 lists overall nonagricultural employment by industry from 1990 to 2010. Of these major sectors, mining and utilities are particularly dependent upon rail transport. These sectors, along with agriculture, are especially suited for rail transport because they deal with high-weight, low-value commodities that are not time-sensitive. Rail dependency of various New Mexico industries are discussed in greater detail in Chapter 4.

Within New Mexico, goods producing industries grew at a slower pace than services industries, which has implications for freight demand and shipments. Employment decreased in 2010 as a result of the 2008 financial crisis and subsequent recession.

Table 3.2 New Mexico Nonagricultural Employment[a] by Major Sector
Thousands

	1990	1995	2000	2005	2010
Total	580.4	682.4	744.8	808.7	803.1
Total Private	430.7	516.0	561.7	607.4	603.5
Goods Producing	84.7	103.6	101.5	107.5	91.2
Services Providing	346.0	412.3	460.2	500.0	512.3
Mining & Logging	15.1	15.4	14.9	16.9	18.5
Construction	31.6	45.7	44.9	54.4	43.6
Manufacturing	38.0	42.5	41.8	36.1	29.1
Wholesale Trade	21.9	23.9	22.7	22.7	21.5
Retail Trade	73.5	84.3	90.9	93.6	89.8
Transp., Warehousing & Utilities	22.1	23.4	23.7	23.3	21.8
Information	10.7	12.5	16.7	14.7	14.4
Financial Activities	27.6	30.8	33.4	34.9	33.0
Professional & Business Serv.[b]	57.2	73.5	86.2	92.7	100.4
Educational & Health Services	50.8	67.6	82.1	105.0	119.7
Leisure & Hospitality	60.4	72.3	77.2	83.8	83.6
Other Services	21.8	24.1	27.3	29.1	28.2
Government[a]	149.7	166.5	183.1	201.3	199.6

Source: New Mexico Department of Workforce Solutions

[a] Nonagricultural wage and salary employment is on a place of work basis and excludes proprietors, farm workers and unpaid family workers.

[b] Employment data in 2006 and later is inconsistent with earlier years. Changes in management of the Los Alamos National Laboratories in 2006 from academic (governmental) to a private-public consortium meant that approximately 10,000 jobs were moved from government to professional and business services (and other private sector categories not shown in this table).

Economic Activity

Table 3.3 lists the State's Gross Domestic Product (GDP), a measure of economic output, by industry. The highest growth industry over the last five years has been manufacturing, particularly related to the manufacturing of durable goods. Other growth industries include utilities (which includes power generation, consumers of rail-shipped coal) and services like finance, real estate, information, and health care. Industries with declining GDP include construction, mining, and wholesale trade- all traditional "goods movement-related" industries that are often heavy users of the freight rail system. The impact of the economy's recession has played a significant role in the rate of growth or decline of these industries. The recent decline of the construction industry, down 20 percent over

the last five years, can be attributed to the severity in which the construction sector has felt the impacts of the recession. The transportation and warehousing sector experienced a similar pattern, consisting of modest pre-recession growth followed by significant declines due to the recession. However, unlike the construction industry, the transportation and warehousing sector has recovered over the last two years to pre-recession levels. The mining industry, on the other hand, had already been declining prior to the impact of the recession.

State Rail Policy and Institutional Context

It is important to understand how rail planning investment decisions in New Mexico are made; which entities are responsible for planning, managing, and investing in the system; and other policy or institutional characteristics that impact the process.

Institutional Relationships

Within NMDOT, the task of overseeing New Mexico's rail assets and managing all other rail-related responsibilities are concentrated within the Rail Bureau of the Transit and Rail Division, which has an authorized staff of seven persons that has averaged two vacancies over the past four years. The Rail Bureau has the following responsibilities:

- Manages 133 miles of NMDOT-owned railroad right-of-way;
- Interacts with FRA on regulatory and safety issues on NMDOT-owned right-of-way;
- Oversees capital programming for NMDOT-owned right-of-way;
- Manages the process of upgrading, closing, or opening grade crossings on NMDOT-owned railroad;
- Establishes and manages access agreements with utilities and other entities that need access to the NMDOT-owned right-of-way;
- Oversees the NMDOT-owned commuter railroad, Rail Runner Express;
- Administers the Federally-funded Section 130 program that funds safety improvements at highway-rail grade crossings;
- Reviews plans for all NMDOT construction projects to certify whether there are impacts on railroads;

Table 3.3 Real New Mexico Gross Domestic Product by Industry, 2008 to 2012

Millions of 2005 Chained Dollars

Industry	2008	2009[r]	2010[r]	2011[r]	2012[p]	Percent Change 2008-2012
Total Gross State Product	$69,047	$70,239	$70,785	$70,529	$70,699	2.4%
Private industries	56,171	57,085	57,973	57,799	58,124	3.5%
Agriculture, forestry, fishing, and hunting	1,004	1,021	1,268	1,020	1,006	0.2%
Mining	5,670	6,606	5,745	5,425	5,344	-5.7%
Utilities	1,173	1,097	1,180	1,227	1,226	4.5%
Construction	3,562	3,110	3,001	2,911	2,850	-20.0%
Manufacturing	4,519	5,430	6,641	6,803	7,306	61.7%
Wholesale trade	2,603	2,164	2,230	2,178	2,283	-12.3%
Retail trade	4,723	4,731	4,825	4,673	4,826	2.2%
Transp. and warehousing, exc. Postal Serv.	1,926	1,615	1,690	1,876	1,934	0.4%
Information	2,187	2,165	2,107	2,184	2,349	7.4%
Finance and insurance	2,238	2,581	2,507	2,388	2,411	7.7%
Real estate and rental leasing	8,461	8,718	9,087	9,261	9,155	8.2%
Professional and technical services	5,784	5,719	5,730	5,791	5,513	-4.7%
Management of companies and enterprises	365	391	350	337	343	-6.0%
Administrative and waste services	2,148	2,001	1,982	2,103	2,020	-6.0%
Educational services	372	375	368	369	382	2.7%
Health care and social assistance	4,870	5,063	5,117	5,175	5,182	6.4%
Arts, entertainment, and recreation	381	372	383	403	425	11.5%
Accommodation and food services	2,184	2,109	2,164	2,215	2,274	4.1%
Other services, except government	1,833	1,750	1,678	1,621	1,625	-11.3%
Government	12,885	13,156	12,854	12,775	12,637	-1.9%

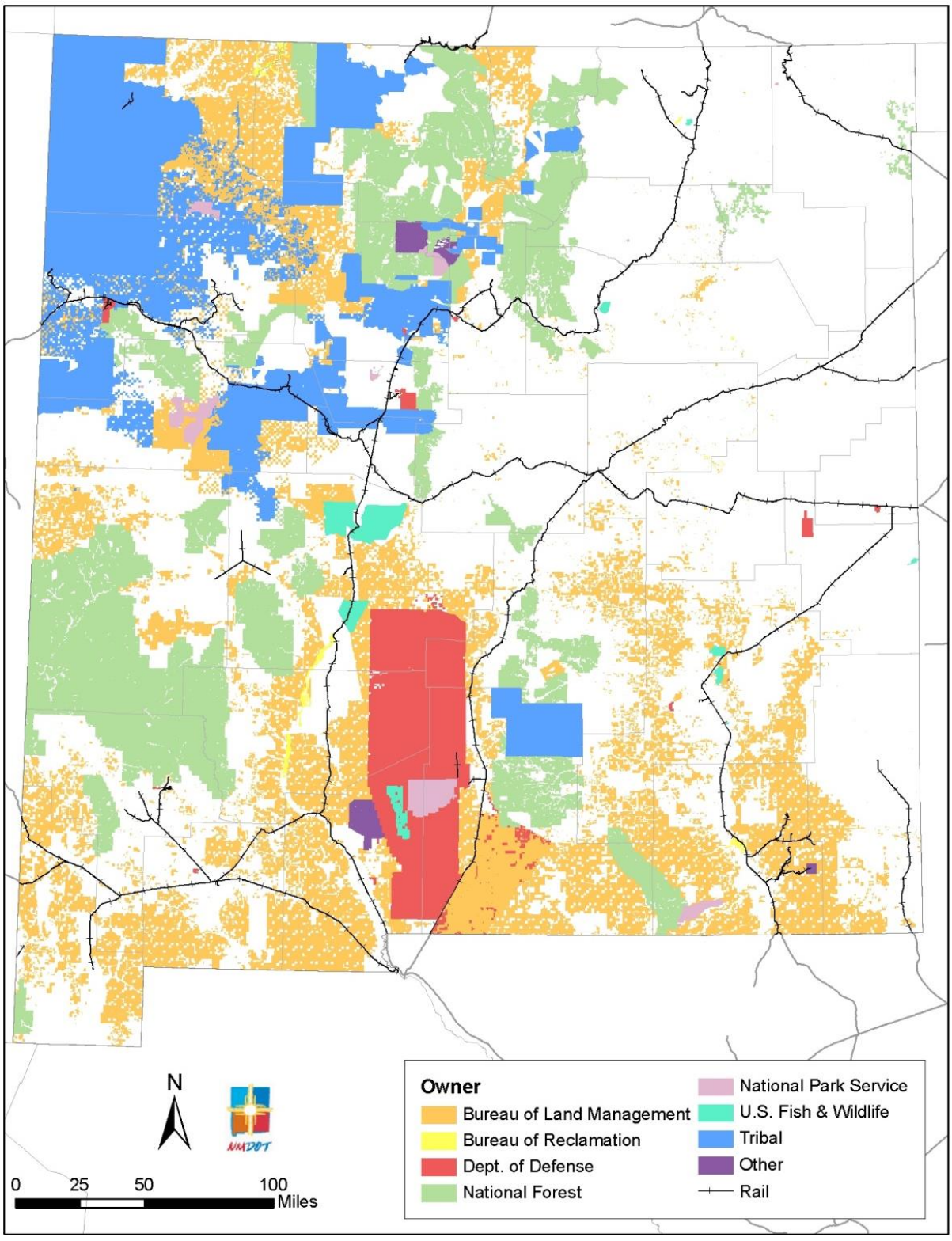
Source: Bureau of Business and Economic Research, University of New Mexico, Data from U.S. Department of Commerce, Bureau of Economic Analysis.
Note: n/a: not available, p: preliminary, r: Revised; Light blue shading indicates percent change > 10%, Dark blue shading indicates a negative change.

- Ensures that agreements are in place with railroads for NMDOT construction projects that impact railroads;
- Assists cities, towns and counties that request technical assistance with rail issues;
- Conducts rail-related research; and
- Acts as the State's railroad planning agent.

Rio Metro is the managing agency for Rail Runner under a Memorandum of Agreement (MOA) with NMDOT. The MOA describes each agency's respective roles and responsibilities in Rail Runner service, planning, and funding. Rio Metro's board of directors is composed of local elected officials representing the local governments from the regional transit district's member entities in Sandoval, Bernalillo, and Valencia counties.

Other entities are also involved in making rail decisions in the State. The Public Regulation Commission is responsible for enforcing railroad safety. All of the private railroads in the State make their own investment decisions related to their business. And, as New Mexico is home to 23 sovereign Native American pueblos, tribes, or nations (Figure 3.10), the State must negotiate agreements with the land owners in order to add any new rail lines or facilities.

Figure 3.10 Federal Lands and Tribal Reservations in New Mexico



Source: Bureau of Land Management.

New Mexico Anti-Donation Clause

Article IX, Section 14 of the New Mexico State Constitution is known as the Anti-Donation Clause. The Anti-Donation Clause severely limits the ability of New Mexico and its counties, municipalities, and school districts to make contributions to private entities. The preamble to Article IX, Section 14 reads:

> *Neither the state nor any county, school district or municipality, except as otherwise provided in this constitution, shall directly or indirectly lend or pledge its credit or make any donation to or in aid of any person, association or public or private corporation or in aid of any private enterprise for the construction of any railroad except as provided in Subsections A through F of this section.*

The Anti-Donation Clause traces its roots to the 1800s when many states, counties, and municipalities in the United States, including some in the New Mexico Territory, made investments to build railroads only to be left responsible for bonds when the railroads went bankrupt or, worse, when the railroads were never built. In response to these railroad subsidy abuses, New Mexico- like many other states- incorporated anti-subsidy provisions into the state's constitution to protect its public investments.[27]

Over time, however, many states have since amended or repealed their Anti-Donation Clauses to allow for greater leniency in how the law is applied. As a result, there is a growing national trend within the public sector of making rail investments which demonstrate both public and private benefits. Examples of recent public-private partnerships include the City of Reno, Nevada's ReTRAC project, the Shellpot Bridge reconstruction in Delaware, and the Tower 55 reconstruction in Fort Worth, Texas.

However, New Mexico's Anti-Donation Clause generally prevents this kind of investment activity in the State. In most cases, NMDOT and other New Mexico government entities cannot invest public funds to benefit a privately owned railroad company. There is the possibility that NMDOT can collaborate with a railroad company or pursue joint development projects if the intended project benefits the public and NMDOT, although New Mexico also lacks enabling legislation for public private partnership rail projects. In such an instance, an agreement would need to be developed that outlines the specific purpose and use of the NMDOT funds and identifies the considerations that would be provided to NMDOT and the benefits to the public from the use of these NMDOT funds for the project. NMDOT would request a formal opinion by the State Attorney General prior to execution of any such agreement to evaluate compliance with the Anti-Donation Clause and State law.

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[27] Hall, Alan. *Understanding the Anti-Donation Clause: A Historical Perspective*, March 20, 2006.

Another exception to the Anti-Donation Clause permits public funds to be used to acquire land, buildings, or infrastructure for facilities to support new or expanding businesses in order to create new job opportunities, so long as the public assistance is granted pursuant to the Local Economic Development Act or the Statewide Economic Development Finance Act. State funds could be used to construct railroad infrastructure or facilities if such construction would facilitate private-sector job creation by the private entity that benefits from the public funds.

3.4 RAIL ISSUES AND OPPORTUNITIES

As required by PRIIA, a key component to developing this State Rail Plan involved identifying and engaging statewide rail stakeholders to assist in developing the State's rail vision, projects, prioritization, financing, and plan implementation. During the development of this rail plan, various stakeholder outreach activities were conducted to solicit input and information from the State's internal and external freight rail stakeholders. The outreach efforts and approach were designed to achieve several objectives:

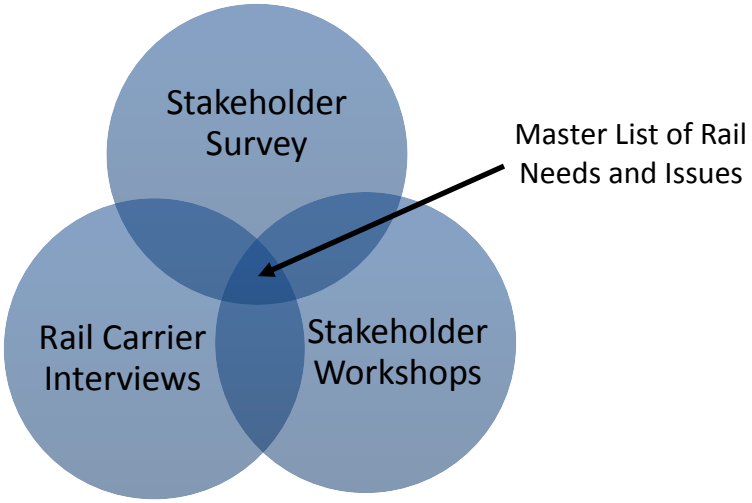
- Obtain information and build consensus about statewide rail needs, issues, and opportunities from a variety of rail stakeholder perspectives, including shippers, carriers, transit providers, rail advocacy groups, regional and local planning organizations, tribal leaders, economic development organizations, and other public- and private-sector stakeholders;
- Identify the planned rail projects as well as the capital infrastructure and operating needs of the State's public and private railroads (including both freight and passenger rail carriers) (discussed in Chapter 4);
- Discuss possible funding sources for passenger and freight rail in New Mexico for infrastructure and operational needs (discussed in Chapter 5); and
- Identify potential performance measures to prioritize passenger and freight rail projects throughout the State (discussed in Chapter 6).

Three complementary activities for stakeholder outreach communication, as illustrated in Figure 3.11, were conducted to achieve these objectives:

- **Telephone Interviews –** One-on-one telephone interviews with the State's freight and passenger rail carriers to obtain detailed information on rail infrastructure, existing operations, planned projects, and rail needs and issues;
- **Facilitated Stakeholder Workshops –** A series of three geographically distributed stakeholder workshops to bring together the diverse perspectives of the State's passenger and freight rail stakeholders and generate consensus-driven debate about the role of rail in the State, the importance for public investment in the rail system, and the short- and long-term expectations for freight and passenger rail in New Mexico; and

- **Stakeholder Survey –** A brief web-based survey of the State's rail stakeholders to identify each stakeholder's relationship to rail and gauge the significance of various rail-related issues.

Figure 3.11 New Mexico State Rail Plan Stakeholder Outreach Activities



These three activities worked together to achieve a comprehensive understanding of the needs, challenges, and opportunities for rail investment in the State. Within the national and statewide context described previously, the remainder of this chapter summarizes issues and opportunities identified by the State's rail stakeholders related to funding limitations, access and connectivity, geographic constraints and physical chokepoints, operational challenges, and policy and institutional relationships in New Mexico.

Funding Limitations

There is continued uncertainty in the future of both the Federal and State transportation funding streams that could be used to support rail. On the Federal side, the current surface transportation program (Moving Ahead for Progress in the 21st Century [MAP-21]), which includes a number of program elements that can be used to fund rail projects, expires in September 2014. The future timing and content of subsequent reauthorization is uncertain. NMDOT receives between $1 million and $2 million annually from the Section 130 program, which is not enough to meet existing needs. Rio Metro will receive $7.8 million from Section 5307 Urbanized Area Formula grants in FY 2013 and will become eligible for Section 5337 State of Good Repair grants in FY 2014.

Other Federal funding may continue to be available through the passenger rail investment programs created by PRIIA (Intercity Passenger Rail Service Corridor Capital Assistance, Congestion Grants, and High Speed Rail Corridor Program). However, the process for obtaining this funding is highly competitive and no funding has been included since the FY 2010 budget for intercity passenger rail.

PRIIA expired on September 30, 2013 and has yet to be extended by act of Congress. Additionally, no existing Federal programs provide funds to implement Federally-mandated PTC systems on passenger rail corridors; the cost to the State of New Mexico for implementing PTC on the Rail Runner corridor is expected to be at least $30 million. Current congressional discussions regarding future Federal funding for all areas, including transportation, are focused on reductions in appropriations to reduce Federal budget deficits.

New Mexico used statewide discretionary Federal Congestion Mitigation Air Quality (CMAQ) funds between 2006 and 2011 to pay for Rail Runner operating costs. New Mexico received authorization to continue using CMAQ funding to support Rail Runner operating costs indefinitely in the FY 2009 appropriations bill, although the Federal Highway Administration (FHWA) has issued guidance under MAP-21 indicating it intends to allow such use to continue for only five additional years. No CMAQ funds have been used to support Rail Runner operating costs since December 2011, and Rio Metro has implemented schedule modifications, service cutbacks, fare increases, and the use of FTA Section 5307 funds to balance Rail Runner's operating budget without the use of CMAQ funds.

At the State level, there are no dedicated funding sources for rail projects or programs, including Rail Runner capital or operating expenses or for capital maintenance on the NMRX rail network. As a result, funding for NMRX and Rail Runner is subject to annual approval in the State budget approved by the Legislature, or in project-specific capital outlays. Without a dedicated funding stream, the State's rail program must compete with a broad array of annual State priorities, further limiting the ability of NMDOT to develop effective long-term capital maintenance plans for its rail assets.

NMDOT is also responsible for the bonds issued to finance Rail Runner. These bonds, issued through the GRIP program that was authorized in 2003, are variable rate bonds that mature between FY 2025 and FY 2027. Remaining payments on these bonds are estimated to total nearly $540 million, with annual payments averaging $27.5 million between FY 2014 and FY 2024 followed by balloon payments exceeding $235 million from FY 2025 through FY 2027. Bond payments are being made from the State Road Fund, the primary State source of funding for NMDOT, reducing the amount available to NMDOT for all other transportation programs in the State.

Additionally, New Mexico has experienced significant revenue declines over the past few years as a result of the economic downturn and is not expecting revenues to rebound to pre-recession levels for several more years. Gross receipts taxes from two regional transit districts (Rio Metro and North Central), which are the primary sources of Rail Runner operational funding, have been lower than expected.

Chapter 5 provides additional discussion of current and future funding needs and existing and potential future funding sources in New Mexico.

Access and Connectivity

Local Freight Service

Recognizing that most of the rail freight moving in New Mexico is through freight originating and terminating outside the State, many stakeholders cited a need for local rail freight service as a high priority. Examples include rail service to the Farmington area, reactivation of inactive spurs in McKinley and Cibola counties, an east-west rail connection for aggregate mined in eastern New Mexico, and reliable local service to serve southeast New Mexico's growing dairy industry. However, providing new local rail freight service on New Mexico's long-haul freight corridors is not a straightforward task. Class I railroads require new or reactivated mainline connections on major corridors to be designed with enough siding distance to enable high-speed entry and exit from the mainline and also require the switches to tie in with existing signal systems as well as PTC systems that Class I railroads are developing under a Federal mandate.

The costs of these improvements can be quite expensive, and the Class I railroads require that the local communities and/or businesses that will be served pay for these improvements. Local communities are generally unable to finance these improvements even where conflicts with the State's Anti-Donation Clause are not an issue without some real assurance that businesses will locate on these sidings. Businesses looking to relocate to sites with rail access generally look for sites that already have rail access or for which rail access can be provided at lower costs, a factor that favors locating in areas already well-served by local rail freight service (e.g., Albuquerque and Las Cruces).

Passenger Rail Service

The State's development of Rail Runner in the Belen-Albuquerque-Santa Fe corridor has led to increased interest in developing passenger rail services that would serve other regions of the State. The commitment of State funds to develop Rail Runner has officials in other sections of the State questioning whether the State should make similar levels of investment in passenger rail serving their regions.

Several proposals to study the feasibility of providing new passenger rail services within New Mexico have been introduced in the New Mexico Legislature since Rail Runner service to Santa Fe began operating, although only one proposal has passed. In the 2011 legislative session, a proposal to examine the feasibility of passenger rail service linking Albuquerque and Gallup was passed, but the scope of the study was subsequently revised. Other studies proposed in 2009 that were not passed were proposals to examine the feasibility of passenger rail services linking Albuquerque and Las Cruces, Santa Fe and Taos via Española, and Santa Fe and Raton via Las Vegas. Each of these proposed corridors is longer than the existing Rail Runner corridor and most would serve areas with significantly less population than is served by Rail

Runner. None of these corridors show promise for commuter rail service due to the high capital and operating cost combined with low levels of expected ridership and unlikely availability of Federal funding.

There also has been periodic interest in establishing north-south passenger rail service connecting El Paso, Texas and Denver, Colorado via Albuquerque and Las Cruces. The State of New Mexico funded a feasibility study of conventional passenger rail service in 1994 and unsuccessfully requested Federal funds for a high-speed rail feasibility study through the FRA HSIPR program in both 2009 and 2010. Establishing a multi-state passenger rail service would require a multi-state partnership among the states of Texas, New Mexico, and Colorado both for developing and operating the service. The states would need to reach agreement on the general rail service to be pursued as well as how costs for service planning, engineering and design, construction, and operation of a passenger rail service would be allocated among the states. Texas and Colorado have shown a much greater interest in developing high-speed or intercity passenger rail service within their respective states than in a multistate passenger rail service between El Paso and Denver.

The Las Cruces and El Paso MPOs have recently explored the feasibility of developing a commuter rail service linking the two cities. A draft feasibility study was released in February 2009 that called for closer coordination with BNSF before further refining the proposed service. BNSF in July 2010 identified a number of improvements that would be needed for commuter rail service. BNSF also ruled out the sale of the rail line to a public entity to facilitate development of commuter rail service. In 2013, the South Central Regional Transit District received State capital outlay funds to prepare a feasibility study to assess passenger rail service from El Paso to Doña Ana County and to the Spaceport in Sierra County. The study has not been initiated.

Geographic Constraints and Physical Chokepoints

The terrain of New Mexico exercised considerable influence on where railroads were built and also limits where potential new lines may be constructed. Mountain ranges and steep-walled valleys are formidable barriers to railroad construction, which requires more gradual grades than are acceptable for highways. Steeper grades, in addition to adding to construction costs, require trains to operate at lower speeds and may also require the addition of locomotives to freight trains. Thus, connecting cities by rail that are close and that are connected by highway may not be practical due to the grades that would need to be negotiated. For example, the BNSF rail line from Lamy to the Colorado state line is no longer used by BNSF for freight service due to the slow speeds necessitated by the track grade and curvature.

Stakeholders identified physical chokepoints on the State's rail system that affect both passenger and freight rail service:

- **Sidings –** The limited number and length of sidings on the NMRX Albuquerque subdivision causes meet delays and prevents significant expansion of Rail Runner service. With the existing sidings, it is impossible to adjust the schedule of any of Rail Runner trains without affecting all of the scheduled trains and if any one train gets behind schedule, it has a ripple effect on all the other trains. UP has also expressed the need for additional sidings on its network in New Mexico as a way to increase capacity and reduce travel time.
- **Bridges –** NMDOT has identified a significant number of bridges along the Albuquerque subdivision that are deemed structurally inadequate to carry 286,000-pound railcars. NMDOT uses a prioritization process to select bridges for repairs and replacements. Since FY 2009, NMDOT was able to replace 11 bridges with culverts, but funding for future bridge repairs or replacements needs to be identified and programmed.
- **Track capacity –** With the completion of BNSF's double-tracking project through Abo Canyon, only 38 miles remain for the Transcon's primary route between Los Angeles and Chicago to be completely double tracked.[28] Two remaining segments are located in New Mexico: a 9.3-mile segment west of Vaughn which includes a bridge over UP's Tucumcari line, and a 2.3-mile segment west of Fort Sumner which includes a bridge over the Pecos River and an underpass beneath U.S. 60.
- **Track control –** Signal modifications and the installation of power switch machines in Lamy would improve safety and reduce meet delays for Amtrak.

Stakeholders also cited several bottlenecks or capacity constraints external to the State that can affect rail service in New Mexico. These include:

- Tower 55 in Fort Worth, Texas, one of the busiest and most congested rail intersections in the United States;
- Los Angeles rail infrastructure connecting to the ports of Los Angeles and Long Beach, limiting rail throughput volumes in New Mexico on their way to Eastern or Midwestern markets;
- Border crossing delays at the El Paso/Juarez border; and
- Limited tunnel clearance in Mexico preventing the use of double-stack trains.

While these external chokepoints are beyond the reach of the New Mexico State Rail Plan, they are recognized as issues affecting rail service in the State nonetheless.

[28] http://www/corridorsofcommerce.com.

Operational Challenges

Operational challenges related to maintenance, speed and reliability, safety, and the environment are described below.

Passenger Rail

The allocation of maintenance cost responsibilities may result in future Amtrak routing changes in New Mexico. BNSF and Amtrak are negotiating a new joint operating agreement to replace the current agreement that is set to expire in 2016. The Southwest Chief alignment between Hutchinson, Kansas and Lamy, New Mexico carries little freight traffic, save for a short section in Colorado between Las Animas and La Junta, and BNSF would like Amtrak to pay the incremental cost of maintaining this track for 79 mph operations. BNSF has offered on several occasions to reroute the Southwest Chief to the Transcon alignment through Amarillo, Clovis, and Belen that is already maintained at levels that can support 79 mph operations, but Amtrak has thus far declined, preferring the more direct northern routing. However, should Amtrak be required to pay the full incremental costs of maintaining the existing route, estimated by Amtrak to be $20 million per year, it may be in Amtrak's interest to reroute the Southwest Chief to the Transcon. This would effectively eliminate Amtrak service to Raton, Las Vegas, and Lamy as well as communities in Kansas and Colorado. Discontinuing service to Albuquerque would be unlikely as more than 20 percent of Southwest Chief passengers presently board or alight at Albuquerque; this service would be maintained by routing the train on the Rail Runner alignment from Belen to Albuquerque and back.

New Mexico's other Amtrak route faces operational challenges as well. Currently, the Sunset Limited is one of Amtrak's worst performing trains nationwide, due in part to the lack of daily service. Amtrak is working with UP to adjust the Sunset Limited's operating strategy to provide one daily full-service train originating in Chicago and terminating in Los Angeles. While daily service would provide more capacity for New Mexico passengers, service at Deming and Lordsburg may take place at inconvenient hours. Amtrak establishes its schedule to serve the markets with the highest demand (e.g., Los Angeles, San Antonio, and Chicago) at the most attractive times, while facilitating connections to other routes and to accommodating the flow of the host railroad's freight trains.

With respect to the State's commuter rail service, stakeholders– particularly Santa Fe residents- expressed interest in improving the quality of Rail Runner service. For example, stakeholders advocated for more midday trains, later weeknight service, more weekend service, and an express option between Albuquerque and Santa Fe. It is unclear how these desired service improvements could be funded in the near term with existing funding.

Stakeholders also indicated a need to increase Rail Runner operating speeds and reduce total travel time for commuter rail trips. Traveling I-25 by car between

Albuquerque and Santa Fe takes approximately 70 minutes in free flow conditions, whereas the same trip on Rail Runner takes approximately 30 minutes longer. And while additional stations will allow Rail Runner to service more communities, the additional time required for making these stops increases total travel times, making the commuter rail service less attractive to some passengers. Rio Metro has added one morning express train to Santa Fe and one evening express train from Santa Fe that reduce travel times between Santa Fe and Albuquerque by about 15 minutes by skipping low ridership stations.

The State's passenger excursion railroads have faced operational challenges as well. A bridge fire in June 2010 left the C&TS unable to operate trains from Chama, New Mexico for the remainder of 2010 and the first week of the 2011 season while repairs were made. SFS suspended operations in October 2012 through at least the end of 2013 due to financial difficulties, and had been required to suspend excursion service to Lamy for several months in 2011 due to maintenance issues on the Eldorado subdivision.

Shared Use Corridors

Operational challenges related to service reliability are often attributed to freight/passenger rail interactions in shared-use corridors. Although performance has improved since PRIIA, Amtrak is not as punctual as customers would like and the most frequent cause of delays is freight train interference. On any given day, there may be a number of conflicts on the Southwest Chief between Amtrak and BNSF freight trains.

Conflicts between the Southwest Chief and Rail Runner sharing a single track mainline also cause delays. Generally, Rail Runner service incurs more of the delay because Amtrak has priority over Rail Runner under most situations described in the NMDOT-Amtrak joint use agreement. While there have been dispatching conflicts on the NMRX Albuquerque subdivision, the delays are relatively insignificant compared to those caused by freight activities along the Southwest Chief's entire route.

Safety and Security

The Federally-funded Section 130 Railway-Highway Grade Crossing Safety Improvement Program is administered and implemented by the NMDOT Rail Bureau. This program requires NMDOT to prioritize and select crossings for inclusion in the Section 130 Program. The FRA maintains a database of all train, vehicle, and crash data associated with railroad crossings. In order to receive funding, NMDOT uses a priority index related to accident prediction to list crossings. Section 130 funds can help to address issues related to closure of redundant crossings and improvement protection at remaining crossings.

Another operational challenge relates to the numerous safety mandates in RSIA and their costs to both freight and passenger railroads. As mentioned

previously, the RSIA requires railroads to install PTC implementation on all lines that carry passengers and/or hazardous materials by 2015. The primary goal of implementing this technology is to enhance safety, primarily through the prevention of train-to-train collisions, derailments, incursions into work zone limits, and movement of trains through improperly-positioned switches. However, the effects this investment will have on capital investment and maintenance is of particular concern to NMDOT and the Class I railroads.

Environmental Issues

The environmental impact of railroads is a significant consideration when deciding where to locate freight and passenger rail service. While a modal shift from truck to rail can improve air quality, noise pollution via the use of train horns throughout residential communities has led to support for quiet zones. Gallup, Clayton, and Isleta Pueblo are among the communities working for the establishment of a quiet zone in their respective communities. In addition to noise concerns, several stakeholders identified rail beds as an impedance to natural drainage flows and wildlife.

Furthermore, environmental justice concerns often stem from communication gaps between railroads, tribes, NMDOT, operators, and other stakeholders. Affected communities and other stakeholders ought to have significant communication from decision-makers regarding the effects of rail on their community, the establishment of quiet zones, and the condition and location of fences and crossings. Consistent communication can also help to assuage the concerns of railroads with respect to residential encroachment and trespassing.

Federal and Tribal Land

Half of New Mexico land is either owned by the Federal government or by one of the State's 23 Native American pueblos, tribes, or nations. Federal lands, collectively about four times the area of tribal reservation lands in New Mexico, include military bases, national forests, and national parks, in addition to lands administered by the Bureau of Indian Affairs. The State of New Mexico does not have sovereignty over Federal or tribal lands and must negotiate agreements with the land owners in order to add any new rail lines or rail facilities.

Staffing for Program Oversight

In addition to being the owner of railroad right-of-way and a commuter rail system, NMDOT's other rail-related responsibilities include administering the Section 130 program, interacting with railroads on highway construction projects, and acting as the State's rail planning agent. All of these activities are undertaken by the Rail Bureau within NMDOT's Transit and Rail Division, which has an authorized staff of seven but has averaged two vacancies over the past four years. Even if the Rail Bureau were to be fully staffed over time, the responsibilities of this staff are quite extensive for only seven individuals to keep

pace with. As a result, staff must prioritize projects in a manner that focuses on immediate concerns of the NMDOT-owned railroad.

Rail Ownership Issues

The rail lines that NMDOT purchased from BNSF and SFS were originally constructed by ATSF, with much of this rail built more than 130 years ago. Documentation of ownership of spurs and of private crossing agreements was lacking in many cases, creating confusion as to which rail segments were transferred to NMDOT ownership and what agreements were in place between the former owners and adjacent landowners and businesses. Ownership of some rail spurs in the Albuquerque area has not been resolved. There are no records of agreements for many of the private crossings of the rail lines, and it is suspected that in many cases there were never any written agreements.

4.0 Rail System Analysis, Evaluation, and Needs Identification

This chapter provides an assessment of the State's freight and passenger rail infrastructure; describes how well the rail system is serving the needs of New Mexico shippers, receivers, communities, and rail passengers; and identifies current and future rail improvement projects and proposed passenger rail service expansions. The chapter begins with an analysis of the State's freight rail system from a physical, operational, and market standpoint, followed by a performance assessment of the State's passenger rail service. The chapter concludes by integrating the findings from the freight and passenger system analysis to identify the infrastructure improvements needed to provide better freight and passenger services and meet the capacity, safety, efficiency, reliability, and mobility goals defined in Chapter 1.

4.1 FREIGHT RAIL CHARACTERISTICS AND ANALYSIS

From the time that railroads first arrived in the New Mexico Territory in 1879 to the present they have played a substantial role in New Mexico's economy by delivering products to its consumers and providing access to markets near and far for its industries. This section examines New Mexico's rail system from the standpoint of the freight traffic that it currently handles, how effectively it serves the goods movement needs of New Mexico's industry and communities, and how such traffic might develop in the future. The freight rail analysis is organized as follows:

- **New Mexico's Economy and Rail-Dependent Industries –** Examines the structure of the State's economy and assesses how freight rail transportation serves key industries in the State. An economic cluster analysis provides additional detail regarding the three largest rail-dependent industries – mining of metallic and non-metallic minerals, oil and gas extraction, and agriculture;
- **Freight Rail Demand** – Compares existing freight flows with 2020 demand forecasts to evaluate existing and future freight rail volumes;
- **Freight Rail System Capacity and Performance –** Assesses the rail system's ability to handle current and projected freight volumes from the standpoint of capacity, operations, safety, and environment; and

- **Potential Freight Rail Improvements –** Identifies freight rail needs and potential improvement projects throughout the State.

New Mexico's Economy and Rail-Dependent Industries

New Mexico has a diverse economy with many important and emerging industries, some of which depend on freight rail transportation for their daily business operations. This section explores New Mexico's economic makeup and industry mix and identifies those industries in the State which are most dependent upon railroad transportation.

Logistics-Dependent Industries

Table 4.1 shows total employment and GDP for New Mexico industries considered to be "logistics-dependent" (i.e., they rely heavily on the efficient movement of freight for daily operations). These industries include agriculture and related activities, mining, utilities, construction, manufacturing, wholesale/retail trade, and transportation/warehousing. Overall, these industries account for 31 percent of New Mexico's employment base and 37 percent of its economic output.

Table 4.1 New Mexico Logistics-Dependent Employment and GDP by Industry, 2011

Industry	Employment	GDP (in Millions)
Agriculture, Forestry, Fishing & Hunting	10,414	$1,807
Mining	21,247	$6,189
Utilities	6,155	$1,264
Construction	43,649	$3,387
Manufacturing	29,557	$5,899
Wholesale Trade	21,002	$2,492
Retail Trade	91,021	$5,210
Transportation & Warehousing	21,486	$2,067
Total Logistics Dependent	244,531	$29,275
Total New Mexico	781,226	$79,414
Percent Logistics-Dependent	31%	37%

Notes: All GDP figures are in millions of current dollars.

Sources: Bureau of Labor Statistics *Quarterly Census of Employment and Wages*; Bureau of Economic Analysis.

Table 4.2 presents similar statistics for New Mexico's four Metropolitan Statistical Areas (MSAs): Albuquerque, Farmington, Las Cruces, and Santa Fe. Several points are apparent upon examination of this data:

- Logistics-dependent businesses account for approximately 29 percent of the employment base in both Albuquerque and Las Cruces (357,105 positions and 69,109 positions respectively). Manufacturing is a key industry in both areas. Albuquerque has significant high-tech manufacturing (Intel operates a chip fabrication plant in Rio Rancho), while Las Cruces has aerospace and benefits from proximity to maquiladoras located across the Mexican border.[29]
- The Las Cruces MSA has significantly higher employment in the agriculture sector compared to the other MSAs (almost 3,200 jobs, compared to less than 350 for each of the other three MSAs), due to the presence of several dairy farms and other agricultural producers in Doña Ana County. Agriculture is the third largest contributor to Las Cruces GDP at about $294 million in 2011.
- The Farmington MSA, located in the northwestern part of the State, is especially reliant upon freight transportation-dependent industries – they account for 62 percent of the area's total output (about $3.5 billion) and 44 percent of its employment (21,333 jobs). Farmington has a sizeable concentration of mining employment (over 6,400 positions).[30] Most of these jobs are in the oil and gas extraction industry. Energy-related mining and production activities in San Juan County include two coal mines, two coal-fired power plants, a natural gas hub (the Blanco Hub), a petroleum refinery, and a natural gas power plant.[31] A substantial volume of the freight generated by these industries moves by pipeline (e.g., crude oil, natural gas, and refined petroleum products), and both of the coal-fired generating stations are fueled from mines in close proximity to the plants. Coal conveyor systems exist between the mines and the power plants and do not have any connections to the North American rail or highway networks.
- In Santa Fe, freight transportation-dependent industries make up 24 percent of total jobs, a slightly lower concentration which reflects State government and tourism being the major employers in the Santa Fe economy.

[29] New Mexico Department of Transportation, *NMDOT Multimodal Freight Study*, December 2008.

[30] Bureau of Labor Statistics, *Quarterly Census of Employment and Wages.*

[31] U.S. Energy Information Administration.

Table 4.2 Employment and GDP[1] by Industry in New Mexico Metropolitan Statistical Areas, 2011

	Albuquerque[2]		Farmington[3]		Las Cruces[4]		Santa Fe[5]	
Industry	**Employment**	**GDP (in Millions)**	**Employment**	**GDP (in Millions)**	**Employment**	**GDP (in Millions)**	**Employment**	**GDP (in Millions)**
Agriculture, Forestry, Fishing & Hunting	341	n/a	194	$ 13	3,199	$ 294	142	$ 4
Mining	290	n/a	6,409	$ 2,078	45	$ 8	92	$ 181
Utilities	921	n/a	1,018	$ 398	669	$ 96	125	$ 34
Construction	19,938	$ 1,681	3,431	$ 281	3,545	$ 249	2,876	$ 227
Manufacturing	17,654	$ 4,632	1,283	$ 123	3,094	$ 408	772	$ 80
Wholesale Trade	11,445	$ 1,518	1,585	$ 201	1,099	$ 123	972	$ 131
Retail Trade	41,094	$ 2,411	6,093	$ 346	7,290	$ 371	8,630	$ 565
Transportation & Warehousing	8,157	$ 778	1,320	$ 120	1,647	$ 172	720	$ 47
Total Logistics-Dependent	**99,840**	**n/a**	**21,333**	**$ 3,560**	**20,588**	**$ 1,721**	**14,329**	**$ 1,269**
Total MSA	**357,105**	**$ 37,875**	**48,272**	**$ 5,743**	**69,109**	**$ 5,775**	**60,477**	**$ 6,249**
Percent Logistics-Dependent	**28%**	**n/a**	**44%**	**62%**	**30%**	**30%**	**24%**	**20%**

Notes:
[1] All GDP figures are in millions of current dollars.
[2] Bernalillo, Sandoval, Torrance, and Valencia Counties.
[3] San Juan County.
[4] Doña Ana County.
[5] Santa Fe County.

n/a: Data are not available for confidentiality reasons.

Sources: Bureau of Labor Statistics *Quarterly Census of Employment and Wages*; Bureau of Economic Analysis.

Use of Rail by New Mexico Industries

Many of New Mexico's industries are dependent on freight rail transportation to some degree. Table 4.3 provides a qualitative assessment of freight modal dependencies for logistics-dependent industries in New Mexico. Although trucks are a key mode for all industries, certain sectors are also quite dependent on railroads. Industries that are especially dependent upon rail transport include agriculture, mining, and utilities, all of which deal in or utilize large quantities of high-weight but relatively low-value commodities that are not time-sensitive. Commodities with these characteristics typically lend themselves well to transportation by rail.

Other industries, such as wholesale and retail trade, transportation and warehousing, and manufacturing, often depend on intermodal (truck/rail) services, as freight movements from these industries often involve lower weight/higher value commodities (e.g., consumer products) and many facilities do not include an on-site rail spur. As a result, rail service usually originates or terminates at an intermodal yard in Albuquerque or El Paso/Santa Teresa, with trucks responsible for initial pick up and final delivery.

Table 4.3 Modal Dependencies of New Mexico Industries

	Air	Rail	Truck
Agriculture, Forestry, Fishing, and Hunting	○	●	●
Mining (Including Oil and Gas Extraction)	○	●	●
Utilities	○	●	●
Construction	○	○	●
Manufacturing	◑	◑	●
Wholesale Trade	○	◑	●
Retail Trade	○	○	●
Transportation and Warehousing	◑	◑	●

● Heavily Dependent ◑ Somewhat Dependent ○ Not Dependent

For a geographic cluster analysis of rail-dependent industries, it is necessary to identify which specific subsectors are most dependent on freight rail. Table 4.4 highlights the top five commodity groups moved by rail to, from, and within New Mexico, their 2009 tonnages, and which specific industries are most closely tied to them.[32] A few points are apparent upon inspection of this data:

- Coal is by far the highest volume rail commodity in the State, accounting for nearly 60 percent of all New Mexico rail tonnage. This implies that freight rail is important for the State's mining and utilities sectors.
- Chemicals and allied products, a category that includes fertilizers and coal/gas/petroleum products in crude form (not extraction), is the second largest commodity group at about 15 percent of the total. Fertilizer is a key input into New Mexico's agricultural sector. New Mexico also has several potash mines and associated fertilizer production facilities. Similarly, oil and gas extraction activity is scattered around the State, notably in the Permian Basin and Four Corners areas.
- Food and kindred products, the third largest commodity group by weight, includes milk and cheese products, prepared fruits, nuts, and vegetables, bakeries, and animal processing. However, 91 percent of the food products moving to, from, and within New Mexico are inbound, meaning they are supporting a consuming market and not necessarily supporting a rail-dependent industry.
- Petroleum or coal products, which comprise almost six percent of New Mexico's rail tonnage, include refined petroleum products, liquefied coal or petroleum gases, and asphalt. These are key outputs of New Mexico refineries and are closely related to its oil and gas extraction industries.
- Farm products account for four percent of the State's rail tonnage, representing the output of New Mexico farms and ranches, including livestock, unprocessed milk, grains, fruits, nuts, and vegetables.
- Secondary rail commodities in New Mexico include waste/scrap materials; non-metallic minerals; clay, concrete, glass, and stone products; crude petroleum and natural gas; and lumber and wood products.

[32] Hazardous materials shipments are excluded.

Table 4.4 Top Rail Commodities by Weight To, From, and Within New Mexico and Associated Industries, 2009

Commodity	Tons	% of Total	Associated Industries
Coal	9,068,148	59.4%	Mining, Mining Support Activities, Utilities
Chemicals or Allied Products	2,335,835	15.3%	Mining and Mining Support Activities, Agriculture (fertilizers), Oil and Gas Extraction and Support Activities
Food or Kindred Products	960,858	6.3%	Food Manufacturing
Petroleum or Coal Products	859,156	5.6%	Petroleum and Coal Products Manufacturing
Farm Products	614,124	4.0%	Agriculture
Waste or Scrap Materials	269,341	1.8%	
Non-metallic Minerals	234,380	1.5%	Mining and Mining Support Activities
Clay, Concrete, Glass, or Stone Products	186,432	1.2%	Manufacturing
Crude Petroleum, Natural Gas, or Gasoline	165,408	1.1%	Mining and Mining Support Activities, Oil and Gas Extraction and Support Activities
Lumber or Wood Products, excluding Furniture	131,000	0.9%	Manufacturing
Transportation Equipment	120,105	0.8%	Manufacturing, Transportation
Other	323,428	2.1%	n/a
Total	**15,268,215**	**100.0%**	**n/a**

Source: 2009 STB Carload Waybill Sample Data.

Based on these findings, the following geographic cluster analysis focuses on the industries representing the top rail commodities:

- **Metallic and non-metallic minerals mining,** including mine operation and related support activities such as blasting, mine tunneling, and shaft sinking[33];
- **Oil and gas extraction,** including well drilling, operating oil and gas fields, and support activities like exploration, excavating, slush pits and cellars, and perforating well casings[34]; and
- **Agriculture,** including crop and animal production and related support activities.[35]

[33] North American Industry Classification System (NAICS) Codes 212 and 213113 through 213115.

[34] NAICS Codes 211, 213111, and 213112.

[35] NAICS Code 11.

Mining

Mining has been a key industry in New Mexico since before statehood. In 2011, more than $2.2 billion worth of minerals was extracted in New Mexico, and the mining industry employed 6,660 people.[36] Figure 4.1 shows the clustering of mines in New Mexico (excluding oil and gas extraction, which is analyzed separately). In 2011, there were 246 active mines in the State producing a wide variety of commodities:

- **Coal –** Most of New Mexico's coal reserves are found in the San Juan Basin (San Juan, McKinley, and Cibola counties) as well as the Raton Basin (Colfax County). Approximately one third of New Mexico's coal production is sold to industrial customers; the remainder is used for electric power generation. Power plants located in New Mexico and Arizona are key customers for New Mexico coal and include the Plains Electric generating station in Prewitt, the San Juan power plant in Waterflow, the Four Corners plant in Fruitland, and the Cholla power plant in Joseph City, Arizona.
- **Copper –** Copper mining is heavily concentrated in Grant County, home to the Chino, Tyrone, Little Rock, and Continental mines. Copper value and production in the State increased 45 percent and 25 percent, respectively, in 2011, ranking New Mexico as the third largest producer of copper in the United States.[37]
- **Potash –** New Mexico is the top potash producer in the United States, with 2011 production valued at about $636 million. Most of this production occurs in southeastern New Mexico, specifically Eddy County. Potash is used to produce agricultural fertilizer, drilling mud, and animal feed supplements. The Carlsbad potash district of southeastern New Mexico comprises two percent of global potash production and over 75 percent of domestic production.[38]
- **Molybdenum –** New Mexico was the sixth largest producer of domestic molybdenum in 2009, though production dropped by more than 90 percent (to 100 tons).[39] Between 2009 and 2011, the State's production of molybdenum rebounded by 43 percent. The sole molybdenum producer in the State is the Questa Mine in Taos County, which is one of the largest molybdenum mines in the country.

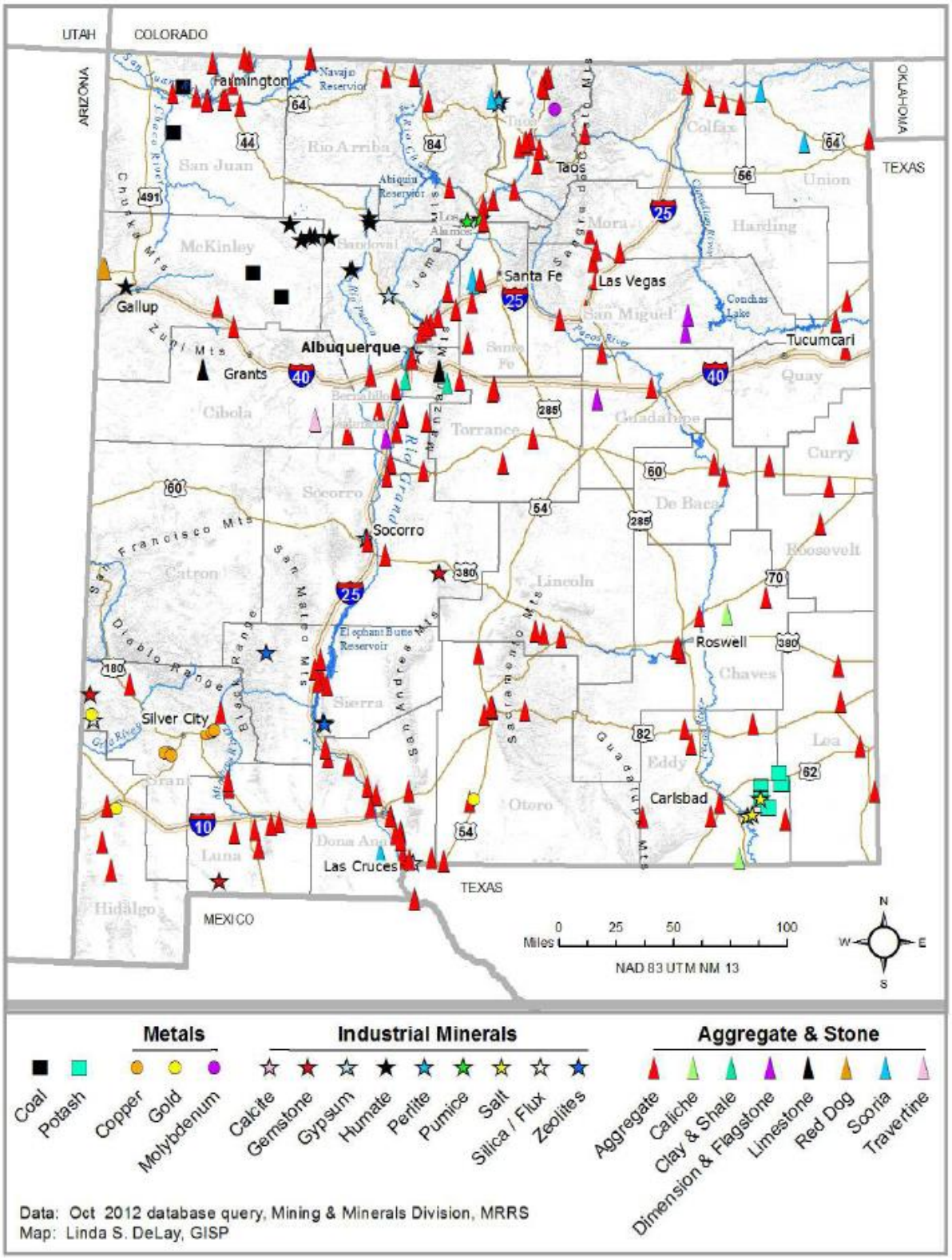
[36] New Mexico Energy, Minerals, and Natural Resources Department, *Annual Report 2012*.

[37] Ibid.

[38] New Mexico Energy, Minerals, and Natural Resources Department, *Annual Report 2010.*

[39] Ibid.

Figure 4.1 Active Mines in New Mexico, 2011



Source: New Mexico Energy, Minerals, and Natural Resources Department, *Annual Report 2012*.

- **Industrial Minerals –** New Mexico is a significant producer of industrial minerals, with approximately 1.5 million tons produced by 21 mines and 15 mills throughout the State. New Mexico is the country's largest producer of perlite and zeolite and is one of the main producers of pumice.[40]
- **Stone and Aggregate –** Stone and aggregate, which includes construction sand and gravel, is a subset of industrial minerals and is directly linked to the health of the local construction market. New Mexico aggregate production began to decline in 2006 and aggregate demand for highway, residential, and commercial construction continues to remain depressed. New Mexico produced 9.8 million tons in 2011, a 50 percent drop from 2006.[41]

Other key mining products in New Mexico include gold and silver (often a byproduct of copper mining), and other precious metals.

Long-term prospects for New Mexico's mining sector are strong, due to worldwide economic growth. As developing nations industrialize, their demand for basic commodities increases. Rising commodity prices since 2000 have driven vigorous growth in the State's mining industry. For instance, expanding global crop production – especially in India, China, and Brazil – has contributed to increased consumption of potash for fertilizer. High oil prices have also spurred demand, both for the production of drilling muds (which are used in oil and gas exploration) and for producing ethanol and biodiesel feed stocks. Similarly, continued demand for steel in growing Pacific Rim economies has bolstered the production of molybdenum, which is an input to steel production. For coal, the future prospects are less clear, due to the concerns related to emissions from the combustion of coal, as well as the competitive position of New Mexico's coal deposits versus other western sources. All of these commodities are well suited for rail transportation, both from the standpoint of their characteristics, as well as the markets into which they are sold. Many of these markets are of sufficient distance and density where rail is the most cost-effective and efficient means of transport.

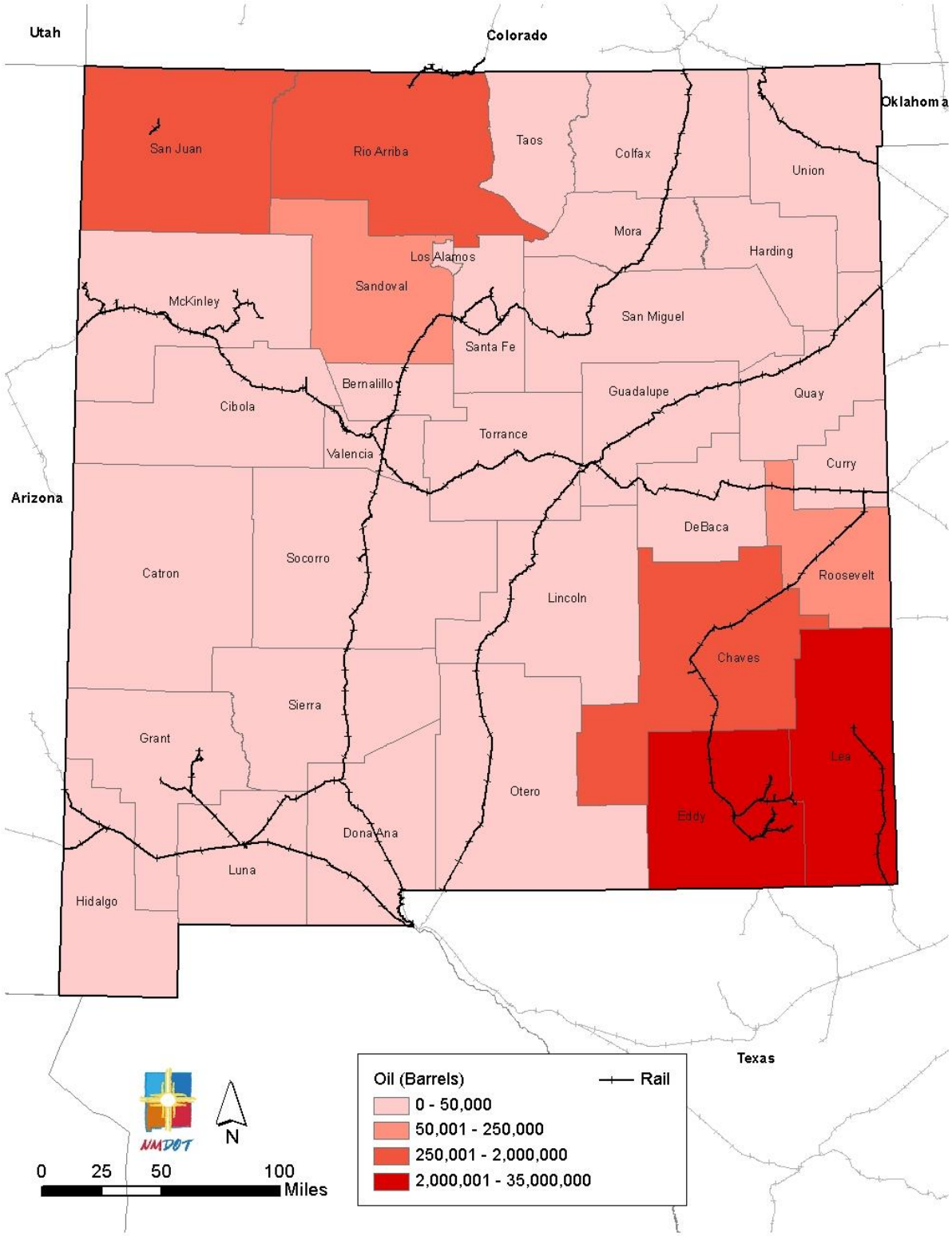
Oil and Gas Extraction

Figures 4.2 and 4.3 show the clustering of New Mexico's oil and gas extraction industries, respectively. As the maps show, these establishments are overwhelmingly concentrated in the Four Corners area (San Juan County) and the Permian Basin of southeast New Mexico (Lea, Eddy, and Chaves counties). Production in the Permian Basin is increasing dramatically due to hydraulic fracturing.

[40] New Mexico Energy, Minerals, and Natural Resources Department, *Annual Report 2012*.

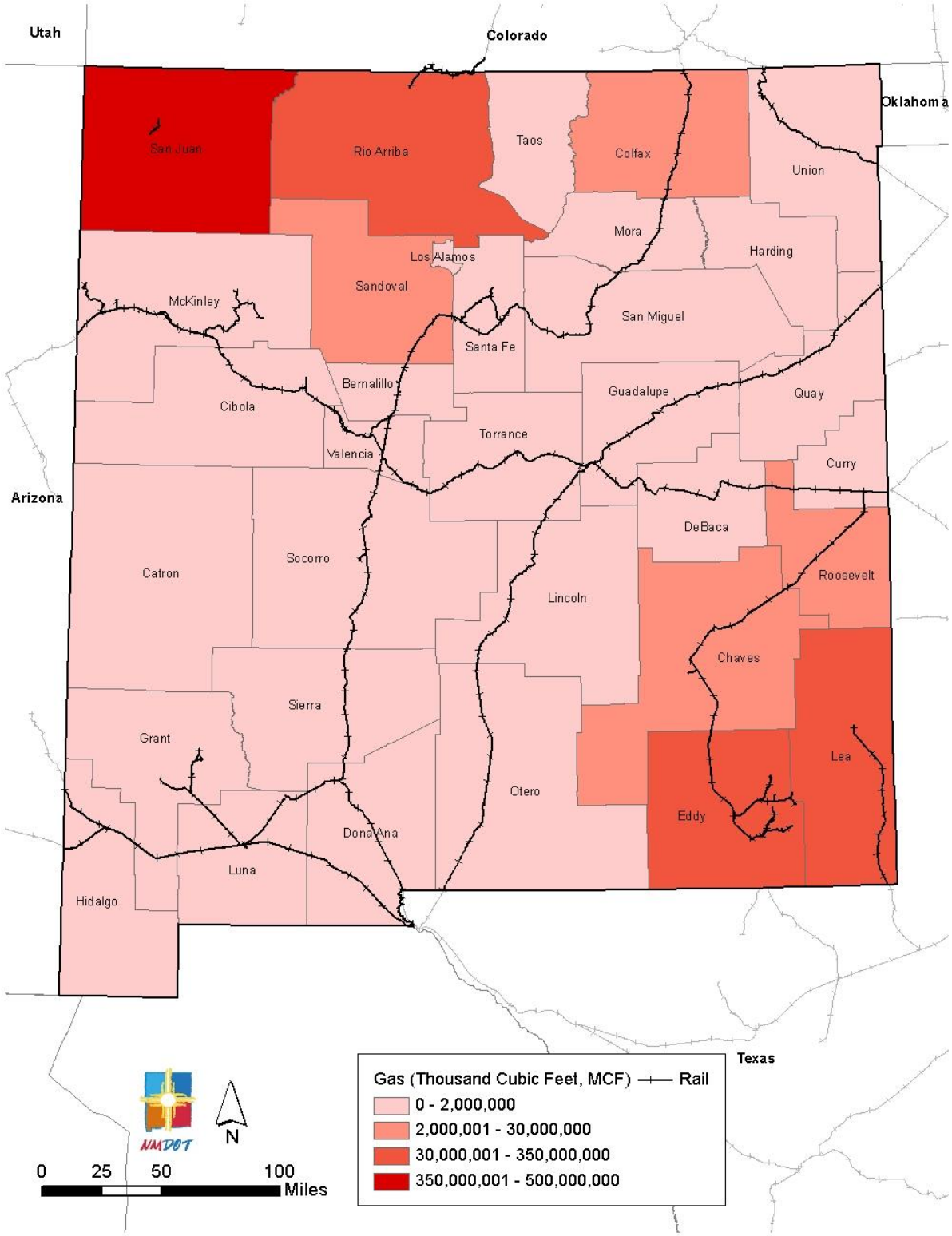
[41] Ibid.

Figure 4.2 Oil Production by County, 2011



Source: New Mexico Energy, Minerals, and Natural Resources Department, *Annual Report 2012*.

Figure 4.3 Gas Production by County, 2011



Source: New Mexico Energy, Minerals, and Natural Resources Department, *Annual Report 2012*.

New Mexico's oil and gas sector provides approximately 4,800 jobs for the State's residents.[42] New Mexico's proven crude oil reserves were the fifth largest in the country at 700 million barrels in 2009; in 2010, New Mexico produced 171,000 barrels of oil per day.[43]

More than 93 percent of the oil produced in New Mexico in 2011 came from just two counties. Lea County and Eddy County each produced more than 33 million barrels of oil in 2011.[44] Gas production, however, takes place mostly in northwest New Mexico (Figure 4.3); San Juan and Rio Arriba counties combined accounted for about 68 percent of the State's production in 2011 (480 billion and 343 billion cubic feet respectively).[45] Nonetheless, significant natural gas production also occurs in southeast New Mexico; Eddy and Lea counties are the third and fourth largest natural gas producers in the State.

According to the U.S. Energy Information Administration, domestic crude oil production is expected to rise through 2035 due to a number of factors, including rising world oil prices; growing use of shale oil resources; and the use of enhanced oil recovery (EOR) techniques, which increases the amount of oil that can be extracted from a given field.[46] Domestic natural gas production, meanwhile, is expected to grow substantially from about 21 trillion cubic feet in 2009 to nearly 27 trillion cubic feet in 2035.[47] This will be driven primarily by the expansion of shale gas production using hydraulic fracturing and horizontal drilling technologies. Although major gas producers have not yet begun to explore New Mexico for production of shale gas, preliminary analysis suggests that there are recoverable deposits within the State.[48] This new development could translate into additional demand for rail transportation, especially in the Permian Basin region where oil producers rely on rail to move oil field equipment and supplies.

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[42] Bureau of Labor Statistics *Quarterly Census of Employment and Wages,* NAICS Code 211.

[43] U.S. Energy Information Administration.

[44] New Mexico Energy, Minerals, and Natural Resources Department, *Annual Report 2012*.

[45] Ibid.

[46] U.S. Energy Information Administration, *Annual Energy Outlook 2011*, April 2011.

[47] Ibid.

[48] Robinson-Avila, K., 'New Mexico sidelined in shale gas-boom'. *New Mexico Business Weekly*, February 14, 2010.

Agriculture

Agriculture has long been an important industry in New Mexico. In 2010, farmland represented over 43 million acres in New Mexico, and the total value of agricultural products produced in the State in 2007 was $2.2 billion.[49] As shown in Figure 4.4, agricultural production is present throughout New Mexico but is most heavily concentrated in Doña Ana and Otero counties in the southern part of the State, as well as Bernalillo County and San Juan County. Around Albuquerque, there are also concentrations of agriculture in Sandoval, Valencia, and Santa Fe counties. Curry and Lincoln counties also have significant numbers of farms. Key farm production in New Mexico includes chile peppers, dairy, cattle and calves, and grains.

Most farms and ranches in New Mexico are relatively small based on land area (less than 50 acres in size) and value of sales. In fact, approximately one-third of farms are less than 10 acres in size and more than 97 percent of New Mexico farms in 2007 had sales of less than $500,000.[50] Moreover, most of the new farms in the State since 1982 have been smaller, with annual sales of less than $10,000. However, farms and ranches with more than $500,000 in annual sales accounted for 81 percent of total livestock and crop sales that year.[51]

The two largest sectors of the agriculture industry, by value, are milk and dairy products (accounting for 46 percent of the value of total agricultural products sold) and cattle and calves (26 percent of total agricultural market value). Approximately 87 percent of agricultural land in New Mexico is devoted to pastureland.

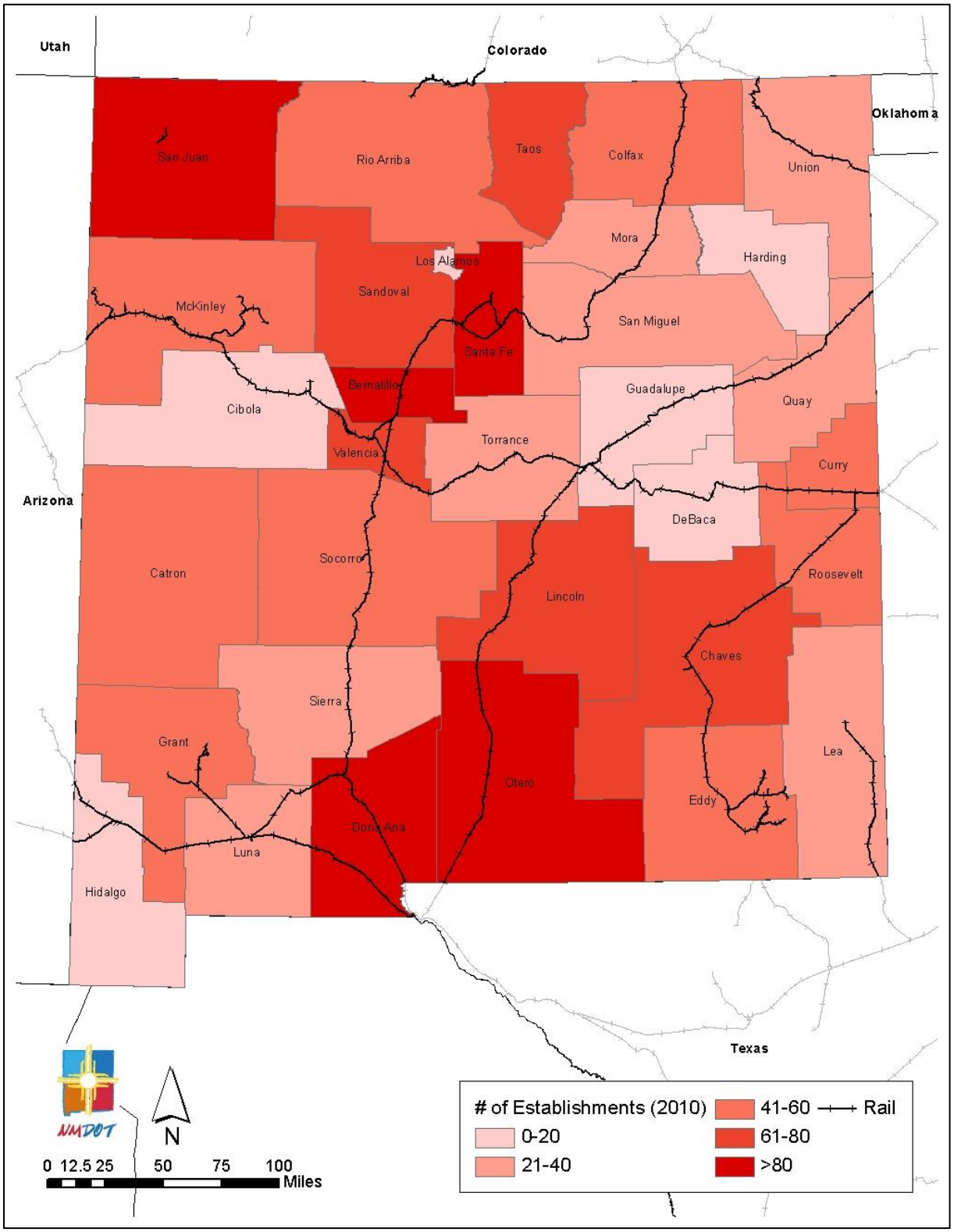
The State's large agriculture operations are the most likely users of rail transportation to transport fertilizers, feed, and some dairy products needed to support their operations. While some dairy products are shipped by rail, the time-sensitive nature of the products these farms and ranches produce means that they are typically transported by truck. Even though most farms in New Mexico are small (as are most new farm operations), total production will likely continue to be dominated by larger operations. Nonetheless, agriculture will remain a bedrock economic activity at all scales throughout the State.

[49] U.S. Department of Agriculture, *2010 State Agriculture Overview: New Mexico.*

[50] U.S. Department of Agriculture, *2007 Census of Agriculture, New Mexico State Profile*.

[51] Slutz, S., *Trends in New Mexico Agriculture*, Department of Agricultural Economics and Agricultural Business, New Mexico State University, March 2010.

Figure 4.4 Agricultural Establishments by County, 2010



Source: U.S. Census Bureau County Business Patterns

New Mexico Freight Rail Demand

More than 127 million tons valued at $8.5 billion were hauled on the New Mexico rail system in 2009 (Table 4.5).[52] This section describes existing and forecasted freight rail demand traveling to, from, or within New Mexico followed by a summary of the significant rail traffic volume passing through the State to/from locations outside of New Mexico. Data for the New Mexico freight rail demand assessment were drawn from two sources. The 2009 STB confidential Carload Waybill Sample is the primary data source for existing freight rail flows. This data was supplemented with a 2020 forecast from FHWA's Freight Analysis Framework Version 3.0 (FAF3). These two datasets are complementary but not directly comparable; detailed descriptions of the two datasets can be found in Appendix B.

Table 4.5 New Mexico Rail Demand Summary, 2009

	Tonnage		Value	
Rail Traffic	Tons (Thousands)	Percentage of NM Total	Value ($ Million)	Percentage of NM Total
Local	42.7	0%	$1.1	0%
Inbound	3,064.3	2%	$158.5	2%
Outbound	12,161.3	10%	$227.8	3%
Through	112,288.2	88%	$8,197.3	95%
Total	**127,556.5**	**100%**	**$8,584.7**	**100%**

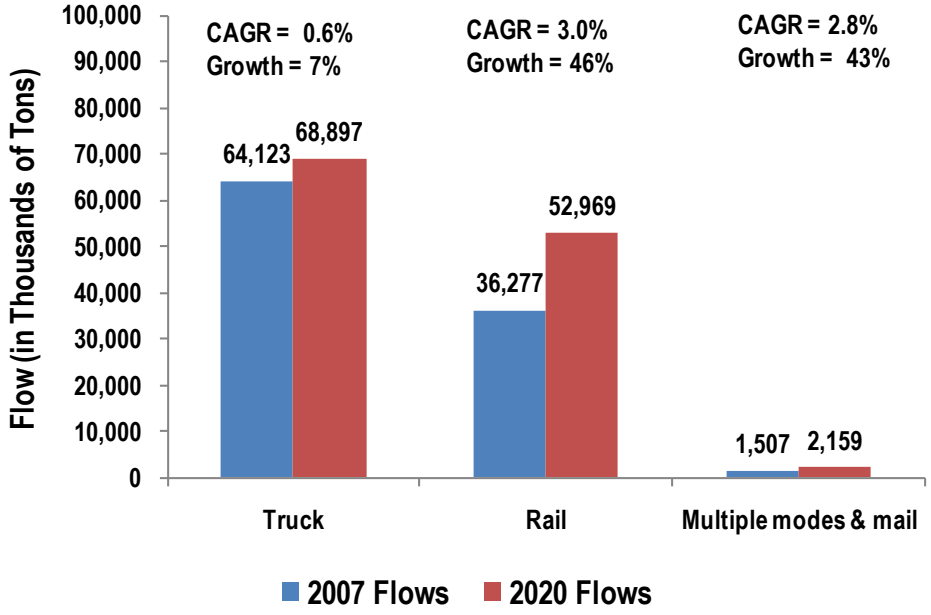
Source: 2009 Surface Transportation Board (STB) Carload Waybill Sample Data.

Rail Volumes To, From, and Within New Mexico

FAF3 defines the entire State of New Mexico as a single analysis zone, making it suitable for a broad assessment of the State's freight rail demand, including changes in mode share, the growth or decline in commodities, and trends in trade flows. As shown in Figure 4.5 and Figure 4.6, trucks are forecasted to remain the dominant mode of transport both in terms of tons and value. However, freight rail carries a higher percentage of the overall freight tonnage in New Mexico (about 36 percent) than the national average (about 12.5 percent).

[52] 2009 Surface Transportation Board (STB) Carload Waybill Sample Data.

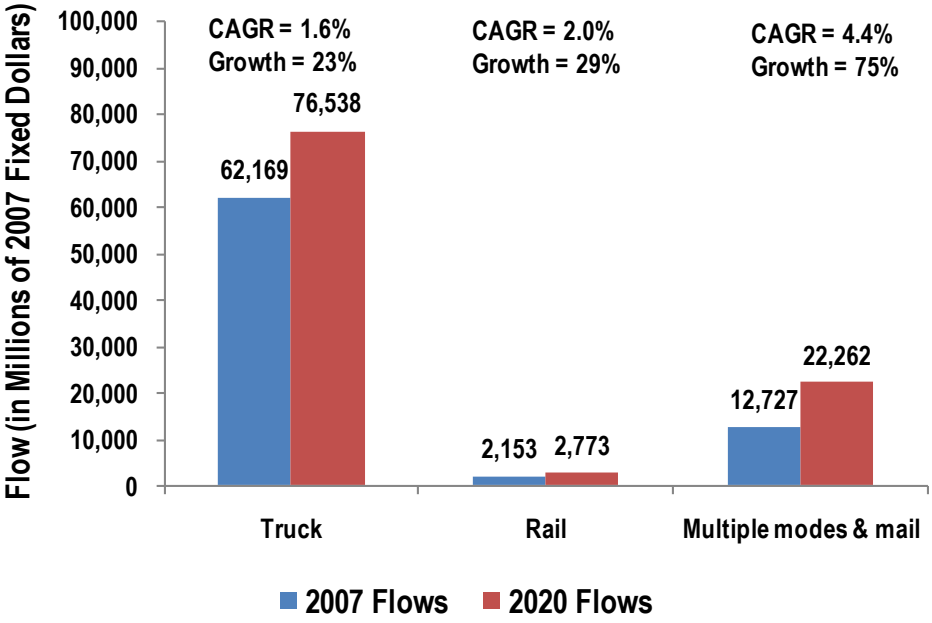
Figure 4.5 New Mexico Land Based Modal Flows by Weight, 2007 to 2020



Source: FAF3.

Note: CAGR – Compound Annual Growth Rate (year-over-year growth rate between 2007 and 2020).

Figure 4.6 New Mexico Land Based Modal Flows by Value, 2007 to 2020



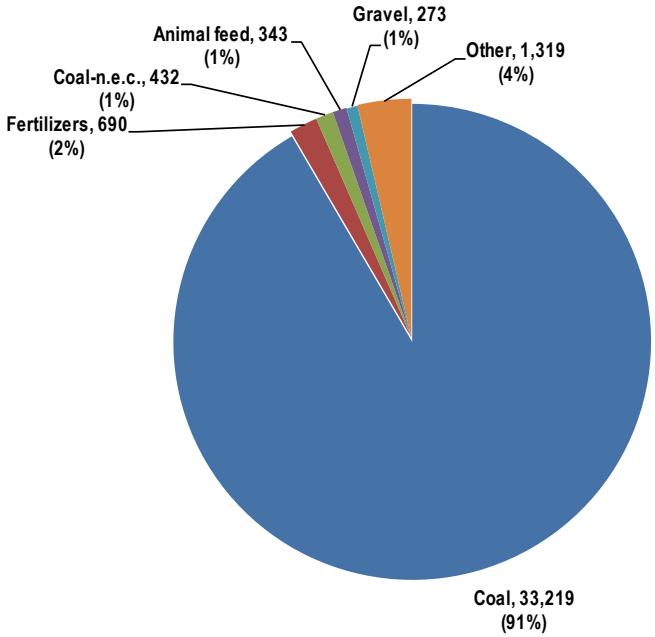
Source: FAF3.

Note: CAGR – Compound Annual Growth Rate (year-over-year growth rate between 2007 and 2020).

Growth in New Mexico rail movements by weight is forecasted to outpace the growth in truck tonnage between 2007 and 2020 (although trucks are still expected to carry the majority of the State's freight, as measured by weight). However, both average rail value per ton and percentage rail share by value are quite low compared to the national level and other modes. This indicates the predominance of raw materials and/or goods on the lower end of the commodity value spectrum. This aspect is further analyzed in the following discussion on commodity flow profiles.

The top commodities for New Mexico's rail flows by weight and value in 2007 and the corresponding compounded annualized growth rates between 2007 and 2020 are shown in Figures 4.7 through 4.10. The composition of rail traffic that either originates and/or terminates in New Mexico is highly skewed towards coal, which is the single most dominant commodity by weight, a trend that FAF3 projects to continue with an annual growth rate of 3.2 percent, the highest among the major commodities. Gravel is the second highest in terms of forecasted growth rate. The tonnage of fertilizer transported by rail is forecasted to decline by 2020.

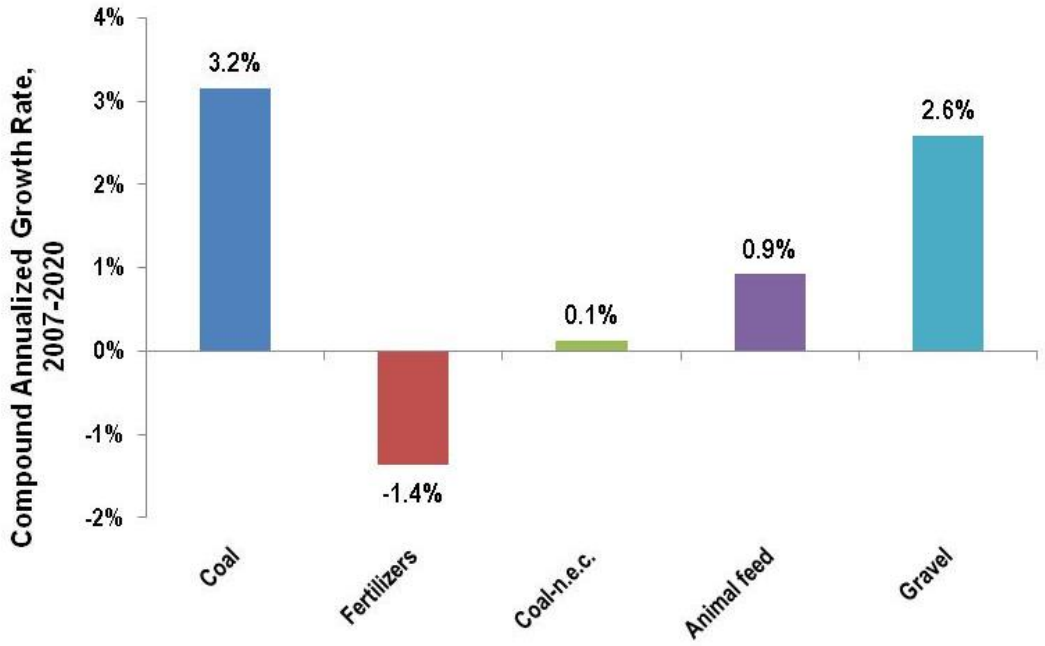
Figure 4.7 Top New Mexico Rail Commodities by Weight, 2007
Thousands of Tons



Source: FAF3.

Note: Coal-n.e.c ("not elsewhere classified") includes selected coal products and products of petroleum refining, excluding gasoline, aviation fuel, and fuel oil.

Figure 4.8 Compounded Annualized Growth Rates of Top New Mexico Rail Commodities by Weight, 2007 to 2020



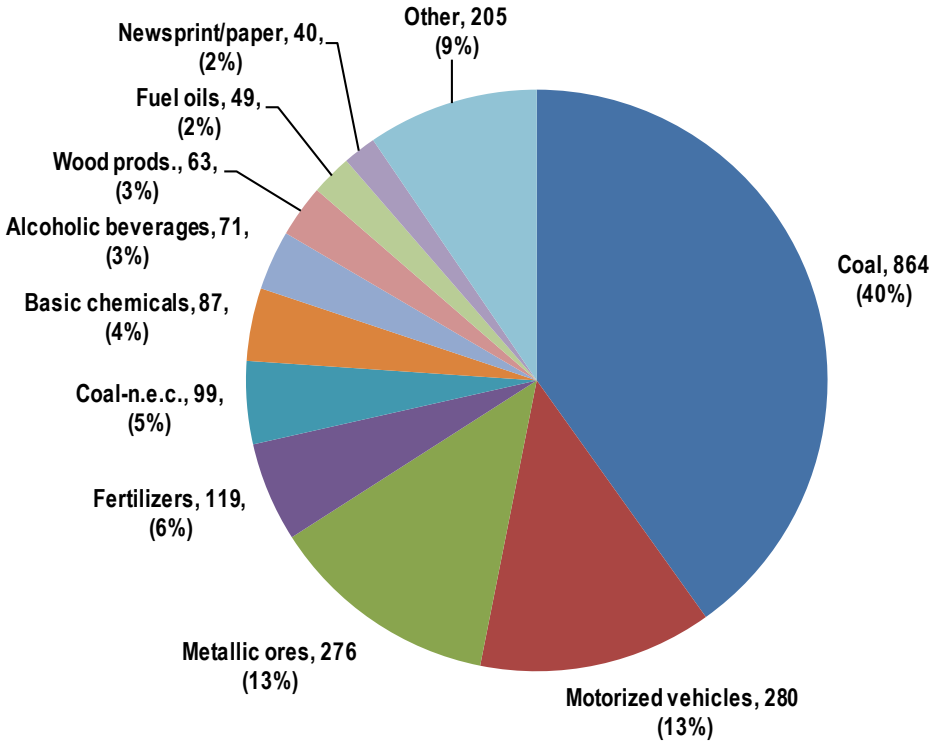
Source: FAF3.

Note: Coal-n.e.c ("not elsewhere classified") includes selected coal products and products of petroleum refining, excluding gasoline, aviation fuel, and fuel oil.

Coal is the highest contributor to the value of goods transported by rail (Figure 4.9). Following coal, motorized vehicles and metallic ores are the other major slices of the rail market. Motorized vehicles and wood products are on a decline.

Commodities that are primarily inbound are animal feed and gravel (on a weight basis), and motorized vehicles, basic chemicals, and wood products (on a value basis). Commodities that are primarily outbound are fertilizers (on a weight basis), and metallic ores, fertilizers, and newsprint/paper (on a value basis).

Figure 4.9 Top New Mexico Rail Commodities by Value, 2007
Millions of 2007 Dollars

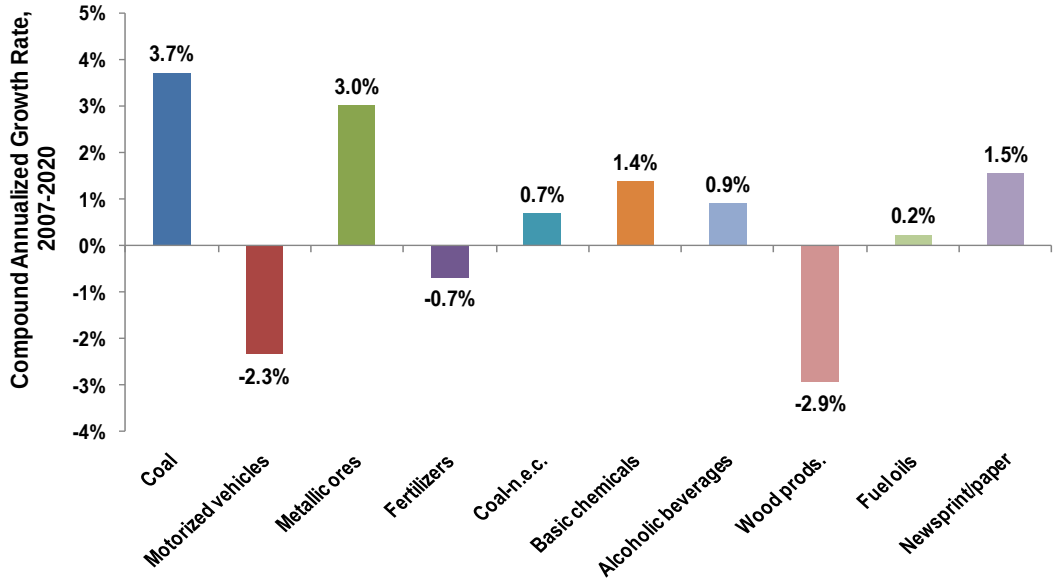


Source: FAF3.

Note: Coal-n.e.c ("not elsewhere classified") includes selected coal products and products of petroleum refining, excluding gasoline, aviation fuel, and fuel oil.

The "Other" category represents the sum of all other commodities totaling less than $40 million in 2007, including animal feed, other foodstuffs, gravel base metals, crude petroleum, transportation equipment, plastics/rubber, milled grain products, cereal grains, paper articles, miscellaneous manufactured products, nonmetallic minerals, machinery, furniture, natural sands, other agricultural products, mixed freight, articles-base metal, chemical products, and waste/scrap.

Figure 4.10 Compounded Annualized Growth Rates of Top New Mexico Rail Commodities by Value, 2007 to 2020



Source: FAF3.

Note: Coal-n.e.c ("not elsewhere classified") includes selected coal products and products of petroleum refining, excluding gasoline, aviation fuel, and fuel oil.

The key trade partners for the inbound and outbound commodities for New Mexico by 2009 tonnages are indicated in Table 4.6. Trade with Mexico comprised a negligible percentage of tonnage originating or terminating in New Mexico.

Table 4.6 Key Trade Partners to New Mexico, 2009

Inbound Flow			Outbound Flow		
Trade Partner	Tons	% Share Tons	Trade Partner	Tons	% Share Tons
NE	465,914	15.0%	AZ	8,879,554	72.8%
MO	324,380	10.4%	TX	1,344,673	11.0%
TX	300,576	9.7%	IL	519,589	4.3%
IL	276,884	8.9%	CA	479,059	3.9%
IA	187,048	6.0%	MO	160,768	1.3%
SD	180,722	5.8%	Canada	146,888	1.2%
ND	126,198	4.1%	MN	89,741	0.7%
NY	125,802	4.0%	FL	79,500	0.7%
Canada	123,980	4.0%	CO	61,475	0.5%
AZ	119,036	3.8%	WA	55,276	0.5%
MN	111,344	3.6%	NM (Local)	42,656	0.3%

Inbound Flow			Outbound Flow		
Trade Partner	**Tons**	**% Share Tons**	**Trade Partner**	**Tons**	**% Share Tons**
CO	110,156	3.5%	NE	35,840	0.3%
CA	99,760	3.2%	IA	34,044	0.3%
KS	93,752	3.0%	OH	33,440	0.3%
MT	63,820	2.1%	OK	28,852	0.2%
Total	**3,106,940**		**Total**	**12,203,931**	
Percent of Total	**87%**		**Percent of Total**	**98%**	

Source: 2009 Surface Transportation Board (STB) Carload Waybill Sample Data.

Through Traffic

The bulk of rail freight volume in New Mexico is through traffic carried by the State's Class I railroads, primarily on the two major transcontinental rail corridors. Through traffic represents 88 percent of all rail traffic by weight and 95 percent of all rail traffic by value on New Mexico's rail network.[53] The types and quantities of through rail freight traffic are indicative of national and even global economic activity, with New Mexico benefitting from jobs created to maintain the rail lines and to crew and service the trains.

Table 4.7 highlights the top 10 rail through commodities in New Mexico by weight for 2009. Seven of the top 10 commodities (food or kindred products, coal, farm products, chemicals, transportation equipment, petroleum/coal products, and waste/scrap materials) also appear among the top 10 commodities originating or terminating in New Mexico. However, the number one through commodity – more than 40 percent of the total – is "freight all kinds." This is a catch-all category under which the vast majority of intermodal traffic is captured. These movements totaled over 45 million tons in 2009, or three times the total rail tonnage moving to, from, or within New Mexico that year. Overall, through movements totaled more than 112 million tons in 2009, compared to less than 15.4 million tons for all traffic having a New Mexico shipper and/or receiver.[54]

[53] 2009 Surface Transportation Board (STB) Carload Waybill Sample Data.

[54] Ibid.

Table 4.7 Top 10 Rail Through Commodities by Weight, 2009

Commodity	Tons	% of Total
Freight All Kinds[a]	45,680,080	40.7%
Food or Kindred Products	12,463,562	11.1%
Coal	10,867,976	9.7%
Farm Products	10,161,324	9.0%
Chemicals or Allied Products	9,508,789	8.5%
Pulp, Paper, or Allied Products	3,054,004	2.7%
Transportation Equipment	2,824,246	2.5%
Petroleum or Coal Products	2,711,828	2.4%
Primary Metal Products	2,643,424	2.4%
Waste or Scrap Materials	1,932,216	1.7%
Other	10,440,734	9.3%
Total	**112,288,183**	**100.0%**

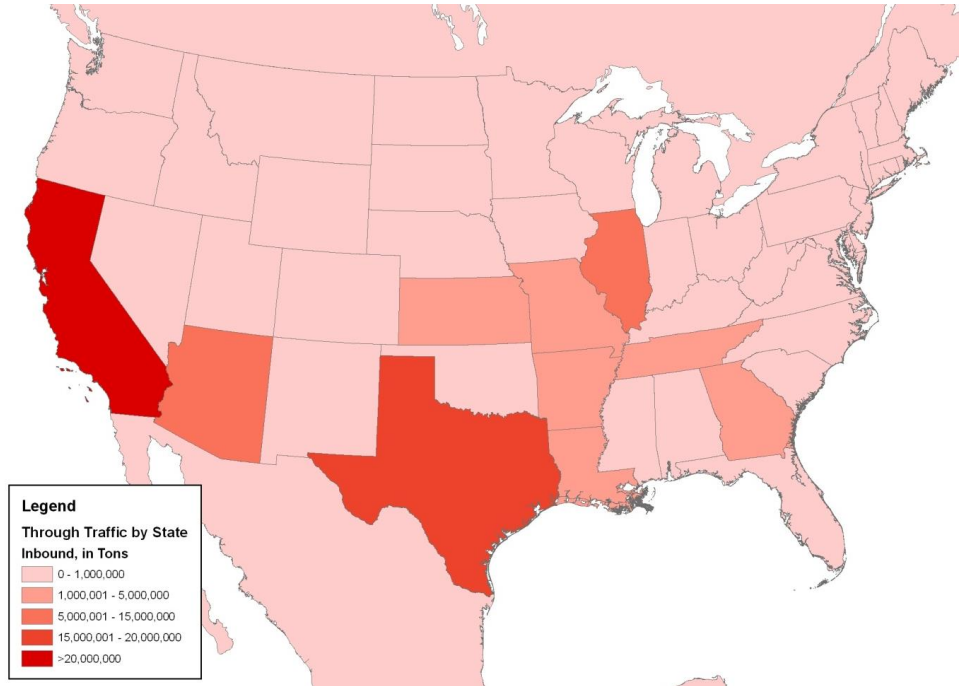
Source: Cambridge Systematics analysis of 2009 STB Carload Waybill Sample Data.

[a] Approximately 70-80 percent of all trailer on flat car (TOFC) and container on flat car (COFC) freight moves under the "Freight All Kinds" commodity classification.

Figures 4.11 and 4.12 show New Mexico through rail traffic by inbound (shipment is moving to a state through New Mexico) and outbound (shipment is moving out of a state through New Mexico) tonnage respectively.[55] As the maps demonstrate, most of New Mexico's through rail traffic moves between just a few states, namely California, Texas, and Illinois. Traffic between California and Illinois is dominated by intermodal shipments to and from West Coast ports. Movements to and from other states tend to have greater proportions of carload traffic, indicating the presence of bulk commodities like chemicals and grain. Nonetheless, significant intermodal traffic passing through New Mexico is generated or attracted by other states such as Texas, Kansas, and Missouri. High volumes of Powder River coal from Wyoming contribute to significant outbound through tonnage from that state. Some rail flows to and from Mexico and Canada pass through New Mexico; however, these volumes are much smaller than domestic through flows.

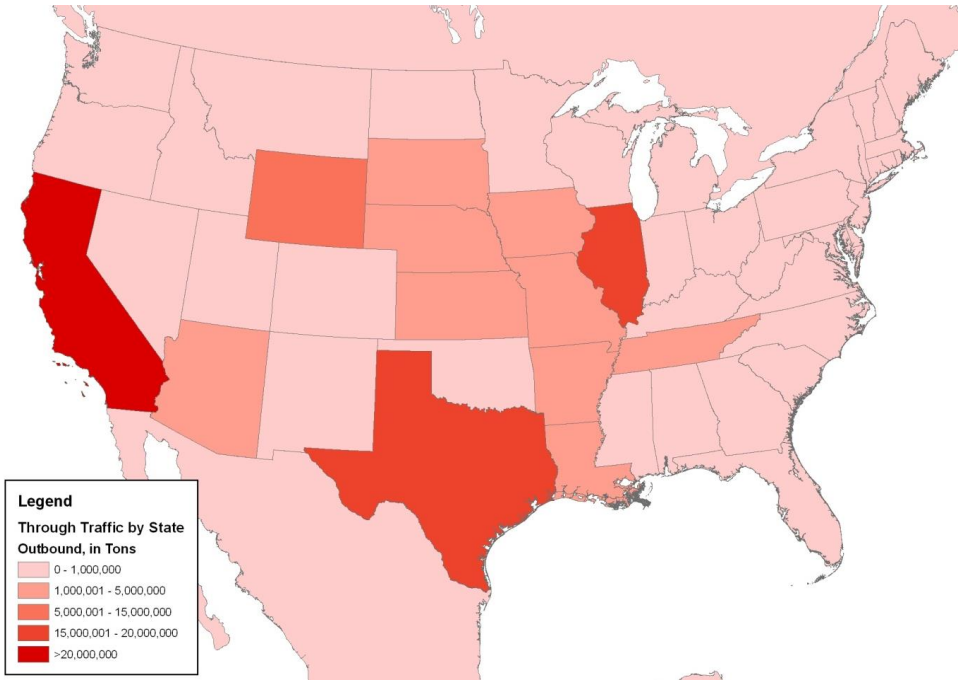
[55] Maps are presented separately because combining inbound and outbound through freight would result in double counting, since a shipment from State A to State B through New Mexico would also be included as a shipment from State B to State A.

Figure 4.11 New Mexico Rail Through Traffic by Inbound State, 2009
In Tons



Source: 2009 STB Carload Waybill Sample Data

Figure 4.12 New Mexico Rail Through Traffic by Outbound State, 2009
In Tons



Source: 2009 STB Carload Waybill Sample Data.

Freight Rail System Capacity and Performance

Shifting from the freight rail demand perspective, this section evaluates the capacity and performance of the State's freight rail system. The discussion builds on the rail inventory in Chapter 2 to describe the operations and performance of the freight rail system in terms of the physical capacity, operational level of service, rail corridor and highway-rail grade crossing safety, and emission impacts of New Mexico freight rail as compared with trucks on highways.

Capacity and Operations Analysis

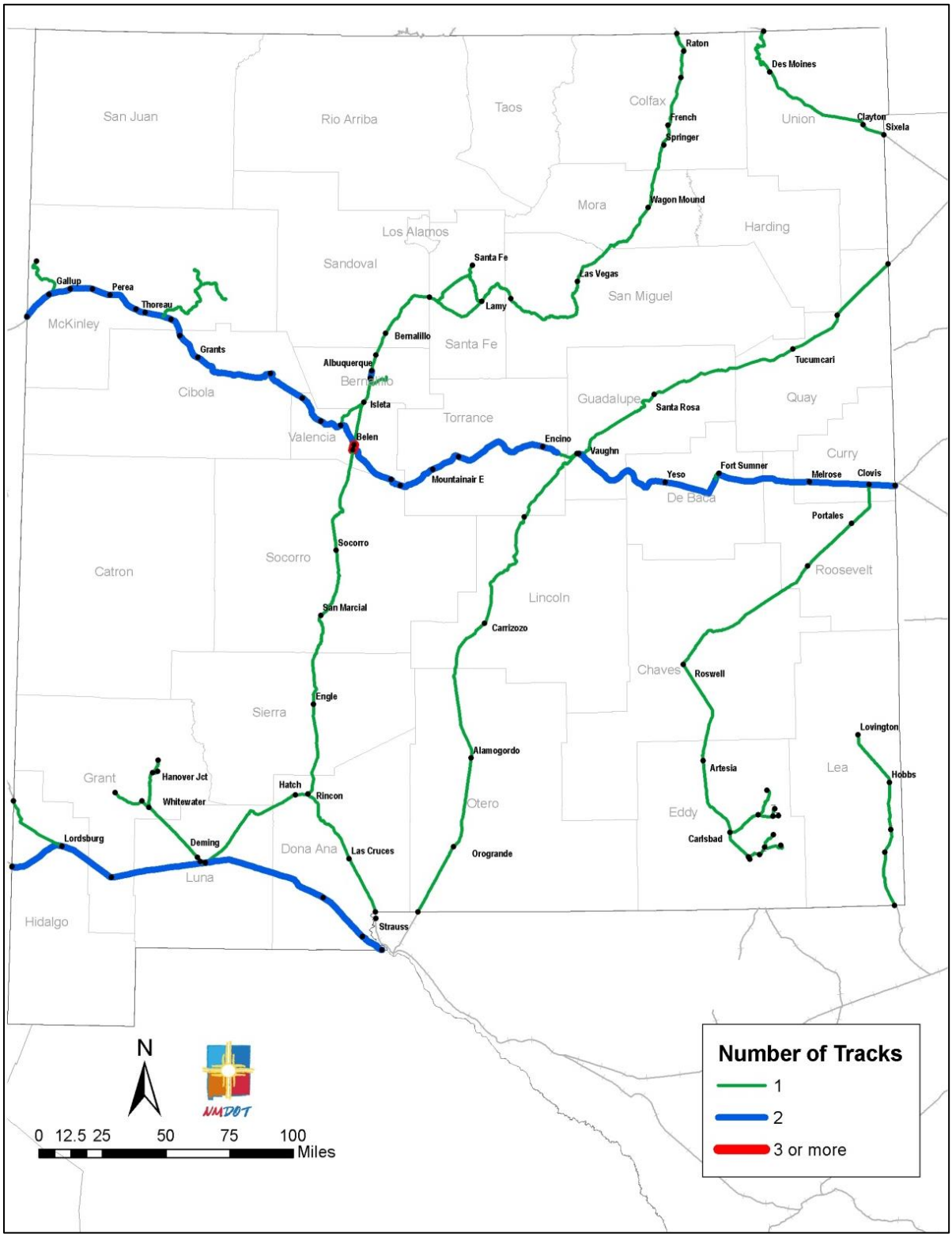
The New Mexico freight rail system is comprised of two Class I railroads and four shortline railroads, providing connectivity to the national rail system and the State's rail-dependent industries. Freight rail capacity and operational level of service are dependent on three major factors:

- **Number of Tracks –** As described in Chapter 2, there are 2,053 miles of rail operated in New Mexico which comprise approximately 1.4 percent of the rail network nationwide.[56] Illustrated in Figure 4.13, about 81 percent of the New Mexico rail system is single-tracked with sidings for trains to pass each other. With the exception of 9.3 miles west of Vaughn and 2.3 miles west of Fort Sumner, the heavily-used BNSF Chicago-Los Angeles Transcon mainline is double-tracked in New Mexico. The UP Sunset Route is double-tracked in the State as well.
- **Control System –** The three common types of traffic control and signal technology that are in use in New Mexico include Centralized Traffic Control (CTC), Automatic Block Signaling (ABS), and manual (including Block Register Territory and Track Warrant Control).[57] The split between the three operations for New Mexico rail is 54 percent, 10 percent, and 36 percent, respectively. Figure 4.14 identifies the control type for each line. The lines carrying the highest rail volumes, BNSF's Transcon and UP's Sunset Route, use CTC. Volumes on the State's shortline railroads currently do not warrant advancement from a manual control system.

[56] Table 1-14: Miles of Freight Railroad Operated by Class of Railroad: 2008, BTS State Transportation Statistics 2009.

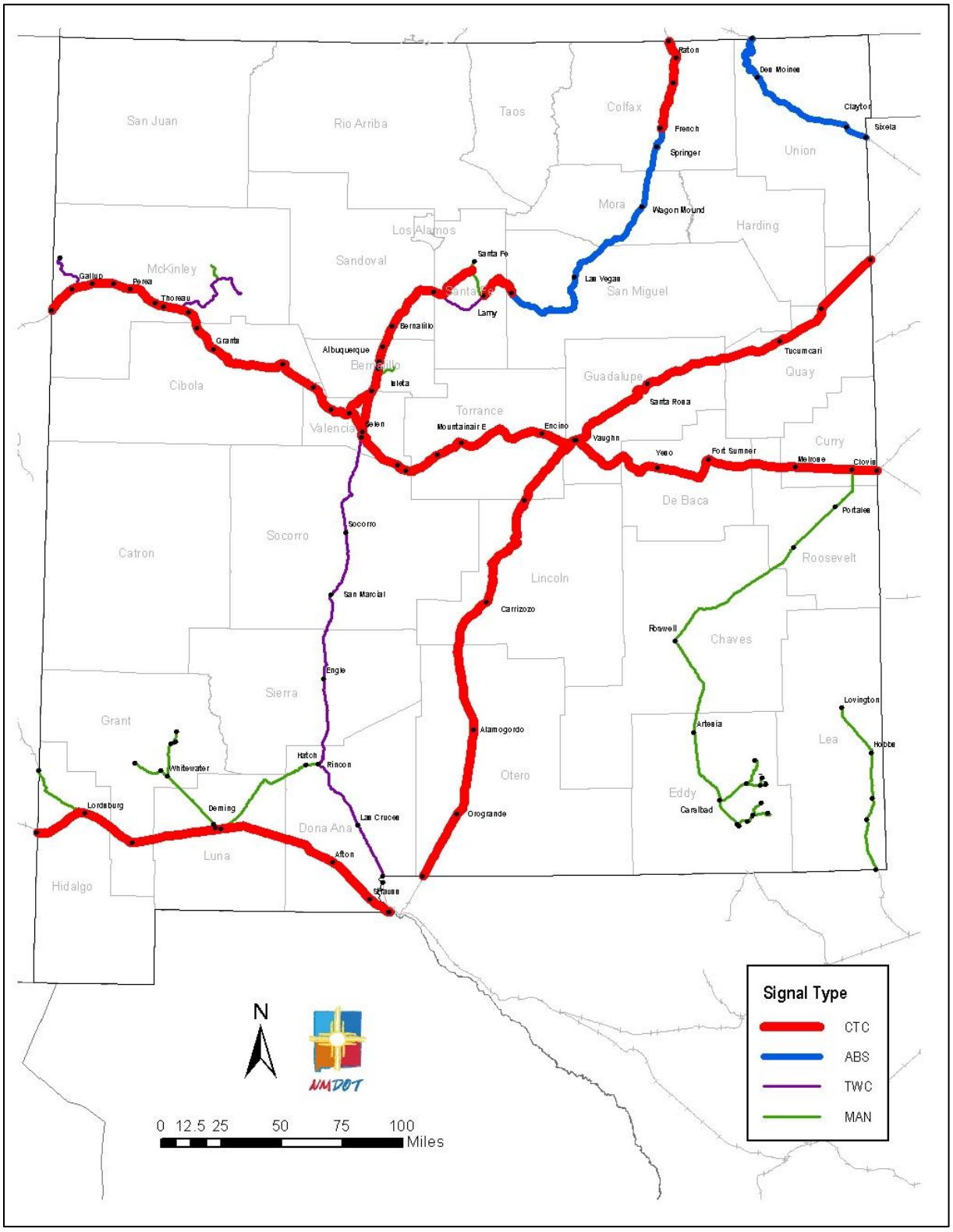
[57] A glossary in Appendix A provides a definition of terms.

Figure 4.13 New Mexico Freight Rail System – Number of Tracks, 2011



Source: NM Railroads and Oak Ridge National Laboratory Rail Network Analysis.

Figure 4.14 New Mexico Freight Rail System – Control Type, 2011



Source: NM Railroads and Oak Ridge National Laboratory Rail Network Analysis.

- **Train Type/Mix –** Approximately 88 percent of the rail tonnage and 95 percent of the rail shipment value that use the State's network are through traffic.[58] Similarly, there are limited intermodal operations in the State, with one facility in Albuquerque and a second facility just beyond the State border in El Paso, Texas.[59] Although the train type or mix information was unavailable for individual segments, Figure 4.15 depicts the density of rail flows across the network. The volumes over the BNSF Transcon corridor are significantly higher than any other corridor.

A 2007 study of national rail freight infrastructure capacity estimated the volume to capacity ratio for all major freight corridors in the United States, with rail capacities in the New Mexico area shown in Figure 4.16.[60] The two locations in New Mexico with levels of service (LOS) essentially at capacity correspond to the two remaining single track locations on the BNSF Transcon.

Rail System Safety

Rail system safety is evaluated by measuring the number of incidents, accidents, fatalities, and injuries that occur on the system. Safety can be further subdivided into operational impacts (employee injuries, operational incidents resulting in railroad property damage, etc.) and third-party incidents (right-of-way incursions by motor vehicles and pedestrians, grade crossing accidents, etc.).

Table 4.8 compares the frequency of incidents on the New Mexico rail infrastructure to the national incident rate, revealing several trends:

- Overall, the average annual incident rate per 1,000 railroad miles in New Mexico has been almost 50 percent lower than the national average over the last five years;
- While New Mexico's injury rate is also lower than the national average, the State's fatality rate is slightly higher for highway-rail incidents and "other" incidents which includes trespasser fatalities;
- On an average annual basis, about 18 percent of the accidents are derailments, compared to the national average of approximately 12 percent; and
- The percentage of gated public crossings in New Mexico is about 38 percent whereas the national average is about 33 percent, which is mostly an indication that main lines represent a higher proportion of total State mileage than the overall national average.

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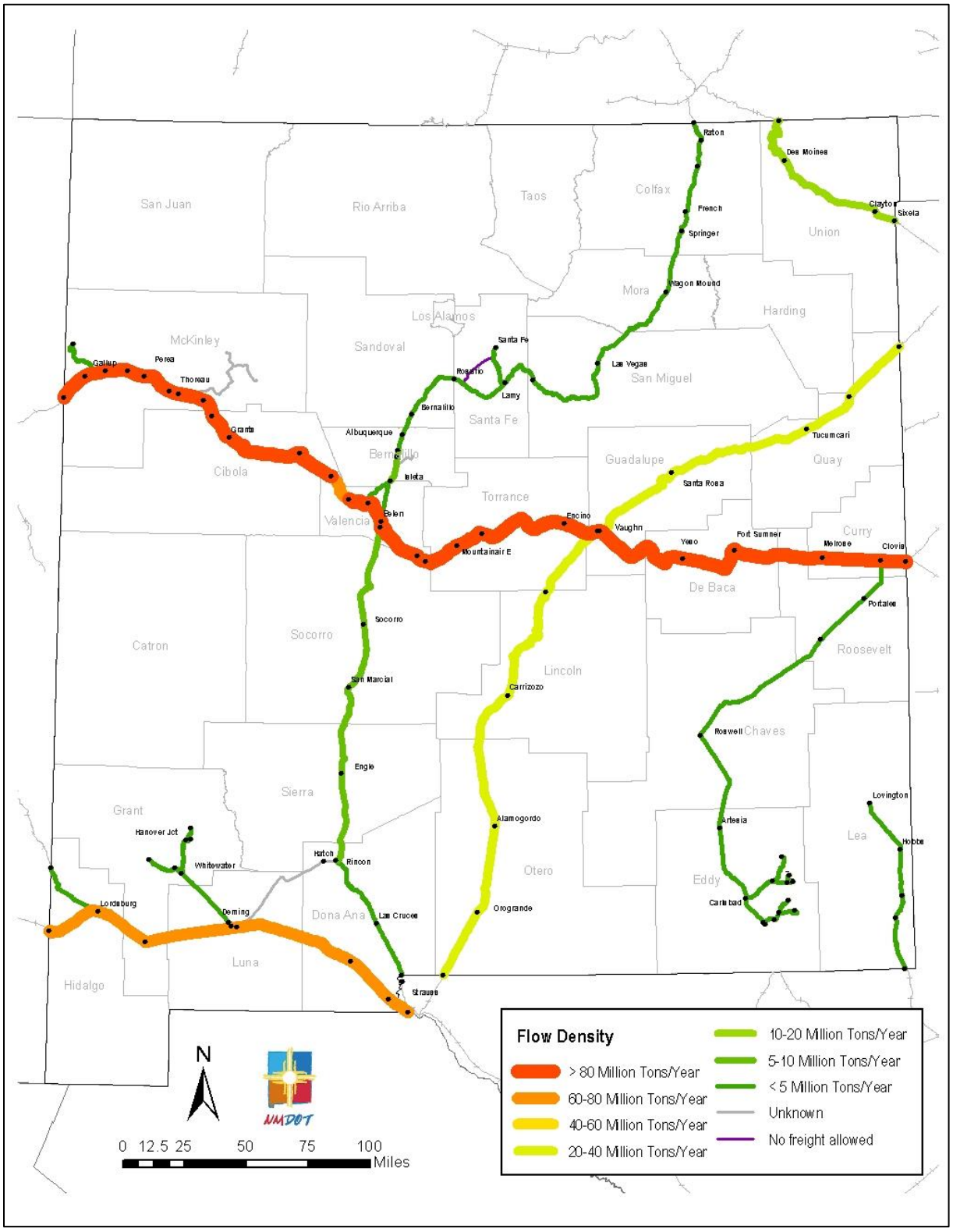
[58] 2009 STB Carload Waybill Sample Data.

[59] This facility will be replaced by an intermodal facility near Santa Teresa in 2014.

[60] Association of American Railroads, *National Rail Freight Infrastructure Capacity and Investment Study,* 2007.

Figure 4.15 New Mexico Freight Rail System – Flow Density, 2011



Source: NM Railroads and Oak Ridge National Laboratory Rail Network Analysis.

Figure 4.16 New Mexico Freight Rail System Level of Service, 2007

Source: National Rail Freight Infrastructure Capacity and Investment Study prepared for the Association of American Railroads, 2007.

Table 4.8 New Mexico Rail Infrastructure Incident Frequency, 2008 to 2012

Description	New Mexico	U.S.
Total Accidents/Incidents (5-year total)	**448**	**57,847**
Avg. Annual Accidents/Incident Rate (per 1,000 railroad miles)	48.8	83.5
Avg. Annual Fatality Rate (per 1,000 railroad miles)	5.6	5.3
Avg. Annual Injury Rate (per 1,000 railroad miles)	33.1	60.0
Train Accidents (collisions, derailments, and other accidents)	**95**	**9,981**
Avg. Annual Train Accident Rate (per 1,000 railroad miles)	10.4	14.4
Avg. Annual Fatality Rate (per 1,000 railroad miles)	0.0	0.1
Avg. Annual Injury Rate (per 1,000 railroad miles)	0.4	1.5
Highway-Rail Incidents (5-year total)	**46**	**10,427**
Avg. Annual Highway-Rail Incident Rate (per 1,000 crossings)	7.9	9.9
Avg. Annual Fatality Rate (per 1,000 crossings)	1.7	1.2
Avg. Annual Injury Rate (per 1,000 crossings)	4.3	4.3
Other Incidents (5-year total)	**307**	**37,439**
Total Fatalities	41	2,303
Total Injuries	275	35,987
Total Trespasser Fatalities	39	2,161
Avg. Annual Trespasser Fatality Rate (per 1,000 railroad miles)	4.3	3.1

Source: U.S. Department of Transportation, Federal Railroad Administration, Office of Safety Analysis. System Mileage based on BTS State Transportation Statistics, 2012.

Table 4.9 indicates the distribution of highway-rail incidents among the New Mexico counties summed over the years 2008-2012. Three of 10 fatalities at-grade crossings over the last five-year period were collisions with passenger trains (two fatalities involving Amtrak and one involving Rail Runner). NMDOT has aggressively moved to install active controls at public crossings and is in the process of closing private crossings or negotiating new agreements for private crossings that will improve grade crossing safety. The counties with the highest safety risk exposure in terms of grade crossings are Valencia, Chaves, Bernalillo and Doña Ana. These counties are generally those in New Mexico with the highest population, numbers of train trips, local freight service, and/or grade crossings.

Table 4.9 New Mexico Highway-Rail Incidents Summary by County, 2008 to 2012

	5-Year Totals		
County	**Incidents**	**Fatalities**	**Injuries**
Valencia	8	1	3
Chaves	3	0	0
Doña Ana	5	1	7
Bernalillo	2	2	1
San Miguel	3	2	0
McKinley	6	2	2
Cibola	2	1	1
Santa Fe	2	0	3
Socorro	2	0	1
Quay	1	0	1
Lea	1	1	0
Luna	2	0	1
Mora	1	0	1
Otero	1	0	0
Roosevelt	2	0	1
Curry	2	0	1
Lincoln	1	0	1
Torrance	1	0	2
Guadalupe	1	0	0
TOTAL	**46**	**10**	**26**

Source: U.S. Department of Transportation, Federal Railroad Administration, Office of Safety Analysis.

Of particular concern is trespasser incidents. In New Mexico, trespassers accounted for 76 percent of the total fatalities between 2008 and 2012, compared to 59 percent nationwide.[61] Over one-half of the State's trespasser fatalities was concentrated in two counties, McKinley and Cibola, that contain only five percent of the State's population. BNSF's Transcon route, carrying 80 to 120 trains per day, passes through these two counties.

Greenhouse Gas Emissions Analysis

This section inventories current and future greenhouse gas (GHG) emissions from freight in New Mexico, including both truck and rail transport. Table 4.10 presents estimated GHG emissions attributed to highway freight in New Mexico for 2007 and 2020. As the table shows, growth in truck vehicle miles traveled (VMT) outweigh improvements in freight vehicle fuel efficiency, causing overall carbon dioxide (CO_2) emissions to increase. Total highway freight CO_2 emissions rise by about 24 percent in the forecast, from 5.4 million metric tons to 6.7 million metric tons. Since New Mexico is a "bridge state"(an estimated 85 percent of the truck traffic on I-10 and I-40 is simply passing through the State[62]), through traffic is a significant contributor to truck GHG emissions and will likely remain so between now and 2030. The diversion of some of this traffic to rail would help mitigate this GHG impact, as rail movements are more fuel efficient than trucks (156-512 ton miles/gallon for rail versus 68-133 ton-miles/gallon for truck, depending on movement type).[63]

Estimated GHG emissions from freight rail movements in New Mexico are provided in Table 4.11. Freight rail GHG emissions are far lower than those for trucks, due to the lower volume of freight moved by rail as well as the lower rolling resistance of steel wheels on steel rails. Overall, rail GHG emissions are estimated at about 50,000 metric tons in 2009, rising to nearly 70,000 metric tons by 2020. However, the vast majority of freight rail GHG emissions in New Mexico are associated with through traffic. Most of this is port-driven intermodal traffic moving between West Coast ports (primarily Los Angeles and Long Beach) and inland points such as Chicago and Texas. Less than four percent of freight rail carbon emissions in New Mexico are associated with shipments that begin or end within the State.

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[61] U.S. Department of Transportation, Federal Railroad Administration, Office of Safety Analysis.

[62] New Mexico Department of Transportation, *New Mexico 2030 Statewide Multimodal Transportation Plan*, December 2009.

[63] Federal Railroad Administration, *Comparative Evaluation of Rail and Truck Fuel Efficiency on Competitive Corridors*, December 2009.

Table 4.10 New Mexico GHG Emissions for Highway Freight, 2007 and 2020

	Conventional Medium Trucks (Gasoline)	Conventional Medium Trucks (Diesel)	Conventional Heavy Duty Trucks (Diesel)	Inventory Total
Average mpg, 2007	8.93	9.44	6.77	
Average mpg, 2020	9.80	10.14	7.94	
2007 Truck VMT (in thousands)	882,822	882,822	2,377,681	4,143,325
2007 CO2 emissions (in metric tons)	870,959	949,221	3,564,765	5,384,945
2020 Truck VMT (in thousands)	1,187,909	1,187,909	3,438,765	5,814,583
2020 CO2 emissions (in metric tons)	1,067,906	1,189,081	4,395,902	6,652,888

Source: Cambridge Systematics analysis based on average miles per gallon values obtained from the EPA VISION model and truck VMT for New Mexico from FAF3.

Note: Carbon content of fuel was assumed to be 8.81 kg CO2/gallon of gasoline and 10.15 kg CO2/gallon of diesel fuel, based on EPA data.

Table 4.11 New Mexico GHG Emissions for Freight Rail, 2009 and 2020

	NM Traffic		Through Traffic		Total	
	2009	2020	2009	2020	2009	2020
Ton-mi/1000 BTU	3.14	3.17	3.14	3.17	–	–
Total ton-mi (millions)	8,672	10,260	209,489	289,982	218,162	300,242
BTU (millions)	27,194	32,495	658,096	918,415	685,290	950,911
Metric tons CO2	1,989	2,377	48,140	67,182	50,129	69,559

Source: Cambridge Systematics analysis based on efficiency data published by the Energy Information Administration, ton-miles reported in the STB Carload Waybill Sample, and 2020 forecasts from FAF3.

Note: A rail CO2 emissions factor of 73.15 kg/million BTU was used based on the Energy Information Administration's Voluntary Reporting of Greenhouse Gases Program.

The estimates of rail and truck GHG emissions highlight a few key points for New Mexico. First, the data clearly reinforce the notion that New Mexico is a "bridge state." Most freight in New Mexico is unrelated to economic activity in the State, but it contributes significantly to pollution and GHG emissions, as well as infrastructure wear and tear. Secondly, to the extent that New Mexico can successfully shift freight away from trucks and to the rail mode, it may be able to reduce the overall carbon footprint of goods movement. This would help further the State's overall environmental policy goals.

Proposed Freight Rail Improvements

It is important to understand planned freight rail improvements in New Mexico to gain perspective on the future role of rail freight in the State's economy. Table 4.12 describes proposed freight rail improvements in New Mexico. These projects represent new capacity which could help grow the amount of freight shipped by rail in the State and may carry other economic benefits. Other projects, such as PTC implementation, address safety per Federal mandate.

In addition to these proposed freight rail improvement projects, UP is proceeding with implementing a new intermodal and fueling facility at the Strauss Yard near Santa Teresa. This project will relocate UP's El Paso hub to southern New Mexico, along with 285 permanent jobs. It is also expected to create 60 new permanent jobs due to UP traffic growth, along with nearly 3,000 temporary construction jobs. UP is investing over $400 million into the project, which is scheduled to become operational in May 2014.

Table 4.12 Potential Freight Rail Improvement Projects Identified by Stakeholders

Project	Description	Cost Estimate
Capacity Improvements		
BNSF Fort Sumner double tracking	Double track 2.3 miles west of Fort Sumner that includes bridge over Pecos River and underpass beneath U.S. 60 to eliminate one of two remaining single track segments of Transcon in New Mexico.	$17.4 million
BNSF Vaughn double tracking	Double track 9.3 miles west of Vaughn that includes bridge over the UP Tucumcari Line to eliminate one of two remaining single track segments of Transcon in New Mexico.	$31.3 million
Chloe Siding	Reconstruct Chloe siding in Valencia County midway between Belen and Los Lunas Rail Runner stations as 1-mile siding to allow for freight train meets and storage for BNSF trains entering Belen yard. Freight trains waiting for clearance to enter Belen yard frequently cause delays to Rail Runner trains south of Albuquerque.	$6 million
Facilities and Operations		
Peru Mill rail improvements	The City of Deming is redeveloping the Peru Mill Industrial Park on the northwest side of the city. A potential tenant for the site has proposed improving rail access to permit unit trains to access the site by extending Deming siding on the UP Sunset Route and constructing a new rail line adjacent to SWRR from Deming yards to Peru Mill Industrial Park.	$5.5 million
Santa Teresa border crossing	A new international rail border crossing would be developed at Santa Teresa to improve cross-border capacity in the Ciudad Juarez-El Paso area and relieve rail traffic congestion in Ciudad Juarez. The proposed crossing would connect with UP Sunset Route near Strauss, a new rail line could also cross the Sunset Route via bridge and connect with the BNSF El Paso subdivision near Vado, and new rail lines would be constructed in Mexico to connect the border crossing with the Mexican rail network.	$150 million
Farmington freight rail service	Governments and businesses in San Juan County have expressed interest in building a rail line that would connect the Farmington area to the BNSF Transcon at or near Gallup, the nearest point on the national rail network. Rail service to the Farmington area would reduce the costs of shipping industrial and agricultural products. The use of hydraulic fracturing within the San Juan Basin is expected to extract oil and gas reserves from the San Juan Basin in commercially viable quantities that are not practical for shipping by constructing new pipelines, and the region has ample coal reserves which can be exported to foreign markets less expensively if trucks do not need to carry coal all the way to transload facilities on the Transcon. There are significant right-of-way issues for this proposed line, and no feasibility studies have occurred, nor have preferred alignments been identified.	$553 million
Spaceport rail service	Rail access to the New Mexico Spaceport would be provided via a spur from the BNSF El Paso Subdivision, which is just west of the Spaceport, to support future operations and growth of the Spaceport. The Spaceport is located approximately 30 miles southeast of Truth or Consequences, which is the nearest connection to the interstate system.	$6.6 million

Project	Description	Cost Estimate
Permian Basin Railways extension at Hobbs	There has been interest expressed in building a 45 mile long freight line connecting the Texas-New Mexico Railroad from Hobbs, NM to the West Texas & Lubbock Railway in Seagraves, TX via Seminole, TX. Both railroads are part of the Permian Basin Railways that is owned by Iowa Pacific Holdings. Permian Basin management discussed this in news articles in 2011, and Lea County and City of Hobbs officials have begun exploring options for financing the project. The potential line would cost about $90 million to build, a figure that does not include right-of-way acquisition costs.	$90 million
Navajo Energy Hub at Thoreau	A transloading center is under development at Thoreau in McKinley County on Navajo land. This 380-acre site is anticipated to meet the transloading needs of up to 20 companies when completed. Preliminary design is underway as of June 2013, with the intent of using a design/build contract for construction to have facility open as early as June 2014.	$21 million
Gamerco Logistics Hub	A logistics hub is planned on the Gamerco site, a privately owned property on the Defiance Subdivision roughly five miles northwest of downtown Gallup, which could become an inland port facility for BNSF serving New Mexico, Arizona, and parts of Utah and Colorado. There is an existing rail loop on the property that can be used for loading unit trains of coal, and the potential for building three or four additional loops as well as spur tracks for loading smaller numbers of rail cars. The facility would be used as a loading point for coal extracted from the San Juan Basin that is being exported to China and other markets. A truck road from the site east to U.S. 491 is planned so that trucks would not have to travel through residential areas of western Gallup.	$15 million
Safety Improvements		
UP PTC Implementation	Mandated by Federal law for implementation by the end of 2015, UP PTC implementation plan has PTC implementation on Sunset Route (Lordsburg Subdivision) by 2013, and Tucumcari Line (Carrizozo and Tucumcari Subdivisions) by 2015. Technical issues, including obtaining approval for erection of communications towers, are delaying implementation. Safety benefits of PTC include the prevention of train to train collisions, over speed derailments, incursions into established work zone limits, and movement of trains through improperly-positioned switches.	$53.3 million
BNSF PTC Implementation	Mandated by Federal law for implementation by the end of 2015, BNSF PTC implementation plan has PTC implementation on Transcon, El Paso, and Twin Peaks lines and rolling stock on NMRX Albuquerque subdivision by 2015. Safety benefits of PTC include the prevention of train to train collisions, over speed derailments, incursions into established work zone limits, and movement of trains through improperly-positioned switches.	$77.3 million
AZER PTC Implementation	Mandated by Federal law for implementation by the end of 2015, AZER will install PTC on its locomotives so that their trains can operate on the UP Sunset Route connecting AZER's two branch lines.	$180,000
NMRX Bridge Replacement and Repairs	The NMDOT Bridge Design Bureau has rated the bridges and trestles on the Albuquerque Subdivision for their capacity to carry 286,000-pound cars and other structural deficiencies, and has prioritized bridges and trestles for replacement. Where possible, trestles over arroyos are being replaced with culverts.	$20 million

4.2 PASSENGER RAIL EVALUATION AND ANALYSIS

While the predominant use of New Mexico's rail system is for the handling of freight, it also hosts two long-distance intercity passenger rail services and commuter rail service in the Albuquerque and Santa Fe regions. This section examines the capacity and performance of passenger rail throughout the State, identifies current and future needs, and describes new passenger rail service proposed in New Mexico. The discussion is organized into the three types of passenger rail service in the State: intercity passenger rail, commuter rail, and excursion/tourism rail.

Intercity Passenger Rail

New Mexico is served by two long-distance Amtrak trains, the Southwest Chief and the Sunset Limited/Texas Eagle. The Southwest Chief is a daily train in each direction, serving the northern New Mexico towns of Raton, Las Vegas, Lamy, Albuquerque, and Gallup. The Sunset Limited serves the southern New Mexico towns of Deming and Lordsburg in addition to El Paso, Texas three days a week in each direction. A brief overview of Amtrak operations in New Mexico from 2007 to 2012 is provided in Table 4.13.

Table 4.13 Amtrak Operations in New Mexico

	2007	2008	2009	2010	2011	2012
Employees	53	57	51	50	53	51
Total Wages	$3,822,026	$4,421,272	$4,795,055	$3,994,266	$4,522,013	$4,478,537
Total Boardings & Alightings	114,071	119,449	113,873	122,192	126,094	130,957
Procurement/Contracts	$17,012	$98,368	$135,981	$12,000	$459,744	$326,463

Source: Amtrak Fact Sheets for Fiscal Years 2007 to 2012 for the State of New Mexico.

Operating Statistics and Performance

Operating information from Amtrak is available on a route-wide basis and includes route performance, ridership, revenue, and costs. These figures are provided in monthly performance reports published by Amtrak and include information for specific months and fiscal years. This information is not limited to New Mexico, but rather entails results for each route as a whole. Similarly, Section 207 of PRIIA defines a set of intercity passenger rail performance metrics and standards measured on a quarterly basis (defined in Appendix C). Amtrak and NMRX, as a host railroad for the Southwest Chief, are required to comply with many of the Section 207 metrics and standards including on-time performance (OTP) and delay, financial measures, and service quality. Data from both of these sources, Amtrak's monthly performance reports and FRA's quarterly intercity passenger rail performance reports, are compiled below.

On-Time Performance and Delay

On a route basis, endpoint OTP measures the percent of trains that arrive at their scheduled endpoint within 30 minutes of their scheduled arrival. The Section 207 standard for endpoint OTP is 80 percent. As shown in Table 4.14, both the Southwest Chief and Sunset Limited have experienced mixed success in meeting the established standard over the last several years.

All-stations OTP measures the percentage of trains arriving to each station within 15 minutes of the scheduled arrivals. This Section 207 measure became effective in FY 2012 with a minimum standard of 80 percent. The standard for the all-stations OTP measure increases to 85 percent in FY 2014. The data shown in Table 4.14 reflect performance of the route as a whole, not just the route miles within New Mexico. On a route-wide basis, however, both the Southwest Chief and Sunset Limited are currently operating well below the current 80 percent standard.

To supplement on-time performance information and comply with Section 207 requirements, Amtrak calculates and reports total train delays per 10,000 train miles. Reported train delays are calculated by Amtrak according to its existing procedures and definitions, and the host railroads to not review the data before they are provided to the FRA. Delays are reported even if the train makes up lost time elsewhere along the route. The Section 207 standard requires that host-responsible delays must be no more than 900 minutes per 10,000 train-miles and Amtrak-responsible delays must be no more than 325 minutes per 10,000 train-miles. Total delay for the Southwest Chief and Sunset Limited routes by quarter is shown in Table 4.15. These data represent delays on the entire long-distance intercity route. As a result, with the exception of the NMRX host-responsible delays, it is not possible to distinguish within these data performance in New Mexico from performance in other states.

Table 4.14 Southwest Chief and Sunset Limited On-Time Performance by Quarter

Quarter	Endpoint OTP	All-Stations OTP*
Southwest Chief		
July-September 2010	67.9%	52.2%
October – December 2010	83.2%	65.2%
January – March 2011	77.8%	61.2%
April – June 2011	81.9%	55.8%
July-September 2011	50.5%	38.3%
October – December 2011	69.0%	52.7%
January – March 2012	89.0%	66.7%
April – June 2012	69.8%	44.9%
July-September 2012	73.4%	53.4%
October – December 2012	91.8%	70.2%
Sunset Limited		
July-September 2010	84.8%	54.1%
October – December 2010	89.9%	62.3%
January – March 2011	83.1%	58.1%
April – June 2011	82.1%	58.1%
July-September 2011	64.6%	43.1%
October – December 2011	73.1%	52.9%
January – March 2012	53.8%	39.7%
April – June 2012	62.8%	44.2%
July-September 2012	78.8%	53.2%
October – December 2012	85.9%	65.2%

Source: Amtrak, Monthly Host Railroad Performance Reports.

Note: Values that do not meet standard defined by Section 207of PRIIA (80 percent) are highlighted in red.
* All-stations OTP became effective in FY2012.

Table 4.15 Southwest Chief and Sunset Limited Total Delay by Quarter

Minutes per 10,000 Train Miles

Quarter	Host-Responsible Delays (minutes per 10,000 train miles)		Amtrak-Responsible Delays (minutes per 10,000 train miles)
Southwest Chief	**NMRX (80 route miles)**	**BNSF (2,198 route miles)**	**Amtrak**
July-September 2010	1,513	491	342
October – December 2010	942	409	231
January – March 2011	1,527	454	250
April – June 2011	1,748	470	257
July –September 2011	1,896	756	336
October – December 2011	1,077	610	309
January – March 2012	852	457	208
April – June 2012	3,366	604	254
July-September 2012	2,070	543	283
October – December 2012	1,012	442	187
Sunset Limited	**UP (1,784 route miles)**	**BNSF (190 route miles)**	**Amtrak**
July-September 2010	1,210	971	416
October – December 2010	1,012	1,274	388
January – March 2011	1,210	1,751	333
April – June 2011	1,235	1,113	450
July –September 2011	1,617	1,374	443
October – December 2011	1,459	1,042	405
January – March 2012	1,696	2,081	360
April – June 2012	1,529	1,430	466
July-September 2012	1,208	1,019	427
October – December 2012	1,055	1,113	361

Source: FRA, *Quarterly Report on the Performance and Service Quality of Intercity Passenger Train Operations,* September 2010 through December 2012 Reports.

Note: Values that do not meet standards defined by Section 207 of PRIIA are highlighted in red. Amtrak is responsible for reporting delays to the FRA and assigning responsibility. Host railroads do not review the data before they are provided to the FRA.

Within New Mexico, delays for the Southwest Chief attributable to NMRX exceed the specified standards during most quarters. Slow orders are the most common cause cited for host-responsible delays on NMRX track, accounting for roughly half of all such delays.[64] Commuter train interference and signal delays are the next most frequently cited reasons for delays on NMRX. While the delays per 10,000 train miles attributed to NMRX are often double that attributed to BNSF for the Southwest Chief, the delays to Amtrak on NMRX tend to be near the midpoint among all host railroads for long-distance Amtrak trains.

An operating agreement between Amtrak and NMDOT on the NMRX portion of the Southwest Chief describes the relative priorities of Amtrak's long-distance intercity passenger rail service and the Rail Runner commuter rail service.[65] Per an August 2013 amendment to the agreement originally signed in March 2006, Amtrak has priority over all other trains when operating on time (defined as within 30 minutes of schedule) except for certain peak period trains. Peak period trains are regularly scheduled weekday Rail Runner trains scheduled to arrive at Albuquerque between 6:30 a.m. and 8:30 a.m., scheduled to arrive at Santa Fe between 6:30 a.m. and 9:00 a.m., scheduled to depart Santa Fe between 4:00 p.m. and 6:00 p.m. or scheduled to depart Albuquerque between 4:30 p.m. and 6:30 p.m. The agreement also stipulates that no Amtrak train shall be delayed by dispatching decisions for more than 20 minutes.

The operating agreements between Amtrak and its respective host railroads include incentive and penalty payments related to the amount of delay Amtrak encounters attributable to actions of the host railroads. Host railroads receive incentive payments if host-responsible delays to individual Amtrak trains are below certain thresholds, and are assessed penalty payments if host-responsible delays to Amtrak are excessive.

Ridership

Out of the 15 Amtrak routes categorized as long-distance, the Southwest Chief had the seventh highest ridership (355,316) in FY 2012. The Sunset Limited, with service only three days a week, had the lowest ridership of any long-distance route with 101,217 passengers in FY 2012.[66] Within New Mexico, 99 percent of the Amtrak station activity takes place on the Southwest Chief route.[67]

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[64] A slow order is a local speed restriction issued by a host railroad that requires trains to travel at less than a track segment's normal speed limit. Several triggers can result in slow orders: poor infrastructure conditions, infrastructure maintenance or improvement, and weather-related issues. Source: FRA.

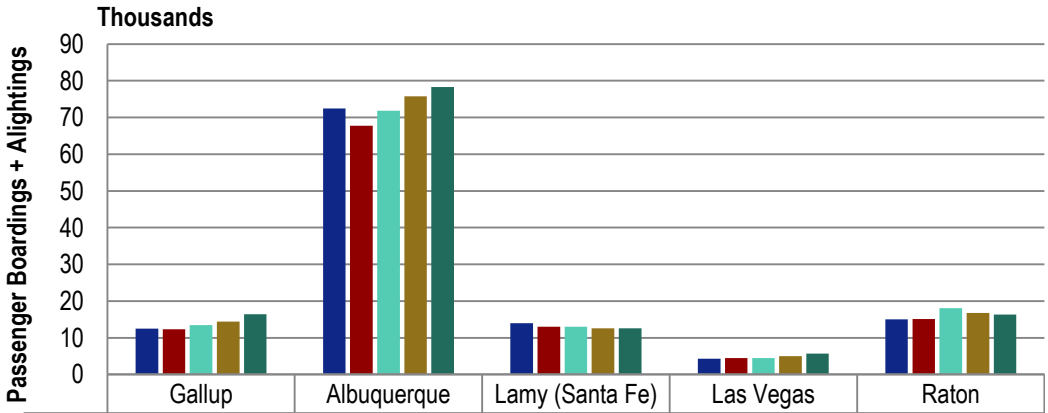
[65] Agreement between NMDOT and National Railroad Passenger Corporation (Amtrak), March 10, 2006.

[66] Amtrak, Monthly Performance Report for September 2012.

[67] Amtrak defines station activity as the sum of boardings and alightings.

Station activity along the Southwest Chief in New Mexico has risen over nine percent from 2008 to 2012. As previously stated, the Albuquerque station experiences the most traffic, with ridership peaking in 2012 at 78,324 boardings and alightings. Raton, the northernmost Amtrak stop in the State, is the second busiest station in New Mexico. The Las Vegas station experienced the highest percentage increase in ridership (32 percent) between 2008 and 2012. Yet, the Las Vegas station is still the least frequented of the New Mexico Southwest Chief stations, with all other stations handling at least double the annual ridership levels. Five-year station activity trends for the five New Mexico stations are shown in Figure 4.17.

Figure 4.17 New Mexico Station Activity – Southwest Chief, 2008 to 2012

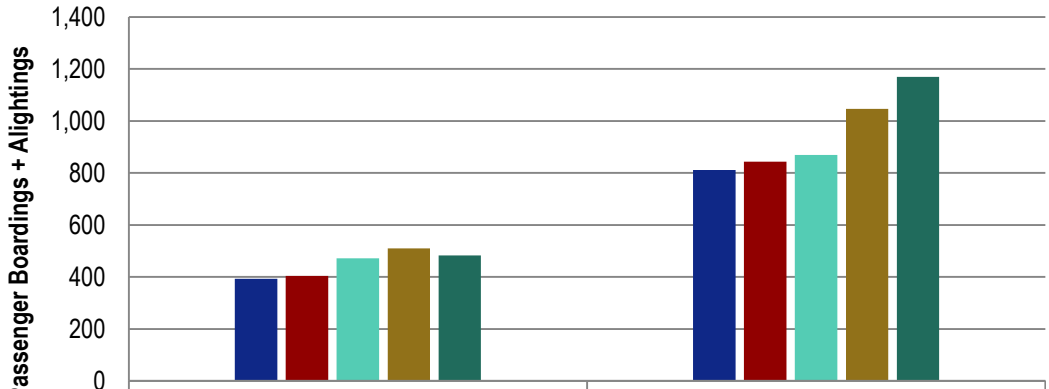


	Gallup	Albuquerque	Lamy (Santa Fe)	Las Vegas	Raton
2008	12,517	72,434	13,976	4,280	15,037
2009	12,340	67,751	13,012	4,456	15,066
2010	13,431	71,848	13,056	4,491	18,025
2011	14,433	75,779	12,579	4,952	16,794
2012	16,446	78,324	12,589	5,653	16,292

Source: Amtrak Fact Sheets, State of New Mexico, 2008 to 2012.

The Sunset Limited contributes approximately one percent to total Amtrak ridership figures statewide. This low usage is attributed to three factors: the Sunset Limited having only three round trips per week; the early morning arrival of eastbound trains at each city; and the low population of the New Mexico cities served by the Sunset Limited. Ridership increased 23 percent at Lordsburg, and 44 percent at Deming between 2008 and 2012, as shown in Figure 4.18.

Figure 4.18 New Mexico Station Activity – Sunset Limited, 2008 to 2012



	Lordsburg	Deming
2008	393	812
2009	404	844
2010	472	869
2011	510	1,047
2012	483	1,170

Source: Amtrak Fact Sheets, State of New Mexico, 2008 to 2012.

As stated in a 2010 Amtrak performance improvement plan for the Sunset Limited and Texas Eagle:

> *Since Amtrak's inception in 1971, the Sunset Limited has been one of the weakest financial performers in the Amtrak long distance network. Tri-weekly service and historically poor on-time performance have turned away potential customers and resulted in inefficient equipment and staff utilization. These burden the service with disproportionately higher costs and lower revenue and ridership.*[68]

Amtrak has initiated several significant changes to Sunset Limited operations over this 40 year timeframe. Between 1993 and 2005, the Sunset Limited ran east to Jacksonville and Orlando (and on to Miami between 1993 and 1996). However, service east of New Orleans was discontinued after Hurricane Katrina in 2005. Amtrak discontinued direct service to Phoenix in 1996.

Revenue

As Amtrak's fourth highest revenue-generating long-distance train, total revenue on the Southwest Chief route increased marginally from $48.0 million in FY 2011 to $48.2 million in FY 2012. Ticket revenue accounted for $44.2 million of the

[68] Amtrak, *Sunset Limited/Texas Eagle Performance Improvement Plan*, PRIIA Section 210 Report, September 2010.

route's total revenue. Within New Mexico, while the Albuquerque station consistently yields the highest revenue in the State, the Lamy station had the highest average yield, at 14.5 cents per mile (Table 4.16).

While the Sunset Limited has the lowest ridership figures of all long-distance Amtrak routes, it had the second lowest revenue figures. Ticket revenue on the entire Sunset Limited route totaled over $11.5 million in FY 2012, with total revenue of $13 million.[69] This represents a three percent increase in total revenue from 2011. The 2010 average yield per mile at the Deming and Lordsburg stations (Table 4.17) exceeded the average yield at all of the New Mexico stations on the Southwest Chief, with the exception of Lamy.

Table 4.16 New Mexico Station Statistics – Southwest Chief, 2010

Station	Population served within		Average Trip Length	Average Fare	Average yield per mile, in cents
Albuquerque	25 miles	675,201	824 miles	$95	11.5
	50 miles	749,245			
Gallup	25 miles	54,073	509 miles	$61	12.0
	50 miles	108,956			
Lamy (Santa Fe)	25 miles	124,281	906 miles	$131	14.5
	50 miles	647,348			
Las Vegas	25 miles	23,141	579 miles	$75	12.9
	50 miles	153,194			
Raton	25 miles	16,398	856 miles	$93	10.8
	50 miles	29,396			
Route Average within New Mexico			735 miles	$91	12.3

Source: National Association of Railroad Passengers 2010 station fact sheets.

Table 4.17 New Mexico Station Statistics – Sunset Limited, 2010

Station	Population served within		Average Trip Length	Average Fare	Average yield per mile, in cents
Deming	25 miles	25,016	863	$117	13.6
	50 miles	61,855			
Lordsburg	25 miles	3,270	765	$99	13.0
	50 miles	39,421			
Route Average within New Mexico			814	$108	13.3

Source: National Association of Railroad Passengers 2010 station fact sheets.

[69] Amtrak, *Monthly Performance Report for September 2012*, January 11, 2013.

Costs

The Southwest Chief was the third most expensive long-distance train in FY 2012 when considering total costs. As shown in Table 4.18, FY 2012 total costs (excluding other post-employment benefits (OPEBs) [70], capital charge, and other costs) were $113.3 million, behind only the Empire Builder ($128.2 million) and California Zephyr ($121.9 million).[71] This resulted in a fully allocated loss of $67.8 million, second highest among all long-distance trains (behind California Zephyr, with a fully allocated loss of $71.6 million). However, at 21.5 cents per passenger mile and 14.1 cents per seat mile, fully allocated losses on the Southwest Chief are only slightly higher than the average for all long-distance Amtrak trains.

The Sunset Limited was the fifth least expensive long-distance train in FY 2012 when considering total costs (excluding OPEB's, capital charge and other costs). As shown in Table 4.18, the route's 2012 total costs were $53.9 million, approximately seven percent higher than FY 2011.[72] This amounted to a fully allocated loss of $42.0 million, representing a loss of 49.9 cents per passenger mile or 25.4 cents per seat mile. These numbers far exceed the average for all long-distance Amtrak trains (20.2 cents per passenger mile and 12.6 cents per seat mile, respectively). As discussed previously, the Sunset Limited has struggled with disproportionately higher costs and lower revenues due to limited (tri-weekly) service, poor on-time performance, and inefficient equipment and staff utilization.

[70] OPEBs are post-employment benefits, including life insurance premiums, healthcare premiums and deferred-compensation arrangements, that an employee will begin to receive at the start of retirement. They do not include pension benefits paid to the retired employee. The Federal Accounting Standards Advisory Board requires Federal entities to account for total long term OPEB costs over the active service life of benefiting employees, rather than reporting current year OPEB costs for existing retirees.

[71] Amtrak, *Monthly Performance Report for September 2010*, January 21, 2011.

[72] Amtrak, *Monthly Performance Report for September 2010*, January 21, 2011.

Table 4.18 Southwest Chief and Sunset Limited Financial Performance, FY 2009 through FY 2012,
Millions Dollars, Except Passenger Mile and Seat Mile Calculations

	Total Revenue	Total Costs[1]	OPEB's and Other Costs	Fully Allocated Loss	Fully Allocated Loss per Pass Mile (cents)[2]	Fully Allocated Loss per Seat Mile (cents)
Southwest Chief						
FY 2012	$48.2	$113.3	$2.6	($67.8)	(21.5)	(14.1)
FY 2011	$48.0	$111.8	$2.7	($66.5)	(20.5)	(13.9)
FY 2010	$44.8	$101.8	$4.7	($61.7)	(19.7)	(13.1)
FY 2009	$41.2	$93.3	$3.0	($55.1)	(19.0)	(11.9)
Sunset Limited						
FY 2012	$13.0	$53.9	$1.2	($42.0)	(49.9)	(25.4)
FY 2011	$12.6	$50.5	$1.2	($39.1)	(46.1)	(23.6)
FY 2010	$11.1	$48.5	$1.8	($39.2)	(50.1)	(23.6)
FY 2009	$9.5	$45.2	$1.5	($37.3)	(55.2)	(23.1)
Long-Distance Train Totals						
FY 2012	$557.1	$1,122.9	$25.2	($591.0)	(20.2)	(12.6)
FY 2011	$518.5	$1,090.7	$25.6	($597.7)	(21.8)	(13.2)
FY 2010	$485.8	$1,008.2	$47.3	($569.6)	(20.3)	(12.5)
FY 2009	$443.0	$934.2	$31.9	($523.1)	(20.1)	(11.7)

Source: Amtrak Monthly Performance Reports.

Note: [1] Excluding other post-employment benefits (OPEBs), capital charge, and other costs.
[2] Fully allocated costs are the total costs of operating a route, including operating, marketing, general and administrative, and capital costs.

In 2010, Amtrak developed performance improvement plans for their five worst performing long-distance routes to meet requirements of PRIIA. Amtrak developed a single report for two of these routes, Sunset Limited and Texas Eagle, that proposed significant restructuring of the two routes.[73] The performance improvement plan proposes to combine the two routes into a single daily train operating between Chicago and Los Angeles via Saint Louis, Little Rock, Dallas, Fort Worth, San Antonio, El Paso, and Tucson and to operate a

[73] Amtrak, *Sunset Limited/Texas Eagle Performance Improvement Plan*, PRIIA Section 210 Report, September 2010.

daily train with no sleeper cars between San Antonio and New Orleans via Houston that would offer a guaranteed connection with the Sunset Limited/Texas Eagle at San Antonio. No cars would be physically switched between trains, as occurs presently between the Sunset Limited and Texas Eagle at San Antonio. Deming and Lordsburg would receive afternoon service from both the east and westbound trains according to Amtrak's proposed schedule. Amtrak estimates that these changes would add 124,100 additional riders and generate over $10 million in additional revenue across the entire Amtrak system, with nearly 80 percent of this coming from the new combined Sunset/Eagle route. Amtrak's proposed schedule would bring arrival and departure times in Los Angeles in line with the Coast Starlight, improving network connectivity and attracting more riders while drawing only a small number of riders from the Southwest Chief, which is estimated to incur slight declines. Restoration of service east of New Orleans is not addressed in the report.

New Mexico's Sunset Limited stations, Deming and Lordsburg, are flag stops (without shelters, ticket offices, or any other facilities), and are not required to be ADA compliant. However, if Amtrak begins to provide daily Sunset Limited service, these stations could be upgraded to full stops, requiring significant improvements in order to achieve ADA compliance.

Intercity Passenger Rail Demand

The ridership numbers described previously give an idea of station utilization, but they do not necessarily speak to the actual market demand within New Mexico. Amtrak engages in yield management, seeking to maximize revenue from every seat and sleeping car by limiting seating availability for trips of shorter distance. As a result, there may be greater unserved intercity passenger rail demand in New Mexico than reflected in the ridership data, especially during summer. This section evaluates potential future passenger rail ridership.

Since future passenger rail ridership does not benefit from consistent methodology for forecasting, potential future ridership for Amtrak incorporated existing ridership figures coupled with new and enhanced service assumptions. In addition, county level population forecasts from the Bureau of Business and Economic Research (BBER) at the University of New Mexico were incorporated into forecasts.

Two separate forecasts were completed based on different assumptions:

- A low level case, assuming continuation of existing levels of service and incorporating BBER county level population projections; and
- A case incorporating service increases outlined in Amtrak's Sunset Limited/ Texas Eagle performance improvement plan.

Both sets of forecasts presume that Amtrak's Southwest Chief continues operations on its current route. The low level case assumes continuation of existing levels of service and utilized an approach similar to that found in the

NMDOT *Strategic Multimodal Plan*. This is also independent of employment because the majority of New Mexico Amtrak passengers use Amtrak for non-commute trips.

Table 4.19 shows projected ridership within all New Mexico counties that have an Amtrak station. There is a clear positive relationship in New Mexico between county population and Amtrak station activity, except for Colfax County where much of the ridership is Boy Scouts from around the nation attending the Philmont Scout Ranch in the summertime. Amtrak motorcoach service operates between Denver and Raton to provide connections between the Southwest Chief and the California Zephyr, which also contributes ridership at Raton. Thus, similar to the process employed in the NMDOT *Strategic Multimodal Plan*, population projections for both Colfax County and Denver County, Colorado were used to forecasts ridership at Raton Station. Ridership forecasts were calculated by comparing observed 2010 ridership figures from Amtrak and population projections from both BBER and Colorado's Department of Local Affairs.[74] Projections were calculated as a proportion of total population in each station's county, using observed 2010 ridership as the base. This proportion was then applied to all future year projections.

Table 4.19 Projected Future Amtrak Ridership by County, Base Case, 2015 to 2035

County	Associated Station	2015	2020	2025	2030	2035
McKinley	Gallup	14,022	14,663	15,170	15,518	15,775
Bernalillo	Albuquerque	81,808	91,233	100,126	108,857	117,552
Santa Fe	Lamy (Santa Fe)	13,706	14,280	14,712	15,005	15,219
San Miguel	Las Vegas	4,676	4,838	4,948	5,034	5,127
Colfax+Denver	Raton	19,226	19,948	20,517	21,108	21,826
	Southwest Chief	**133,438**	**144,961**	**155,473**	**165,521**	**175,499**
Hidalgo	Lordsburg	500	529	556	580	603
Luna	Deming	924	978	1,022	1,063	1,107
	Sunset Limited	**1,424**	**1,507**	**1,578**	**1,643**	**1,710**
TOTAL AMTRAK RIDERSHIP		**134,862**	**146,468**	**157,051**	**167,164**	**177,209**

Source: New Mexico County Population Projections July 1, 2005 to July 1, 2035, Bureau of Business and Economic Research, University of New Mexico. Released August 2008.
State of Colorado, Division of Local Government, State Demography Office

[74]Colorado Department of Local Affairs, http://www.colorado.gov/cs/Satellite/DOLA-Main/CBON/1251590805419.

Table 4.20 outlines projected ridership figures taking into account ridership projections provided in the Sunset Limited/Texas Eagle performance improvement plan for future years 2015 to 2035. Based on figures provided by Amtrak, station activity at the Lordsburg station is projected to increase 109 percent, while Deming activity is expected to increase 95 percent. Southwest Chief station activity is expected to decrease by approximately 0.2 percent relative to the base case, consistent with Amtrak projections of a slight ridership decrease on the Southwest Chief. Overall, ridership activity along both routes in New Mexico is projected to increase 10.3 percent by 2015 under the low level assumption and 11.3 percent given enhanced Sunset Limited performance.

Table 4.20 Projected Future Amtrak Ridership by County with Enhanced Sunset Limited Service, 2015 to 2035

County	Associated Station	2015	2020	2025	2030	2035
McKinley	Gallup	13,994	14,634	15,139	15,487	15,743
Bernalillo	Albuquerque	81,644	91,050	99,926	108,639	117,317
Santa Fe	Lamy (Santa Fe)	13,679	14,252	14,683	14,975	15,189
San Miguel	Las Vegas	4,666	4,828	4,938	5,024	5,117
Colfax+Denver	Raton	19,188	19,908	20,476	21,065	21,782
Total Southwest Chief		133,172	144,672	155,162	165,190	175,148
Hidalgo	Lordsburg	1,046	1,108	1,164	1,214	1,263
Luna	Deming	1,805	1,910	1,997	2,077	2,163
Total Sunset Limited		2,851	3,018	3,161	3,291	3,426
Total Amtrak Ridership		**136,023**	**147,689**	**158,324**	**168,481**	**178,574**

Potential Intercity Passenger Rail Projects and Service Additions

This section identifies needs and describes candidate projects to improve Amtrak service in New Mexico, such as achieving ADA compliance at required stations, maintaining a state of good repair, and accommodating future demand. These are categorized based on their relation to maintenance or capacity enhancements or proposed new intercity passenger rail service. Listed in Table 4.21, proposed projects that primarily benefit intercity passenger rail service are categorized as:

- Track and signal improvements;
- Station improvements; and
- Proposed new service.

Potential Maintenance and Capacity Improvement Projects

Amtrak and passenger rail stakeholders in the State have proposed numerous maintenance improvements and capacity upgrades to improve intercity passenger rail operations though New Mexico. Some of these improvements primarily benefit Rail Runner service and will be discussed in the commuter rail section later in this chapter.

Table 4.21 Potential Intercity Passenger Rail Improvement Projects

Project	Description	Costs
Track and Signal Improvements		
Tie replacement – CP Madrid to Lamy	Replace approximately one-third of the existing railroad ties and perform surfacing work on 24 miles of right-of-way between CP Madrid and the end of NMDOT right-of-way ownership east of Lamy, NM to improve safety, ride quality, and reliability for Southwest Chief. This project would only be considered if BNSF and Amtrak reach agreement that would keep the Southwest Chief on the Raton Line beyond 2016.	$3.88 million
Track and Signal Improvements – Lamy to Colorado State Line	BNSF has identified capital improvements and capital maintenance necessary to keep Amtrak on this line. BNSF is requesting Amtrak fund these projects and also take on full responsibility for ongoing maintenance in their negotiations with Amtrak for a new operating agreement. Cost estimate is for capital improvements only and does not include annual incremental cost to BNSF of maintaining the rail line solely for Amtrak's use, which is estimated at $6.2 million.	$3.8 million
CTC CP Madrid to Lamy (MP 834)	Upgrade the method of operations from TWC to CTC, install power switch machines at both ends of Waldo siding, and remove existing antiquated pole lines. This will improve safety, reduce meet delays at Waldo, and reduce travel times. Eliminating the pole lines will also remove an attractive source of copper for thieves. This project would only be considered if BNSF and Amtrak reach agreement that would keep the Southwest Chief on the Raton Line beyond 2016.	$23.25 million
Install power switch machines at Lamy siding	Purchase and install power switch machines to replace the existing hand-thrown controls at West Lamy and East Lamy with power switches and integrate these switch machines into the existing CTC system on the Glorieta Subdivision. This will improve safety and reduce meet delays at Lamy. This project would only be considered if BNSF and Amtrak reach agreement that would keep the Southwest Chief on the Raton Line beyond 2016.	$450,000
Rehabilitate Albuquerque wye	Upgrade track to heavier rail, replace ties, add ballast and surfacing, and rehabilitate wye leads to facilitate regular use should Amtrak reroute the Southwest Chief from the Raton line to the Belen Cutoff. The wye would be needed to turn trains around at Albuquerque.	$3.4 million
Station Improvements		
Upgrade Deming Amtrak stop from flag to station status	Deming currently is a flag stop for Amtrak's Sunset Limited, and the train will only stop at Deming if there is a ticketed passenger boarding or alighting. Should Sunset Limited begin daily operations Deming could be upgraded to a regular stop, which would require improvements to bring station to ADA compliance and could also include additional amenities for passengers.	$600,000

Project	Description	Costs
Upgrade Lordsburg Amtrak stop from flag to station status	Lordsburg currently is a flag stop for Amtrak's Sunset Limited, and the train will only stop at Lordsburg if there is a ticketed passenger boarding or alighting. Should Sunset Limited begin daily operations Lordsburg could be upgraded to a regular stop, which would require improvements to bring station to ADA compliance and could also include additional amenities for passengers.	$600,000
Proposed New Service		
Denver to El Paso High Speed Rail	Develop a High Speed Rail corridor connecting Denver, Albuquerque, Las Cruces, and El Paso, a distance of approximately 750 miles.	$45 billion

New Intercity Passenger Rail Service

A number of stakeholders called for the development of a 750-mile high speed intercity passenger rail line to connect Denver, Albuquerque, Las Cruces, and El Paso using existing railroad rights-of-way owned by BNSF, UP, and NMDOT. Although the Denver-Albuquerque-El Paso corridor is not among the ten Federally-designated high speed rail corridors across the country and no ridership forecasts, feasibility analyses, or preliminary route selection studies have been conducted, advocates suggest that the new high speed rail line would provide a new transportation option for Front Range residents and promote economic development by connecting more than half of the dozen largest metropolitan areas in the Mountain Time Zone. In addition, the north-south intercity passenger rail line would provide connectivity to three of Amtrak's four cross country routes: the Southwest Chief, the Sunset Limited, and the California Zephyr.

However, there are many obstacles that may impede the development of high speed intercity passenger rail in the proposed corridor:

- Population in the Denver-Albuquerque-El Paso corridor is very low compared to other proposed high speed rail corridors. The combined population of the seven MSAs to be served in the southwest corridor was 5.3 million in 2010 (7.0 million if including the population of Ciudad Juarez). In comparison, this combined population is lower than that of either of the top two MSAs in the Federally-designated California high speed rail corridor;
- Safety considerations make sharing right-of-way with conventional passenger and freight rail very problematic or may even preclude sharing right-of-way;
- Neither Texas nor Colorado have expressed much interest in partnering with New Mexico to pursue this project, as each state is primarily focusing its high speed rail efforts on projects within its own borders;
- Several mountainous sections exist along the corridor that would create engineering challenges for high speed operations, most notably at Raton Pass and Glorieta Pass;
- The 750-mile distance between Denver-El Paso city pair may be too long for high speed rail to be competitive against other modes, as corridors over 500 miles in length are generally more efficiently traveled by air;
- Operations and maintenance costs of high speed rail are higher than for conventional passenger rail and will be high for a corridor this length; and
- Funding limitations may make initial corridor development cost prohibitive. The cost to build the 750-mile corridor (excluding right-of-way costs) is estimated at $45 billion.

NMDOT has unsuccessfully requested funding for feasibility studies through the FRA HSIPR Program in two application submittals in FY 2009 and FY 2010. In July 2009, New Mexico, Colorado, and Texas submitted a joint application for

planning funds to undertake a detailed feasibility study of high speed rail in the corridor. In FY 2010, NMDOT singularly submitted another application for funding to develop a high speed rail corridor investment plan.[75]

Commuter Rail

The New Mexico Rail Runner Express (Rail Runner) provides a commuter rail service in Valencia, Bernalillo, Sandoval, and Santa Fe counties. The 97-mile corridor serves 15 stations from Belen to Santa Fe. Travel time from Albuquerque to Santa Fe is approximately 1.5 hours, while travel time between Albuquerque and Belen is approximately 40 minutes.

Rail Runner was developed in two phases using State capital funds. Phase I of Rail Runner developed service between Belen and Bernalillo on existing right-of-way purchased from BNSF in 2005 and began operating in July 2006. Phase II extended Rail Runner service to Santa Fe on a combination of existing, rebuilt, and new right-of-way with service to Santa Fe beginning in December 2008.

Rail Runner's annual operating revenue and expenses for FY 2013, shown in Table 4.22, were $25.85 million. Operating expenses include the cost of Rail Runner operations as well as the cost of track maintenance and dispatching.

Operating Statistics and Performance

Ridership

A chronology of Rail Runner ridership is provided in Figures 4.19 and 4.20 showing ridership fluctuations and key service milestones. A dramatic increase in ridership occurred in December 2008 when Phase II service to Santa Fe and regular Saturday service began. The first full month of service to Santa Fe, January 2009, had the highest total ridership of any month in Rail Runner's first five years of service, spurred by curiosity about the new service and special no fare service promotions during the first three weekends of Santa Fe service as well as a large increase in regular commuters.

Rail Runner operates on a July to June fiscal year and has seen its annual ridership decline each year since FY 2010, the first full fiscal year of operations to Santa Fe. In FY 2010 Rail Runner carried 1,239,805 riders, while in FY 2013 Rail Runner carried 1,089,358 riders. Factors which contributed to this include several reductions in service implemented as cost saving measures, modest fare increases implemented in 2012, increased travel times as new stations opened between Albuquerque and Santa Fe, and a decline after the first year of service to Santa Fe by passengers taking the train simply to experience the trip.

[75] NMDOT, High Speed Intercity Passenger Rail (HSIPR) Program Application, March 2010.

Monthly and average weekday ridership figures for the entire system show the summer months to be the most popular, with declines observed in November through January largely due to holidays and vacations. Ridership peaks are consistently observed in the summer months with annual lows observed in winter months. Since service began, the months with the highest average weekday ridership (each exceeding 4,600 riders per day) occurred in July 2006, July 2009, August 2009, July 2011, and June 2011 (Figure 4.20), in that order.

Table 4.22 FY 2013 Rail Runner Operating Budget
Millions

Revenues	(millions)
Local Gross Receipts Tax	$12.51
Federal Revenue	$7.83
Farebox	$3.28
BNSF and Amtrak	$2.00
Advertising	$0.24
Total Revenue	**$25.85**
Expenses	(millions)
Rail Runner Service	$15.22
Systemwide Maintenance	$5.50
Management and Administration	$1.83
Insurance	$1.90
Communications, Utilities & Other Services	$1.40
Total Expenses	**$25.85**

Source: Rio Metro RTD

Figure 4.19 Monthly Rail Runner Ridership, July 2006 through December 2012

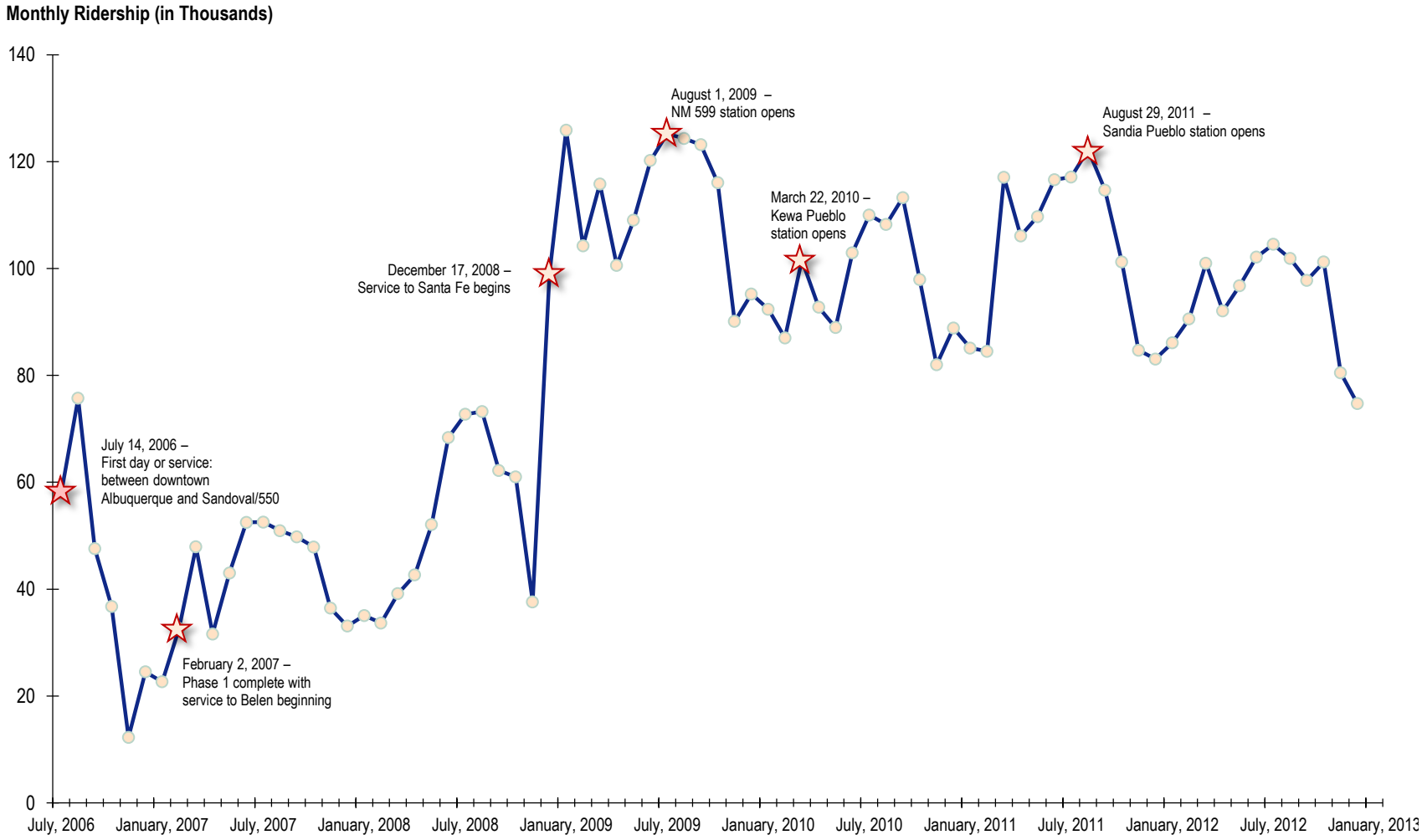
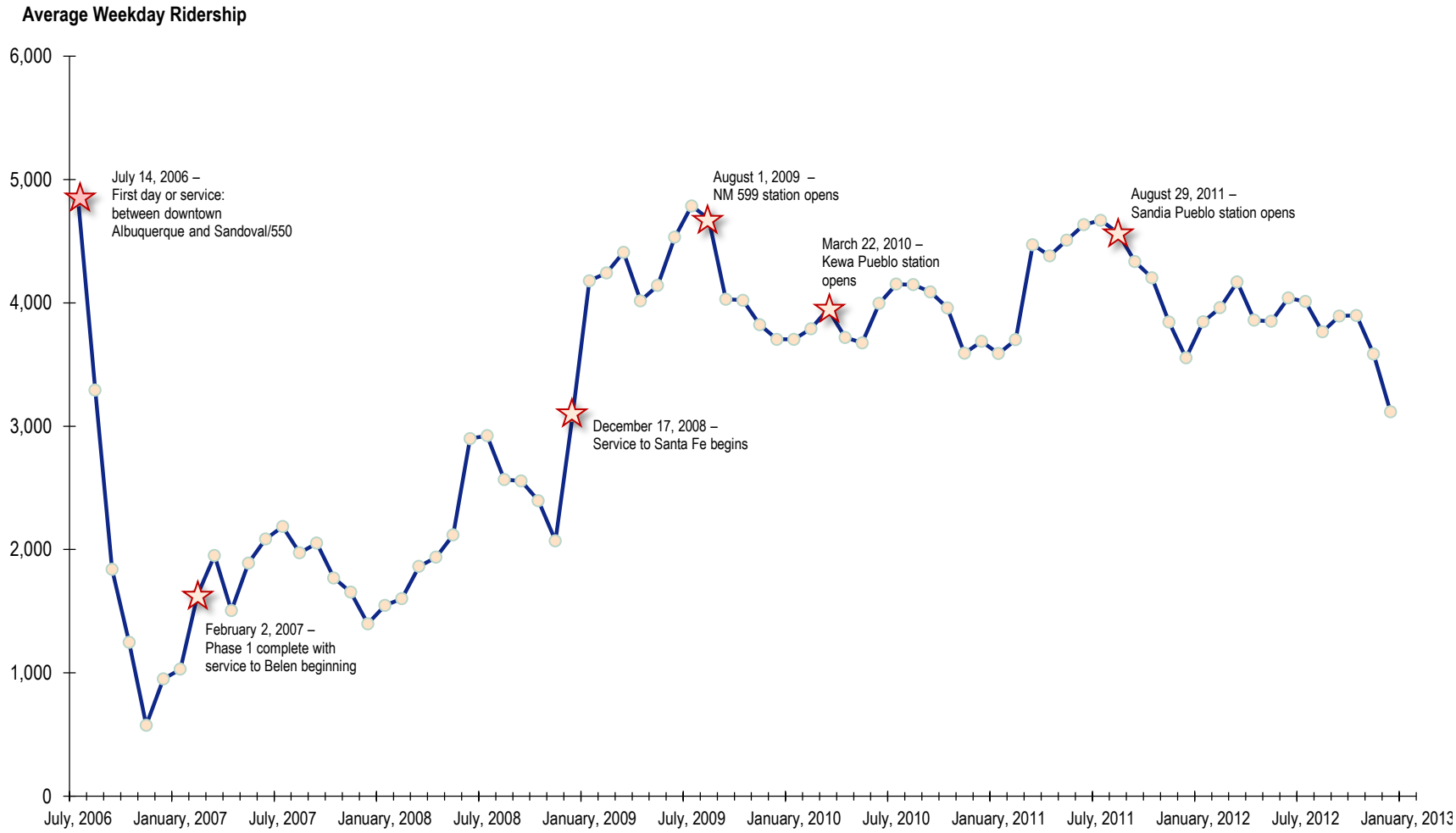


Figure 4.20 Average Weekday Rail Runner Ridership, July 2006 through December 2012



Boarding figures by station are provided for 2012 in Table 4.23. These figures show that Albuquerque contributes nearly a quarter of boardings along the route, with Santa Fe contributing the second highest totals. Alighting figures (not shown) reflect a similar pattern.

Table 4.23 Rail Runner Total Annual Boardings and Average Weekday Traffic by Station, 2012

Station	Total 2012 Boardings	Percent of Total	Average Weekday Boardings
Santa Fe Depot	158,581	14.0%	466
South Capitol	119,119	10.5%	426
Santa Fe County/ NM 599	80,003	7.1%	282
Kewa Pueblo	29,012	2.6%	103
Sandoval County/ US 550	119,463	10.6%	415
Bernalillo	15,085	1.3%	52
Sandia Pueblo	21,771	1.9%	73
Los Ranchos/ Journal Center	133,695	11.8%	450
Downtown Albuquerque	248,698	22.0%	819
Bernalillo County/International Sunport	26,713	2.4%	93
Isleta Pueblo	14,659	1.3%	48
Los Lunas	79,895	7.1%	282
Belen	82,559	7.3%	280

Source: NMDOT.

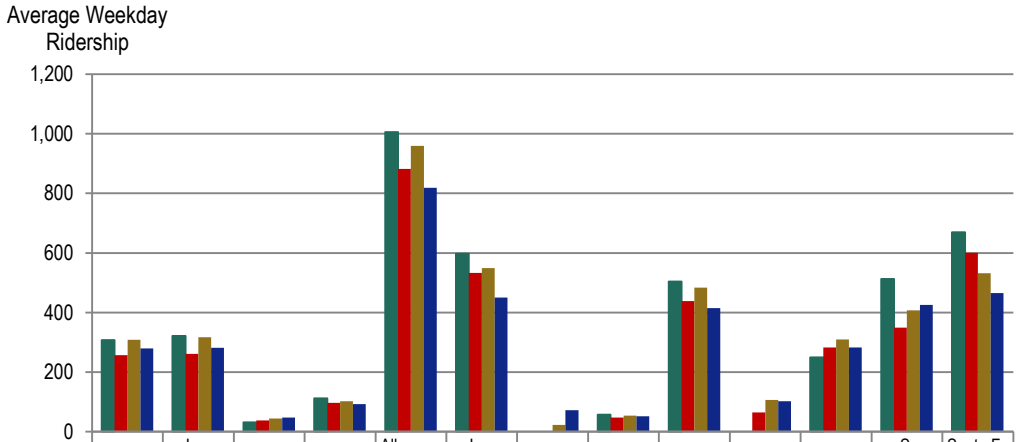
The principal origin stations for commuters are the Los Ranchos and Sandoval County stations. According to an April 2011 ridership survey, 20 percent of frequent riders board at Los Ranchos and 19 percent board at Sandoval County.[76] The Los Lunas and Belen stations are also popular origin points. The principal destination stations for commuters are Albuquerque, South Capitol, and Santa Fe Depot. The survey indicated 35.3 percent of frequent riders alight at Albuquerque and 35.5 percent alight at the two Santa Fe stations (Santa Fe Depot and South Capitol). The work commute was the primary trip purpose cited by frequent riders, accounting for 75 percent of respondents. This was followed by leisure and entertainment (11 percent) and school (10 percent).

Figure 4.21 shows the average weekday boardings for each station from 2009 through 2012. The peak ridership year at most stations was 2009, when the newness of service to Santa Fe drew many riders for one or two trips. Ridership

[76] New Mexico Department of Transportation.

has fluctuated in subsequent years, impacted by factors such as the price of gasoline, the state of the economy, and changes in the numbers of trips provided on weekdays and weekends. Ridership changes at individual stations generally mirror those for the system as a whole as shown in Figures 4.19 and 4.20

Figure 4.21 Average Weekday Boardings at Rail Runner Stations, 2009 to 2012



	Belen	Los Lunas	Isleta	Sunport	Albuquerque	Los Ranchos	Sandia	Bernalillo	Sandoval	Kewa	NM 599	S. Capitol	Santa Fe Depot
2009	308	322	32	112	1006	597		57	504		249	512	670
2010	257	261	38	97	882	533		48	438	65	283	349	601
2011	309	317	45	102	959	549	23	54	483	107	310	408	532
2012	280	282	48	93	819	450	73	52	415	103	282	426	466

Greenhouse Gas Analysis

Diverting passenger vehicle trips to commuter rail has a measurable impact on GHG emissions. Train passengers drive fewer miles in their vehicles, using less fuel, and putting less carbon dioxide into the air. NMDOT estimates Rail Runner reduced annual VMT by 28.7 million miles in FY 2012, reducing gasoline consumption by 1.4 million gallons and CO_2 emissions by 13,200 tons. Reductions in GHG emissions for FY 2011 and FY 2012 are shown in Table 4.24.

Table 4.24 Rail Runner Greenhouse Gas Analysis, FY 2011 to 2012

Fiscal Year	VMT reduced (million)	Fuel Saved (million gallons)	CO_2 emissions reduced (tons)
2011	27.3	1.4	12,400
2012	28.7	1.4	12,200

Source: NMDOT.

Commuter Rail Performance Metrics

While a number of statistics are available which could be used to establish performance measures to evaluate Rail Runner service, no consistent and comprehensive set of commuter rail performance measures has been developed for Rail Runner. Establishing a consistent and comprehensive set of commuter rail performance measures will help the State of New Mexico and Rio Metro make investment decisions to improve the efficiency and quality of Rail Runner service. Rail Runner already collects some performance data that would support a move toward a more performance-based approach to managing the State's commuter rail line. As the managing agency for Rail Runner, Rio Metro reports data to the National Transit Database (NTD). Rio Metro also conducts periodic customer surveys of Rail Runner riders to measure customer satisfaction with the service and compiles safety and security data. This information includes passenger miles, trips, revenue miles, operating and capital expenditures, and is used to calculate a number of performance measures related to service efficiency and cost effectiveness. In addition, Herzog Transit Services Inc., the operator of Rail Runner, is contractually obligated to report on ridership and endpoint on-time performance to Rio Metro.

In general, the performance measures used by commuter rail agencies fall within five main categories:

- **Ridership/Service Utilization** – Related to the number of passengers served (boardings) and/or how passengers use the commuter rail service (trip length);
- **Reliability –** Related to on-time performance and the frequency and causes of delay;
- **Financial Performance** – Measuring the cost efficiency and cost effectiveness of the provided service;
- **Customer Satisfaction** – Related to the quality of service as perceived by the system users; and
- **Safety and Security** – Evaluating performance related to incidents, collisions, crimes, or employee injuries.

Ridership/Service Utilization

Ridership and other service utilization measures provide insight into the effectiveness of the commuter rail service at meeting passenger needs. Total ridership is the most frequent measure used, and ridership targets are often established during the annual budgeting process. Some agencies also evaluate passengers served per unit of service (e.g., revenue hours, train-miles) to measure service utilization.

This is a performance category where Rail Runner currently has good coverage, providing a good understanding of how passengers are utilizing the commuter

rail service. Rail Runner currently collects daily ridership information, allowing flexibility to aggregate the data into a variety of measures including average and total ridership by month, boardings and alightings by station, and ridership by link.

Reliability

On-time performance (OTP) at the end point is the most commonly reported reliability performance measure for commuter rail services, although some systems also report performance for percentage of scheduled trips completed or mean miles between failures. Two potential measures of OTP developed for intercity passenger rail service in response to PRIIA, OTP at all stations and minutes of train delay per 10,000 train-miles, could also be applied to commuter rail systems but would require commuter rail operators to collect, track, and analyze additional mid-route data. Rail Runner end point OTP data is reported daily. The number of delayed, terminated, annulled, and extra trains is reported daily, and cumulative totals by month, calendar year-to-date, and fiscal year-to-date are maintained. Mid-route delays are reported only for trains that arrive more than five minutes late at their end point. Causes for delays are listed in daily reports but are not aggregated or systematically tracked.

Financial Performance

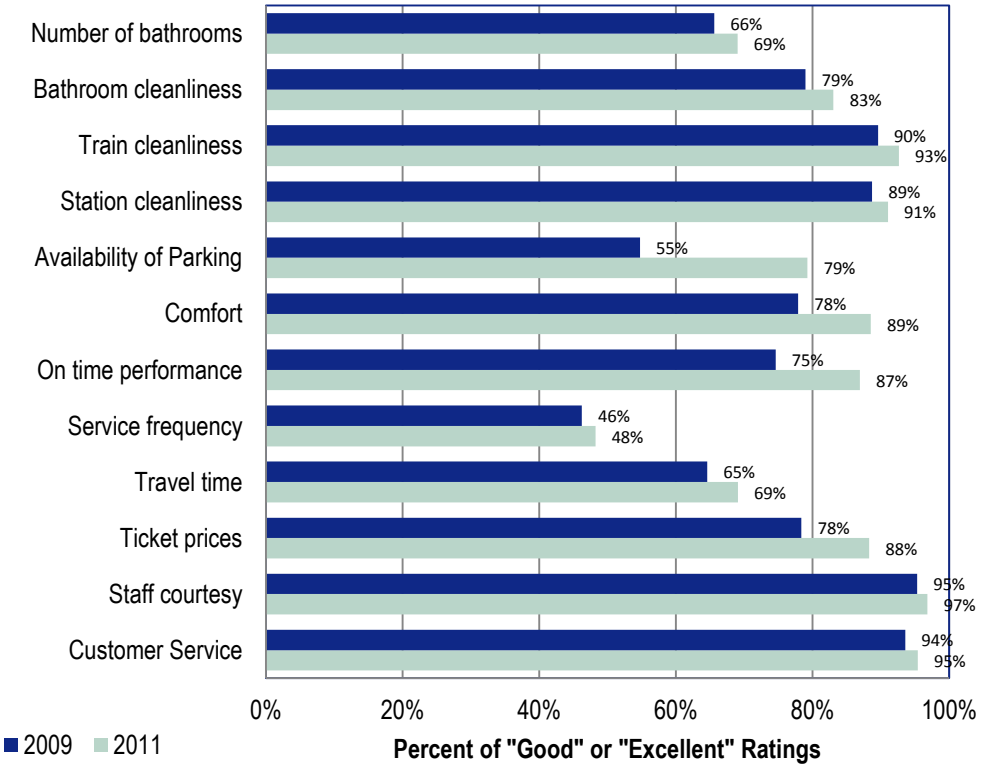
Commuter rail agencies rely on a number of financial performance measures to evaluate the cost efficiency and cost effectiveness of their system. Measures comparing operating cost to some unit of service (revenue hours, revenue miles, passenger boardings, passenger-miles, etc.) are very common. Some agencies establish targets for what percentage of operating expenses should be covered through passenger fares. The basic data required for measuring financial performance are routinely collected by all commuter rail agencies.

Customer Satisfaction

Understanding how passengers perceive the quality of commuter rail service, through comment forms, surveys, and other customer service tools, provides information with which to evaluate current levels of customer satisfaction, identify areas for improvements, and develop strategies to maintain and attract new riders. Customer satisfaction can be measured in the form of number of complaints per 100,000 passenger boardings or through a customer satisfaction measure obtained through passenger surveys.

There are periodic Rail Runner ridership surveys that include questions related to customer satisfaction, including service frequency, OTP, cleanliness, customer service, and comfort. In the 2011 survey, respondents rated 12 aspects of service as excellent, good, fair, or poor. Only on one category, service frequency, did more than one-third of respondents rate the service as either fair or poor; slightly more than half of the respondents rated service frequency as either fair or poor. Results from the 2009 and 2011 surveys are shown in Figure 4.23.

Figure 4.22 Rail Runner Customer Satisfaction
How Do You Rate Rail Runner Express Service and Performance?



Note: 2009 sample size = 1,814; 2011 sample size = 1,999.

Safety and Security

Safety and security measures consider performance related to accidents, crimes, and quality of life incidents. While commuter rail agencies report safety and security data to the NTD, these data are not publicly released, leaving it to the discretion of each commuter rail agency whether or not to publicly release this information.

Rail Runner crews provide written reports detailing incidents that occur on trains or on platforms. These reports address incidents such as intoxicated passengers, reports of criminal activity, medical emergencies, animal strikes, trespassers, as well as accidents (which must be reported to the FRA immediately). This information is not currently aggregated but could be to identify areas where safety concerns need to be addressed and establish measures to evaluate progress in addressing those concerns.

Performance Measures for Rail Runner

Rail Runner collects a significant amount of data that can be used to analyze performance. Data on ridership and service reliability are collected daily and tracked at weekly, monthly, and annual levels. Financial performance data are

also maintained throughout the fiscal year and are reported at the annual level. Ridership surveys provide data on customer satisfaction with various aspects of Rail Runner service. Reports on in-service equipment failures and on incidents impacting safety and security are kept on file but are not presently aggregated.

The establishment of performance targets for Rail Runner needs to take into consideration several factors:

- *Financial considerations* – reflecting a realistic projection of available funding levels);
- *Technical considerations* – targets should be achievable based on current and forecasted performance and the fleet and track resources available;
- *Policy considerations* – reflecting existing policies and priorities plus customer and public involvement; and
- *Economic considerations* – maximizing benefits relative to investments.

Not all commuter rail agencies establish performance targets. A partial review of commuter rail agencies found that roughly half the agencies established performance targets and half did not. The most common performance targets were OTP, annual ridership, the ratio of complaints to riders, and the mean distance between in-service failures. Most agencies also included targets related to accidents or injuries, but the specific statistics used for evaluation varied among agencies. Table 4.25 shows the measures for which other commuter rail agencies have established targets.

Table 4.25 Performance Targets Used by Other Commuter Rail Agencies

	Coaster (San Diego)	Capital Metro (Austin)	Sounder (Seattle)	Metro North (New York)	Long Island RR (New York)	MBTA (Boston)
Annual boardings	✓		✓	✓	✓	✓
Passengers per revenue hour	✓		✓			
Passengers per vehicle trip			✓			
Cost per passenger	✓					
Fare per passenger	✓		✓			
Farebox recovery ratio			✓			
End-point on-time percentage	✓	✓	✓	✓	✓	✓
Percent of scheduled trips completed	✓		✓			
Mean miles between mechanical failures		✓		✓	✓	✓
Complaints to passenger ratio	✓	✓	✓			
Vehicle accidents		✓	✓			
Passenger accidents or injuries		✓		✓	✓	
Employee injuries				✓	✓	

A 2011 Rail Runner Efficiency Study prepared by NMDOT for the New Mexico Legislature compared Rail Runner performance in 2009 with other commuter rail systems. Rail Runner was generally near the middle or in the bottom half in every comparison. The very low average fare for Rail Runner ($2.47) and very high average passenger trip length (40.7 miles) were two factors that contributed to the low comparisons, including the lowest fare per passenger mile among commuter rail systems. The 2012 Rio Metro *Regional Transit District Short Range Plan* also reported service measures for Rail Runner. Both documents included measures relating to ridership/service utilization and financial performance. The Rail Runner Efficiency Study also included a reliability measure, end point OTP. The performance measures included in these two reports are included in Table 4.26.

Table 4.26 Rail Runner Reported Performance Measures

	Rail Runner Efficiency Study (FY 2009 data)	Rio Metro Short Range Plan (FY 2012 data)
Ridership / Service Utilization		
Annual Ridership	1,081,719	1,191,654
Passengers per Revenue Hour	38.38	32.30
Passengers per Revenue Mile	1.00	------
Service Reliability		
End-point OTP	94.67%	95.55%*
Financial Performance		
Average Fare per Passenger Trip	$2.47	$2.31**
Average Cost per Passenger Trip	$17.60	$20.05
Average Cost per Revenue Hour	$673.65	$624.34**
Average Cost per Revenue Mile	$17.64	------
Farebox Recovery	14.0%	11.0%
Farebox Revenue (000s)	$2,670	$2,748
Average Fare per Passenger Mile	$0.06	**$0.05
Average Cost per Passenger Mile	$0.43	$0.46
Customer Satisfaction	------	------
Safety and Security	------	------

Note: * Not in Short Range Plan but reported by operator as contractual requirement.
** Calculated from aggregate data in Short Range Plan

Performance targets are typically set after establishing a baseline data trend and may be adjusted over time. Targets may:

- Measure quality performance against peer agencies to ensure service is consistent with service provided elsewhere;
- Measure performance against historical data by presuming that current transportation policies, priorities, and funding levels remain in place; or
- Establish higher performance levels that would likely require significant additional investment or changes to existing transportation policy and/or priorities.

Rio Metro and NMDOT will be developing performance measures and establishing targets that will be identified in the annual Rail Runner Service Plan. Progress towards achieving these targets will be reported annually.

Proposed Commuter Rail Projects and Potential New Service

This section identifies needs and describes candidate projects to improve commuter rail service in New Mexico, such as maintaining a state of good repair and accommodating future demand. These are categorized based on their relation to maintenance or capacity enhancements or proposed new commuter rail service. Table 4.27 identifies the range of proposed maintenance and capacity improvement projects on the existing commuter rail system, categorized as follows:

- Track and Signal Improvements;
- Safety Improvements;
- Station Improvements; and
- Proposed New Commuter Rail Services.

Proposed Maintenance and Capacity Improvement Projects

A critical priority for NMDOT is maintaining the commuter rail infrastructure that is already in place; new services, stations, and capacity improvements are considered secondary. Rail Runner has numerous projects currently planned or in development related to maintenance, capacity, and safety.

Potential New Commuter Rail Service

The State's development of commuter rail service in the Belen-Albuquerque-Santa Fe corridor has led to increased interest in developing passenger rail services that would serve other regions of the State. Proposals for passenger rail service in several specific corridors have been identified by stakeholders (particularly after Rail Runner service to Santa Fe was initiated) and/or proposed for study in bills introduced in the New Mexico legislature (though only one project, the proposed Las Cruces to El Paso line, has undergone any formal study). Each of the potential new passenger rail corridors are described below.

- **Las Cruces to El Paso –** Potential commuter rail service within the 42-mile corridor between Las Cruces and El Paso would operate on existing BNSF El Paso Subdivision mainline. The combined populations of Doña Ana and El Paso counties was 1.01 million in 2010, with employment centers at both ends of the line to attract workers. Based on 2000 Census data, there were approximately 15,120 work trips daily between the two counties.[77] Existing peak period commuter bus service operated by New Mexico Park and Ride

[77] U.S. Census Bureau, 2000 County-to-County Worker Flow Files.

between the cities carried 245 passengers per day in FY 2013 with nine northbound and 10 southbound peak period trips per day.[78]

Some preliminary planning for this corridor has occurred, including a draft feasibility study in 2009 and a presentation by BNSF in 2010 to the El Paso and Las Cruces MPOs highlighting the ideas for necessary improvements to permit passenger rail operations on their El Paso Subdivision. Primary concerns related to initiation of the potential commuter rail service include safety, BNSF service performance, and meeting commuter expectations.

There were two potential passenger rail services for Las Cruces identified during stakeholder outreach. One was developing commuter rail service between Las Cruces and El Paso. The other was developing passenger rail service between Las Cruces and Albuquerque, perhaps utilizing Rail Runner equipment. Las Cruces stakeholders indicated that a commuter rail connection to El Paso was the higher priority, citing the shorter distance, the heavy existing commuting volumes on I-10 between the cities, and expected engineering and operational difficulties with getting passenger trains past the BNSF yard in Belen. Due to these considerations a passenger rail line between Las Cruces and Albuquerque is not considered as a potential new service in the Rail Plan.

- **Taos to Santa Fe via Española –** This potential service would span approximately 70 miles and provide service to approximately 73,000 people in Rio Arriba and Taos counties. In 2000, intercounty travel between Taos, Rio Arriba, and Santa Fe counties accounted for 5,625 daily work trips.[79] These cities are currently served by transit, but existing transit ridership in the corridor is low. New Mexico Park and Ride provides seven peak period trips in each direction per day, carrying 83 daily passengers between Española and Santa Fe in FY 2013. The North Central Regional Transit District (NCRTD) also operates three daily routes in each direction, connecting Taos and Española and Española and Santa Fe.

  Given the low population in the counties to be served, the feasibility of this service is questionable. Moreover, railroads have never served Taos and the Chili line corridor serving Santa Fe to Española was abandoned in 1940. Much of the alignment, especially at the Santa Fe end, has been redeveloped. A proposal to study feasibility of service along this corridor was introduced in the legislature in 2009 but did not pass.

- **Raton and Las Vegas to Santa Fe –** This potential service would span 195 miles, operating on BNSF's existing Raton line between Raton and Lamy and on the NMDOT-owned Eldorado Subdivision between Lamy and Santa Fe.

[78] NMDOT.

[79] U.S. Census Bureau, 2000 County-to-County Worker Flow Files.

Approximately 48,000 people live within the three counties served (San Miguel, Mora, and Colfax) with an estimated 3,273 intercounty work trips daily.[80] Existing commuter transit ridership in the corridor is low (108 trips per day between Las Vegas and Santa Fe in FY 2013) with four morning and three evening trips daily.[81]

Although no studies have been conducted (a proposal to study the feasibility of service was introduced in the legislature in 2009, but did not pass), this service would require significant capital improvements to the Eldorado Subdivision to bring the line to a state of good repair and increase speeds. However, even with these improvements, rail travel times between Las Vegas and Santa Fe would be about twice those of bus service. During public and stakeholder meetings conducted for the State Rail Plan, multiple elected officials from northeast New Mexico indicated that passenger rail service in the corridor was not practical and that the region would be better served by providing local rail freight service.

- **Gallup to Albuquerque** – Although no existing commuter transit service operates in the corridor, the 160-mile suggested service between Gallup and Albuquerque would operate along the alignment used daily by Amtrak's Southwest Chief. The 2010 combined population of Cibola and McKinley counties was 98,000, with 2,635 intercounty work trips among McKinley, Cibola, and Bernalillo (Albuquerque) counties.[82]
- **Eldorado to Santa Fe –** This potential commuter rail line would run a length of 13 miles from Eldorado (2010 population of 6,130) to Santa Fe on the existing Eldorado and Santa Fe Subdivisions. Presently, the NCRTD operates a bus route between the two communities. No feasibility studies have been undertaken, but the City of Santa Fe did fund a one-week trial run in the late 1990s without charging fares. This service would require significant capital improvements to the Eldorado Subdivision both to bring the line to a state of good repair and increase speeds. Even with these improvements, maximum speed would likely be no higher than 30 mph, making a rail trip to Santa Fe significantly slower than a bus or auto trip.

[80] Ibid.

[81] New Mexico Park and Ride.

[82] U.S. Census Bureau, 2000 County-to-County Worker Flow Files

Table 4.27 Potential Commuter Rail Improvement Projects

Project	Description	Costs
Track and Signal Improvements		
NMRX Capital Maintenance	Ongoing capital maintenance needs of NMRX facilities, structures, and rolling stock necessary to maintain assets in a state of good repair.	$2.5 million (annually)
CTC Abajo to Hahn	Upgrade the method of operation between Hahn (MP 899.1) and Abajo (MP 903.8) to Centralized Traffic Control (CTC) to increase maximum speeds and improve safety in this segment. This would reduce travel times and improve on-time performance for Rail Runner, Southwest Chief, and BNSF.	$5.19 million
Los Lunas siding rehabilitation	Rehabilitate unused 4500' siding south of Los Lunas station to accommodate passing Rail Runner and BNSF trains, reducing the longest single track segment on the Rail Runner alignment (16.3 miles). Work includes minor sub-grade improvements to stabilize the foundation and installation of new ballast, track and ties. New turnouts would be installed and signals would be modified to the track system	$5.85 million
Alameda siding reconstruction	Reconstruct Alameda siding south of Alameda Road as 4000' siding to accommodate passing Rail Runner, Amtrak, and BNSF trains, reducing the second-longest single-track section of the Rail Runner alignment (12.6 miles). Work includes sub-grade improvements to stabilize the foundation and installation of new ballast, track, and ties. New turnouts would be installed and signals would be modified to the track system.	$6.5 million
Silva to Richardson siding	Construct a siding of roughly 2000' length in the I-25 median approximately midway between the Silva and Richardson sidings, an 11.6 mile single-track section of the Santa Fe Subdivision, to provide additional passing locations for Rail Runner and reduce meet delays.	$3.4 million
Isleta to Abajo siding	Construct a siding of roughly 2000' length between Isleta siding and CP Abajo (the southern end of the double-track section in Albuquerque) to reduce an 11.2 mile segment of single track on the Rail Runner alignment. This would provide additional passing locations for Rail Runner and Amtrak and reduce meet delays.	$3.4 million
Domingo to Silva siding	Construct a siding of roughly 2000' length on the Albuquerque Subdivision west of its junction with the Santa Fe Subdivision to reduce a 10.9 mile section of single track on the Rail Runner alignment between the Domingo and Silva sidings to provide additional passing locations for Rail Runner and Amtrak and reduce meet delays.	$3.4 million
Herzog to Domingo siding	Construct a siding of roughly 2000' length between the Herzog and Domingo sidings to reduce a 10.2 mile segment of single track on the Rail Runner alignment. This would provide additional passing locations for Rail Runner and Amtrak and reduce meet delays. Herzog Siding, at 6,386', is the principal passing siding utilized by Rail Runner, and minor delays by trains in reaching this siding can create cascading delays to later trains that are forced to wait for trains to arrive at sidings.	$3.4 million

Project	Description	Costs
Bernalillo to Herzog siding	Construct a siding of roughly 2000' length between the Bernalillo and Herzog sidings to reduce an 8.3 mile segment of single track on the Rail Runner alignment. This would provide additional passing locations for Rail Runner and Amtrak and reduce meet delays. Herzog Siding, at 6,386', is the principal passing siding utilized by Rail Runner, and minor delays by trains in reaching this siding can create cascading delays to later trains that are forced to wait for trains to arrive at sidings.	$3.4 million
Sawmill siding, Richardson to Faught	Improve the existing Sawmill siding north of Rodeo Road in Santa Fe by moving or adding a switch to permit its use as a passing siding and incorporate switches into the CTC system. In addition to providing an additional siding for Rail Runner and Santa Fe Southern trains this would facilitate movement into and out of the Sawmill freight yard where Rail Runner trains lay over during weekdays.	$1.17 million
Santa Fe Railyard train storage capacity	Increase storage capacity in the station area to permit storage of 4-car and 5-car Rail Runner trains overnight.	$850,000 – $2.5 million
Continuous welded rail Hahn to Bernalillo	Replace existing jointed rail with continuous welded rail between MP 898.8 (Hahn) and MP 886.5 (CP West Bernalillo) to improve safety and ride quality for Rail Runner, Southwest Chief, and BNSF.	$7.2 million
Tie replacement – Hahn to Waldo tie replacement	Replace existing wooden ties between MP 898.8 (Hahn) and MP 854.6 (Waldo) to improve safety, ride quality and reliability for Rail Runner, Southwest Chief, and BNSF.	$8 million
Upgrade Rail Runner alignment to Class 5	Upgrade track on Albuquerque Subdivision between Belen and Isleta Junction (17 miles) and between Hahn and CP Madrid (41 miles), currently maintained at Class 4 standards with a maximum operating speed of 79 mph, to Class 5 standards, which would permit operations by Rail Runner and the Southwest Chief at speeds up to 90 mph after PTC is implemented. Track between Isleta Junction and Abajo is already maintained at Class 5 standards and could support higher operating speeds once PTC is implemented. Class 5 operations would reduce travel times for both Rail Runner and the Southwest Chief by about 5 minutes.	$15 million
Double track Hahn to El Pueblo	Extend the existing double track portion of the Albuquerque Subdivision north an additional 3 miles to El Pueblo Road, immediately south of the Los Ranchos station, and include one crossover. Project would increase track capacity between Los Ranchos and Albuquerque, reduce the length of the single-track segment between Albuquerque and Bernalillo, improve on-time performance, and reduce running times for Rail Runner.	$12 million
Safety Improvements		
Positive Train Control implementation on Rail Runner alignment	Per Federal mandate, Positive Train Control (PTC) is required on all track carrying more than 12 scheduled intercity or commuter rail trips per day. NMDOT must equip the Rail Runner alignment and the Rail Runner locomotives and cab cars with PTC by December 31, 2015. Safety benefits of PTC include the prevention of train to train collisions, over speed derailments, incursions into established work zone limits, and movement of trains through improperly- positioned switches.	$30 million

Project	Description	Costs
Station Improvements		
Extend Rail Runner platforms to accommodate 5-car trains	Expand platforms at existing stations to accommodate longer trains and eliminate need to have double stops at stations or require passengers to move between cars during boarding and alighting. Currently, only Albuquerque and stations in Santa Fe County can accommodate 5-car trains.	$5 million
Parking capacity increases and relocation	Increase the number of parking spaces at Rail Runner stations where inadequate parking capacity is impacting ridership. No stations are at capacity presently but parking lots at some stations, such as Sandoval County/U.S. 550, may reach capacity as ridership grows. Los Ranchos has a need to relocate leased parking facilities south of the station to a recently purchased lot on the west side of tracks.	$2.65 million
Proposed New Commuter Rail Services		
Las Cruces to El Paso Commuter Rail	Develop passenger rail service connecting Las Cruces and El Paso. This would use existing BNSF right-of-way and would require signalization of the line and other capacity improvements. The combined population of the two counties that would be served was 1.01 million in 2010. A draft feasibility study was released in 2009 that recommended further study before deciding to proceed or not.	$900 million
Taos and Española to Santa Fe Commuter Rail	Construct a rail line and develop passenger rail service connecting Taos, Española, and Santa Fe. This would require acquiring new right-of-way for almost the entire length of the route as Taos has never had a railroad connection and much of the right-of-way of the Chili Line connecting Santa Fe and Española that was abandoned in 1940 has been redeveloped. The combined populations of the two counties north of Santa Fe that would be served was 73,000 in 2010. A proposal to conduct a feasibility study for this line if local communities could identify funding was introduced during the 2009 legislative session but was not approved.	$725 million
Raton and Las Vegas to Santa Fe Commuter Rail	Develop passenger rail service connecting Raton, Las Vegas, and Santa Fe. This would use the existing BNSF Raton Line right-of-way from Raton to Lamy and the NMDOT-owned Eldorado Subdivision to connect from Lamy to Santa Fe. The combined population of the three counties northeast of Santa Fe that would be served was 48,000 in 2010. A proposal to conduct a feasibility study for this line if local communities could identify funding was introduced during the 2009 legislative session but was not approved.	$454 million
Gallup to Albuquerque Commuter Rail	Develop passenger rail service connecting Gallup and Albuquerque. This would use the existing right-of-way from Gallup to Albuquerque used by Amtrak's Southwest Chief (BNSF right-of-way from Gallup to Isleta and NMRX right-of-way from Isleta to Albuquerque) but would include service to intermediate communities not served by Amtrak. Stations would need to be located on sidings so as not to interfere with BNSF freight traffic on the Transcon. The combined population of the two counties west of Albuquerque that would be served was 98,000 in 2010.	$100 million

Project	Description	Costs
Eldorado to Santa Fe Commuter Rail	Develop passenger rail service connecting Eldorado and Santa Fe. This would use existing NMDOT-owned Eldorado Subdivision and Santa Fe Subdivision and would require significant upgrades to the Eldorado Subdivision track. There would also need to be capacity increases on the Santa Fe Subdivision and within the Santa Fe Railyard to enable both this service and Rail Runner to provide peak period service. Eldorado had a population of 6,130 in the 2010 census. The Santa Fe MPO identified exploring the potential for this service in their Metropolitan Transportation Plan for 2010-2035.	$48 million

Passenger Excursion/Tourism Rail

Cumbres & Toltec Scenic Railroad

The Cumbres and Toltec Scenic Railroad (C&TS) is a narrow gauge excursion steam railroad providing scenic tourist rail service over a 64-mile rail line between Chama, New Mexico and Antonito, Colorado with approximately 32 miles located in New Mexico. It is also a Registered National Historic Site with tourist services beginning along the route in 1971. The railroad operates scenic passenger trains seven days a week between May and October. One train travels in each direction every day. Roughly 40,000 to 45,000 passengers ride the C&TS per year with the peak in October. During the peak period, up to 600 passengers ride per day. The slowest time of the operating season is between mid-August and mid-September.

In order to continue to provide reliable service to customers, maintenance overhaul of existing track is underway. Track is being repaired where needed and rock ballast is being added below existing track. This project will reduce wear on the rolling stock and improve passenger comfort. Initially funded by the states of New Mexico and Colorado, including Colorado ARRA funding, with a total cost of $15 million, additional funds are being sought to continue the project.

Santa Fe Southern Railway

Santa Fe Southern Railway (SFS) operates passenger excursion services on the rail line between Santa Fe and Lamy with passenger trips beginning and ending at the Santa Fe Railyard, although it suspended operations in Fall 2012 and has not indicated a date for resuming operations. Prior to the start of construction to bring Rail Runner to Santa Fe, SFS carried up to 25,000 passengers annually. However in 2009, the first full year of Rail Runner service, annual ridership dropped to about 12,000 passengers. SFS attributes much of the decrease in ridership to competition from the Rail Runner for people who simply wish to "ride the train" from Santa Fe. In 2011, SFS scheduled trains on Fridays, Saturdays, and Sundays throughout the year and also on Wednesdays during the May to October season. SFS also operates special event excursions. The peak ridership months are May through August and the month of December.

A number of improvements were identified during development of the Rail Plan that would benefit SFS excursion services while also benefiting Rail Runner operations, such as improving the storage capacity within the Santa Fe Railyard. SFS also provides freight services on the Lamy to Santa Fe rail line, although in recent years freight volumes on the line dropped to less than one car per week and the development of the Santa Fe Railyard as a tourist and entertainment district ended all freight service to the Railyard. SFS is now focused on operating freight service out of its yard in Lamy.

4.3 INTEGRATING FREIGHT AND PASSENGER SYSTEM PLANNING

Potential rail investments outlined throughout this chapter are geared towards maintenance, enhancing capacity, and improving safety on New Mexico's freight and passenger rail systems. This section integrates the findings from these analyses and identifies areas of the rail system that are expected to be over capacity in the future if no new capacity is added. It also describes potential future freight and passenger service commingling conflicts on shared use corridors. Finally, the chapter concludes with an illustrated summary of New Mexico's existing and future infrastructure needs to achieve the State's rail goals outlined in Chapter 1. Meeting the needs of multiple users requires thoughtful consideration of all users' concerns, how they may worsen in the future, and how they can improve through proper project prioritization.

Forecasted Level of Service

Based on network utilization trends on all major lines throughout the U.S., future rail volumes through 2035 are expected to exceed capacity on many of the State's Class I rail lines if no improvements to existing capacity are made (Figure 4.23).[83,84] BNSF's Transcon and UP's Sunset Route are forecasted to be above capacity with a Level of Service F (volume-to-capacity ratio greater than 1.0). UP's Carrizozo and Tucumcari subdivisions are forecasted to be near capacity with Level of Service D (0.7 to 0.8 volume-to-capacity ratio) by 2035. BNSF's Twin Peaks subdivision is forecasted to remain below capacity over the same timeframe.

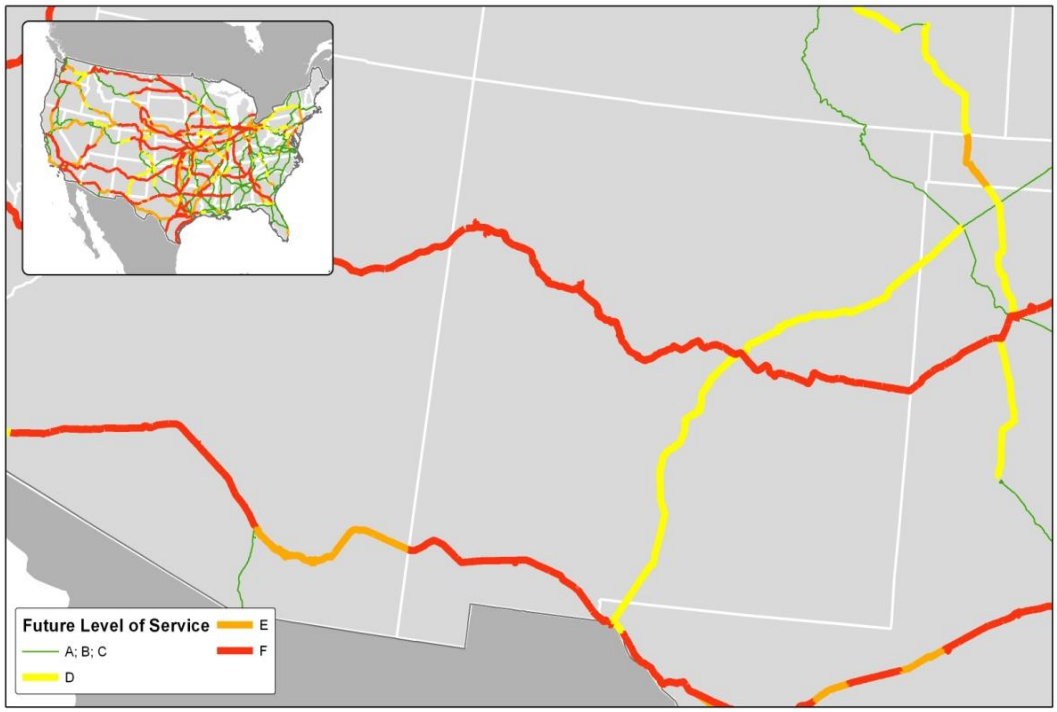
Future level of service on the State's shortlines is likely to be driven more by infrastructure condition than by excessive volumes. Track maintenance levels, speeds, and service reliability will have a direct impact on future shortline traffic volumes and ultimately the financial viability of the shortline service. Infrastructure conditions tend to be inferior to those of the large railroads. Track is less well maintained, with lighter weight rail, inferior tie and ballast conditions, and no active signaling systems. As a result, mainline trains speeds are lower, typically 40 mph or less for freight trains, and operations are far less automated. Although these conditions are usually adequate for existing business, many carriers struggle to maintain track at minimal commercially

[83] National Rail Freight Infrastructure Capacity and Investment Study, prepared for the Association of American Railroads by Cambridge Systematics, Inc, 2007.

[84] Although there has been a drop in train volumes since the study was completed in 2007 and projections for future growth are not quite as strong, revised FAF3 growth projections are still expected to exceed available capacity on many of the state's Class I rail lines.

acceptable levels, and are unable to accommodate some modern rolling stock. With the large railroads moving from 263,000 to 286,000 pounds as the standard maximum car weight, the ability to handle standard modern rolling stock has become a particular concern; without accommodation of these heavier cars, the competitive position of many short lines will be substantially compromised.

Figure 4.23 New Mexico Class I Rail System Level of Service, 2035



Source: National Rail Freight Infrastructure Capacity and Investment Study prepared for the Association of American Railroads, 2007.

Note: Level of Service A, B, or C (green) indicates volume/capacity ratio less than 0.7 (below capacity)
Level of Service D (yellow) indicates a volume/capacity ratio of 0.7 to 0.8 (near capacity)
Level of service E (orange) indicates a volume/capacity ratio of 0.8 to 1.0 (at capacity)
Level of service F (red) a volume/capacity ratio greater than 1.0 (above capacity)

Potential Future Service Constraints in Shared Use Corridors

Presently, there are numerous corridors throughout the State where both freight and passenger rail operate on the same track, creating delays for both systems. BNSF, UP, and NMDOT all own track on which other operators have been granted access. Using the future demand and ridership figures provided earlier in this chapter, planning for future traffic along these corridors will help to anticipate future capacity concerns and current and future freight and passenger conflicts.

Of particular importance is the NMDOT-owned track from Belen to Lamy and Santa Fe. Along this corridor, Amtrak, BNSF, and Rail Runner all operate. SFS also operates between Lamy and Santa Fe. Without adequate capacity to

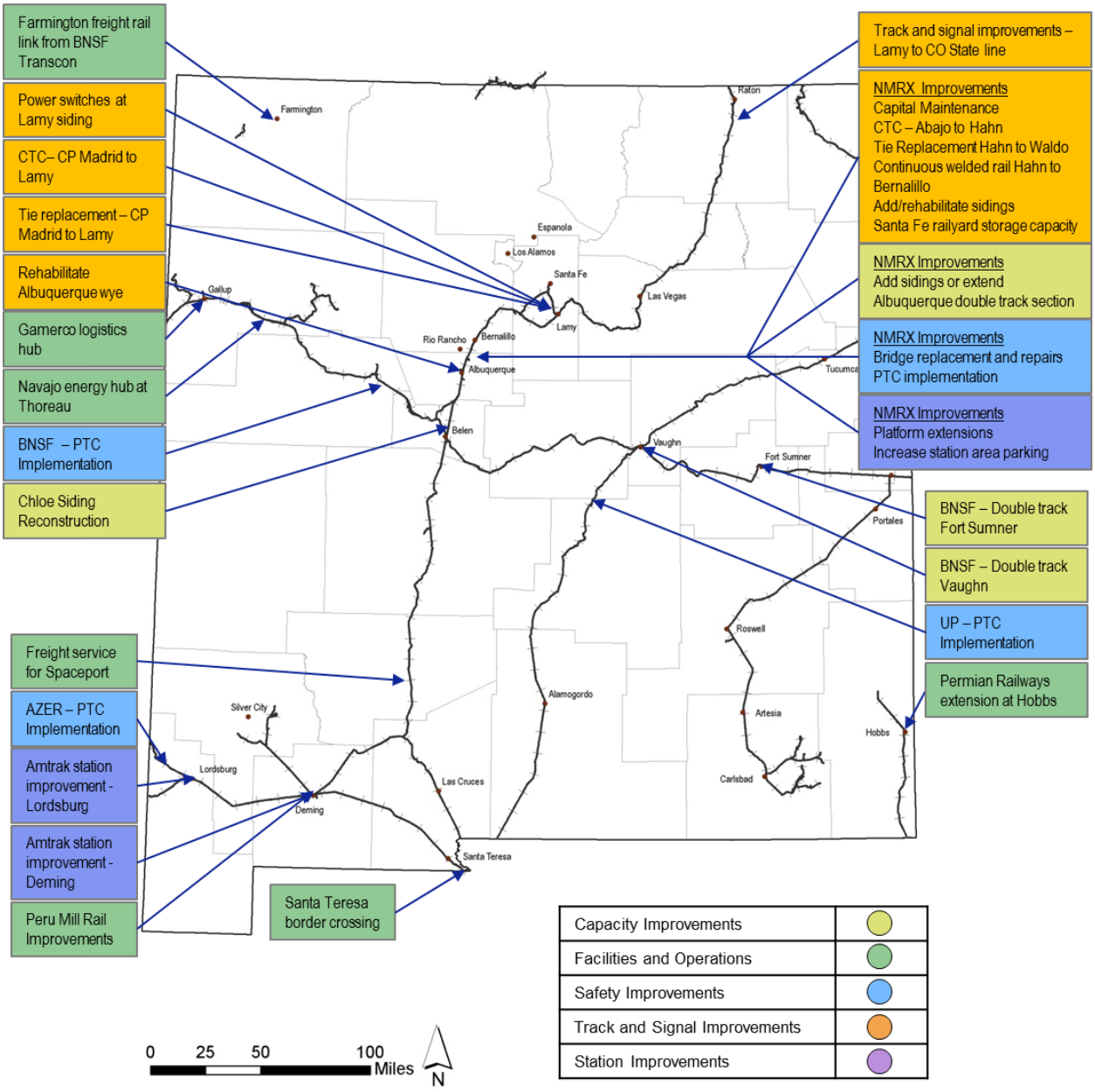
accommodate future passenger volumes, both intercity and commuter, as well as increased freight volumes, users of this corridor will continue to experience delays. Increasing the number of sidings as outlined in Table 4.27 can help to relieve these conflicts and reduce meet delays.

Addressing current and future freight-passenger conflicts must also take into consideration the control type of track. This plays a significant role in the safety, efficiency, and mobility of both freight and passenger operations. Accordingly, it is Federally mandated that all lines carrying passengers or hazardous materials must be equipped with PTC technology by 2015 (see Chapter 3). NMDOT, UP, and BNSF have all outlined their plans to install PTC in separate PTC Implementation Plans. This effort will improve safety and potentially reduce travel times for passenger and freight operations throughout the State.

Summary of New Mexico's Existing and Future Infrastructure Needs

Integrating the project lists identified in the freight and passenger rail analyses, Figure 4.24 illustrates the geographic distribution of the State's proposed rail improvement projects. These potential rail investments are aimed at maintaining existing infrastructure and services while also enhancing capacity and improving safety. Prioritizing these investments in a manner that benefits both freight and passenger operations is further discussed in Chapter 6.

Figure 4.24 Locations of Proposed Freight and Passenger Rail Improvement Projects



5.0 Rail System Investments

As discussed in Chapter 4, the current and future needs for rail investment in New Mexico are significant, and identification of sustainable funding sources is necessary for effective long-term planning of the State's freight and passenger rail systems. This chapter summarizes the State's freight and passenger rail funding needs and identifies existing and potential future funding sources.

5.1 Scope of Freight and Passenger Rail Funding Needs

Estimating the scope of funding that is required is the first step towards selecting appropriate and adequate funding sources for the State's rail investment needs. While Chapter 4 outlined many potential freight and passenger rail improvement projects, it is important to note that the State and its political subdivisions are not responsible for funding many of these projects. The vast majority of the State's rail system is privately owned and operated, and the Anti-Donation Clause in the New Mexico constitution severely limits the ability of the State and its political subdivisions to financially assist private railroads. The Class I railroads already invest heavily in their networks, prioritizing capacity improvement projects on a national, system-level scale. In January 2013, BNSF announced a planned 2013 capital commitment program of approximately $4.1 billion, a $450 million increase over its 2012 capital spend of $3.6 billion.[85] UP spent $3.7 billion in capital spending in 2012, with an investment in New Mexico of $101 million.[86]

The shortline railroads, connecting smaller communities and shippers to the national rail system, operate with slim margins and often lack access to enough capital to make significant improvements. As a result, shortline railroads sometimes defer non-critical maintenance, and capacity improvements are often not financially viable.

However, the State has also made significant public investments in rail in recent years, primarily through the purchase of 133 miles of track and initiating the State's first commuter rail service. NMDOT has been the primary source of capital funding for developing Rail Runner and improving the NMRX network and contributed operating support to the NMRX network for the first six years of

[85] BNSF, http://www.bnsf.com/media/news-releases/2013/january/2013-01-18a.html.

[86] Union Pacific, http://www.up.com/aboutup/corporate_info/uprrover/index.htm, "Union Pacific in New Mexico – 2012 Fast Facts," http://www.up.com/cs/groups/public/documents/up_pdf_nativedocs/pdf_new_mexico_usguide.pdf

Rail Runner operations. However, NMDOT ceased providing operating support after FY 2012 and has recently transferred responsibility for funding capital maintenance of Rail Runner and the NMRX network to Rio Metro. Rio Metro RTD, North Central RTD, BNSF, Amtrak, and SFS also contribute to NMRX operations and maintenance.

NMDOT is also responsible for the bonds issued to finance Rail Runner. These bonds, issued through the Governor Richardson's Investment Partnership (GRIP) program that was authorized in 2003, are variable rate bonds that mature between FY 2025 and FY 2027. Remaining payments on these bonds, including escrow payments, are estimated to total nearly $540 million as of July 2013, with annual payments averaging $30 million between FY 2014 and FY 2024 followed by balloon payments exceeding $250 million from FY 2025 through FY 2027.

5.2 EXISTING AND HISTORICAL FUNDING SOURCES

Prior to the development of Rail Runner, direct public investment in New Mexico's railroads was limited. NMDOT administers the FHWA Highway-Rail Grade Crossing Hazard Elimination Program to improve grade crossing safety statewide. The cities of Albuquerque, Gallup, and Las Vegas own the station structures supporting their Amtrak stations. The State of New Mexico is a 50 percent owner with the State of Colorado of the C&TS Railroad. Prior to its appropriations ending in 1994, Class III Railroads obtained funding from the Local Rail Freight Assistance Program by providing their own funds to meet local match requirements.

New Mexico's development of Rail Runner used a variety of one-time or short-term funding sources with no dedicated ongoing capital funding to support capital maintenance or future system expansion. Rail Runner operations and maintenance are supported by a dedicated gross receipts tax of one-sixteenth of a percent collected by two regional transit districts in the four counties in which Rail Runner operates, and BNSF, Amtrak, and SFS each contribute to maintenance of the NMRX right-of-way. The State ceased to provide direct operating support to Rail Runner in FY 2013. This section summarizes the existing and historical funding sources used by the State of New Mexico and Rail Runner.

Federal Funding

The previous Federal surface transportation program, Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), was in effect until September 30, 2012 and funded both the FHWA and Federal Transit Administration (FTA). The current program, MAP-21, replaced SAFETEA-LU and modified a number of program elements that can be used to fund rail projects. MAP-21 authorizes these programs through September 30, 2014. Other funding programs included PRIIA and RSIA, which were both funded by the FRA and expire on September 30, 2013. Rail Runner is eligible to

receive funding from several Federal programs to operate Rail Runner and maintain its rail system.

Congestion Mitigation Air Quality (CMAQ) Funds

The primary Federal funding source New Mexico has used to help fund Rail Runner operating costs are CMAQ funds. CMAQ funds, which are distributed by formula from the FHWA to the NMDOT, and a portion further distributed to the Mid-Regional Council of Governments (MRCOG), were identified as the most viable near-term revenue source for Rail Runner. NMDOT provided more than $50 million in flexible CMAQ funds between 2006 and 2011.

In order to help meet requirements of the Clean Air Act, the CMAQ program, continued under MAP-21, provides more than $2.2 billion annually to help State and local governments for transportation projects and programs. Under MAP-21, the CMAQ program has new performance-based features and a required outcomes assessment study. MAP-21 codifies the CMAQ program's current transit operating assistance eligibility, providing that a State or an MPO that receives mandatory CMAQ funds for a regional nonattainment area may obligate CMAQ funds for transit operating assistance under Chapter 53 of Title 49 or on a transit system that was previously eligible for funding.

Furthermore, MAP-21's approach to distribution of formula funds is based on the amount of formula funds each State received in FY 2012. Once each State's total Federal-aid apportionment is calculated, an amount is set aside for the State's CMAQ program through a calculation based on the size of the State's FY 2009 CMAQ apportionment relative to the State's total FY 2009 apportionments.

Section 5307 Urbanized Area Formula Funding Program

The Urbanized Area Formula Funding program (49 USC 5307) provides funding for public transportation capital, planning, job access, and reverse commute projects, as well as operating expenses in certain circumstances. An urbanized area (UZA) is defined as an incorporated area with a population of 50,000 or more. UZAs with populations less than 200,000 may also use the funds for assistance with operating expenses. In UZAs with populations over 200,000, at least one percent of the funding must be used for "associated transportation improvements" such as historic preservation, landscaping, public art, pedestrian access, bicycle access, and enhanced access for persons with disabilities.

Section 5307 funds may be used for the planning, design, and evaluation of public transportation projects and for other technical transportation-related studies. The funds may also be used for the purchase, overhaul or rebuilding of rolling stock, track, line equipment and structure, passenger stations, signals and communications, power equipment and substations, projects to improve safety and security, computer hardware and software to provide operational support, system extensions or new system construction, and land acquisition, design and

construction. Preventive maintenance activities, which the FTA defines as all maintenance activities, are also eligible costs under Section 5307.

Rio Metro became eligible to receive Section 5307 funding in FFY 2011 and began using Section 5307 to fund preventive maintenance and fuel purchases in FY 2013. Rio Metro has submitted a request to the FTA to become a designated recipient for funding for the amount of funding generated by Rail Runner operations.

FTA 5307 funds are allocated partially on the basis on the amount of service and ridership reached, as one of the primary investment goals of these funds is to enhance public transportation to improve mobility and reduce congestion in urbanized areas. For areas like the City of Albuquerque with populations of 200,000 and more, the passenger rail formula is based on a combination of fixed guide way revenue miles, fixed guide way passenger miles, and population. In FY 2011, the commuter rail program received $4.8 million in 5307 funds and received approximately $6.4 million in FY 2012 and an estimated $7.8 million in FY 2013. Funds designated to Rail Runner are "earned" for the region through increased regional transit service and ridership. ABQ Ride is the current designated recipient for the region; however, Rio Metro is in the process of qualifying to be the designated recipient for eligible Rail Runner funds with the FTA.

American Recovery and Reinvestment Act

The American Recovery and Reinvestment Act of 2009 (ARRA) appropriated $787 billion to create and save jobs, spur economic activity, and invest in long-term economic growth. This stimulus package included funding for highway restoration, repair, and construction, as well as funding for passenger and freight rail transportation. ARRA also appropriated $8 billion for high speed rail corridors and intercity passenger service, but New Mexico was unable to secure any of these funds for improvements to the State-owned rail lines over which Amtrak operates. ARRA funds were used to fund construction of the Kewa/Santo Domingo Pueblo Rail Runner station, and ARRA discretionary funds were used to support train service in 2009. There are no remaining ARRA funds available that may be used for rail in New Mexico.

Railway-Highway Crossings Program

NMDOT's Highway-Rail Grade Crossing Hazard Elimination Program is funded through MAP-21 by contract authority from the Highway Account of the Highway Trust Fund. Funds are derived from designated amounts calculated for apportionment to the Highway Safety Improvement Program (HSIP). This program funds safety improvements to reduce the number of fatalities, injuries, and crashes at public grade crossings. NMDOT obtains input from railroads, district engineers, and MPOs, and uses a FHWA-approved prioritization system to identify candidate grade crossings for safety improvements. Funding for the Railway-Highway Crossings Program is approved at $220 million for FY 2012,

FY 2013, and FY 2014. It is estimated that NMDOT will spend approximately $2.5 million of these funds in FY 2013.

Under the previous program Railroad Safety Program, FHWA's Section 130 authorized under SAFETEA-LU, New Mexico received approximately $1.5 million of Section 130 funds annually for safety improvements at highway-rail grade crossings. In addition, NMDOT has used HSIP Section 148 funds (23 USC 148) to augment funding for the Railroad Safety Program in recent years. Approximately $2 million in Section 148 funding was used for grade crossing and/or grade separation safety improvements in both FY 2009 and FY 2010.

State Funding

The New Mexico Anti-Donation Clause places severe and explicit restrictions on where and how State and local governments can spend money to benefit privately owned railroads. As a result, New Mexico has not provided funding for privately owned railroads. However, the potential exists for the State to provide funding for land, buildings, or infrastructure to support new or existing businesses in order to create new job opportunities pursuant to the Local Economic Development Act or the Statewide Economic Development Act.

State funding for the Rail Runner/NMRX and its associated railroad infrastructure has come from a variety of sources. The GRIP program was the principal source of funding to develop Rail Runner. GRIP funds were augmented by legislative appropriations from severance tax bond proceeds and the General Fund as well as from the State Road Fund. There are no dedicated funding sources at the State level for rail projects or programs, including Rail Runner capital or operating expenses or for capital maintenance on the NMRX rail network. Instead, State funding for NMRX and Rail Runner, along with funding for other State transportation projects, is subject to annual Legislative appropriations in the annual NMDOT budget or project-specific capital outlays.[87] With the downturn in the State and national economies, revenue has declined for the State, increasing the competition rail projects face for available State funds. Without a dedicated, predictable funding stream, the State's rail program must compete with a broad array of annual State priorities. This limits the ability of NMDOT to program improvements and develop effective long-term capital maintenance plans for its rail assets.

GRIP Funding

House Bill 15, passed in the 2003 special session of the New Mexico State Legislature, created the GRIP program to fund transportation improvements in New Mexico, including commuter rail between Belen and Santa Fe, through the

[87] In the past, NMDOT has received capital outlay funding for quiet zones, grade crossing safety, and the construction of one Rail Runner station.

issuance of bonds. The first GRIP program marked the official start of the Rail Runner. In addition, the GRIP legislation gave the New Mexico Finance Authority (NMFA) the authorization to issue up to $1.585 billion in bonds on behalf of the State Transportation Commission to fund the construction of 37 highway projects throughout the State. New Mexico raised this revenue by raising the diesel fuel tax and weight-distance tax (which had not been adjusted in 20 years), raising permit fees for overweight and oversize vehicles, and increasing motor vehicle registration fees. An additional $250 million in funds was passed in 2007 for GRIP 2, but this legislation prohibited GRIP 2 funds from being used for Rail Runner.

GRIP bonds provided $450 million in funding for Rail Runner development. GRIP rail funding has been entirely spent and is no longer available for rail projects.

Legislative Appropriations

The New Mexico State Legislature may appropriate, for the Governor's signature, funds for rail through the capital outlay process, either from severance tax bond proceeds or from annual General Fund appropriations. Capital outlays were used to fund Rail Runner development as well as the establishment of quiet zones at many highway-rail grade crossings from Belen to Santa Fe. Legislative capital outlay appropriations provided $24.6 million for Rail Runner development.

In recent years the Legislature has approved capital outlays for several studies as well as railroad safety improvements. A capital outlay approved in 2013 funds the planning, design, and construction of railroad fencing, pedestrian trails, and pedestrian crossings in the Town of Bernalillo. Another 2013 capital outlay funds a feasibility study of passenger rail service connecting El Paso with Doña Ana County, including Las Cruces, and potentially with Spaceport America in Sierra County. A capital outlay approved in 2014 funds feasibility studies of the proposed Farmington freight rail line and a proposed inland rail port facility in McKinley County. Another 2014 capital outlay funds an analysis of the statutory requirements for potentially investing public funds to support Southwest Chief service.

State Road Fund

The State Road Fund, the principal local funding source for all NMDOT projects, is responsible for repaying the principal and interest on GRIP funds. Total payments by NMDOT on GRIP principal and interest for Rail Runner development are estimated to be $709 million over a 22-year period, reducing the amount available to NMDOT each year for other transportation programs in the State.

The State Road Fund has been used to support Rail Runner operations in past years, but the State is not expected to approve operating support in future years.

NMDOT provided $500,000 in operating support for Rail Runner in FY 2010, $200,000 for FY 2011, and $200,000 for FY 2012. No NMDOT operating support was either requested or approved for FY 2013 or FY 2014.

Local Funding

In 2004, the State Legislature granted Regional Transit Districts (RTDs) the authority to levy a gross receipts tax to support public transportation projects. The tax must be approved by a majority of voters in an election within the RTD's jurisdiction.[88] Funds may be used to finance any part of the RTD, from administration to operations and capital. Two of the existing RTDs, North Central and Rio Metro, have successfully passed gross receipts tax initiatives to support Rail Runner. This represents a step toward providing local dedicated funding toward public transportation-related services and improvements. Local gross receipt taxes from the Rio Metro and North Central RTDs have contributed between $11.9 and $12.9 million to Rail Runner annually, accounting for approximately half of Rail Runner's operating budget each year.

Summary

New Mexico's Anti-Donation Clause effectively prevents the use of State funds for projects on privately owned railroads.

New Mexico relies on a combination of Federal, State, local, and private funding to invest in the State's freight and passenger rail needs. However, there is continued uncertainty in the future of both the Federal and State funding streams that could be used to support rail. At the same time, existing funding sources are insufficient to meet the needs identified in Chapter 4, particularly as it relates to Rail Runner capital and operating expenses. Rail Runner recovers approximately 13 percent of its operating funds through fares, accounting for $3.3 million in revenues in the FY2013 operating budget. The Rio Metro board of directors is responsible for setting fares and approving service changes. In the summer of 2011, the board approved weekday and weekend service reductions that were implemented in August and September. In the fall of 2012, the board approved modest fare increases and weekday and weekend service changes that were implemented in May 2012.

5.3 POTENTIAL FUNDING OPTIONS

With such uncertainty in the future of rail funding in New Mexico, assessing a comprehensive list of options currently available is necessary.

[88] There are currently four RTDs in the state: North Central, Rio Metro, South Central, and Southwest RTD.

Available Federal Funding Sources

In addition to Federal funds currently used for rail as described in Section 5.2, there are several additional Federal funding sources available for commuter rail, intercity passenger rail, and freight rail improvements. Many of these are "traditional" funding sources available from surface transportation programs that are available through MAP-21. MAP-21 emphasizes formula grants over competitive discretionary grants and congressional earmarks. New and innovative Federal funding sources, including the HSIPR and the Transportation Investment Generating Economic Recovery (TIGER) grant program, represent an evolving Federal role in funding rail investments. Each of these traditional and new Federal funding sources is described in more detail below.

High Speed and Intercity Passenger Rail Program

The FRA HSIPR program provides Federal funding for high-speed and intercity passenger rail services. PRIIA created Chapter 244 of Title 49, which authorized the provision of direct funding to states to assist in financing the capital costs of facilities, infrastructure, and equipment necessary to provide or improve intercity passenger rail transportation. PRIIA authorized a total of $1.9 billion from FY 2009 through FY 2013. PRIIA is set to expire on September 30, 2013.

ARRA provided an additional $8 billion in funding for the HSIPR program. An additional $2.1 billion was appropriated in FY 2009 and FY 2010 for the HSIPR program, but the program has not been funded in any subsequent years. HSIPR grants are awarded on a competitive basis. New Mexico has submitted a number of unsuccessful applications under the HSIPR program to fund improvements to the rail lines owned by the State over which Amtrak operates.

Section 5337 State of Good Repair Grants

MAP-21 establishes a new grant program to maintain public transportation systems in a state of good repair. This program replaces the Fixed Guideway Modernization Program (49 U.S.C. 5309) in SAFETEA-LU. Section 5337 is the FTA's first stand–alone initiative dedicated to repairing and upgrading the nation's rail transit systems. These funds are available to state and local authorities in urbanized areas with fixed guide way public transportation facilities operating for at least seven years. Eligible projects are limited to replacement and rehabilitation or capital projects necessary to maintain public transportation systems in a state of good repair. Eligible capital projects are those that replace and rehabilitate: rolling stock, track, line equipment and structures, signals and communications, power equipment and substations, passenger stations and terminals, security equipment and systems, power maintenance facilities and equipment, and operational support and equipment, including computer hardware and software. Projects must be included in a transit asset management plan to be eligible for funding. Authorized funding for this program is $2.1 billion in FY 2013, $2.2 billion in FY 2014 and $5.5 million

annually in FY 2016 and FY 2017. Rail Runner is eligible for 5337 funds beginning in FY 2014 although funding is not expected to be allocated until 2015.

Section 5307 Urbanized Area Formula Funding Program

As described previously, the Urbanized Area Formula Funding program (49 USC 5307) provides funding for transit capital assistance, planning, and transit enhancements in urbanized areas. Funding is apportioned on the basis of legislative formulas, as described in 49 USC 5336. For areas like the City of Albuquerque with populations of 200,000 and more, the passenger rail formula is based on a combination of fixed guide way revenue miles, fixed guide way passenger miles, and population. Urbanized areas providing commuter rail service with a population of at least 750,000 receive a set percentage of the total Section 5307 funding at a minimum. As the Albuquerque urbanized area came in just below the 750,000 population threshold in the 2010 Census, no significant increases over the $7.8 million from FY 2013 are expected in future years.

Transportation Investment Generating Economic Recovery (TIGER) Grant Program

The Transportation Investment Generating Economic Recovery (TIGER) discretionary grant program was first included as part of the ARRA. Congress dedicated $1.5 billion for TIGER I and $600 million for TIGER II in the FY 2010 appropriations act. The FY 2011 and FY 2012 transportation appropriations also funded additional cycles of TIGER grant awards, totaling $527 million and $500 million respectively. Pursuant to the Full-Year Continuing Appropriations Act, 2013, the U.S. DOT is authorized to award $474 million TIGER Discretionary Grants. While the grants now are officially called National Infrastructure Investments, the U.S. DOT continues to refer to the grants as "TIGER Discretionary Grants" due to the similarities in the programs.

Eligible projects for funding under TIGER include road, rail, transit, and port projects that promise to achieve critical national objectives. Projects are often multimodal, multi-jurisdictional, or otherwise challenging to fund through existing programs. The minimum cost eligibility criteria for a TIGER Discretionary Grant is $10 million in urbanized areas and $1 million in rural areas. The FRA administers over $328 million in TIGER funds awarded in 22 projects through the FY 2012 appropriations, representing more than 10 percent of all TIGER funds awarded. Rail-related projects may be freight rail projects or high speed and intercity passenger rail projects. TIGER funds awarded through FY 2012 have been split about equally between freight rail and passenger rail projects.

Rail Line Relocation and Improvement Capital Grant Program

The Rail Line Relocation and Improvement Capital Grant Program (49 USC 20154), administered by the FRA, funds local rail relocation and improvement projects. Congress authorized this program in 2005 to assist in mitigating the

effects created by the presence of rail infrastructure. A state, or political subdivision of a state, is eligible for a grant for any construction project that improves the route or structure of the rail line. Since FY 2008, Congress has appropriated more than $90 million for the program. Congress did not appropriate any additional funding for the program in 2012 and all available funding has been awarded. NMDOT and other public agencies would be eligible applicants, but providing funding for projects on privately-owned rail is subject to the restrictions of the New Mexico State Constitution's Anti-Donation Clause.

Railroad Safety Technology Grant Program

Section 105 of RSIA authorized the Railroad Safety Technology Grant Program to facilitate the deployment of train control technologies, train control component technologies, processor-based technologies, electronically controlled pneumatic breaks, rail integrity inspection and warning systems, switch position indicators and monitors, remote control power switch technologies, rack integrity circuit technologies, as well as other new railroad safety technology. Funding for this program is $1.6 billion for FY 2009 through FY 2013 for rail safety technologies. RSIA is up for reauthorization on September 30, 2013.

Local Rail Freight Assistance Program

The Local Rail Freight Assistance (LRFA) program (49 USC 221) was authorized in 1989 (amending an earlier Local Rail Service Assistance program created in 1973) to help support states in continuation of rail freight service on abandoned light density lines. It also provides capital assistance for rehabilitation prior to abandonment of these lines. This program was a revolving loan program. While the LRFA remains as statute, Federal funds have not been appropriated for the program since 1994. As was required in the past and would be required if the program is funded again in the future, New Mexico's Anti-Donation Clause requires the State's shortline railroads to provide the local match for assistance.

Transportation Infrastructure Finance and Innovation Act

The Transportation Infrastructure Finance and Innovation Act (TIFIA) program (23 USC 601-609) provides Federal credit assistance in the form of direct loans, loan guarantees, and standby lines of credit to finance surface transportation projects of national or regional significance. Eligible applicants include state and local governments, transit agencies, railroad companies, special authorities, special districts, and private entities. The TIFIA credit program offers three types of assistance: secured (direct) loans, loan guarantees, and standby lines of credit. Rather than providing grant funding, TIFIA provides projects with supplemental or subordinate debt, in order to best leverage available Federal resources. Projects with dependable revenue streams are best suited for TIFIA loans. Under MAP-21, Congress authorized $1.75 billion in budget authority for the TIFIA program ($750 million in FY 2013 and $1 billion in FY 2014). As each dollar of budget authority can leverage an estimated $10 in lending capacity, TIFIA

should be able to offer approximately $17 billion in credit assistance established by the MAP-21 funding level.

Rail Rehabilitation and Improvement Financing

The Rail Rehabilitation and Improvement Financing (RRIF) program, authorized under the Railroad Revitalization and Regulatory Reform Act of 1976, as amended (45 U.S.C. 821 et seq.), provides direct, low-interest Federal loans and guarantees to finance development of railroad infrastructure. Congress has authorized up to $35 billion in loan authority, with $7 billion set aside for projects benefiting regional and shortline railroads. Railroads, rail freight shippers, and state and local governments are eligible to apply for RRIF loans. Loans provided under the program may be used to acquire, improve, or rehabilitate intermodal or rail equipment of facilities, including track, components of track, bridges, yards, buildings and shops; refinance outstanding debt incurred for the purposes listed above; and develop or establish new intermodal facilities. Direct loans can fund up to 100 percent of a railroad project. In the past, these loans have been used to repair and upgrade rail track and equipment, build new spur lines and add capacity, buy locomotives and rail cars, etc. The repayment term can be as long as 35 years and the loans have a relatively low interest rate. On average, three loans are approved and executed by FRA each year. Unlike the TIFIA program, Congress has not appropriated funds to offset the costs to the U.S. Treasury associated with RRIF loans, and so RRIF applicants must not only prove the ability to repay the loan amounts, but also to pay for the Federal credit costs of the loan through a credit risk premium.

CMAQ Program

The CMAQ program supports surface transportation projects and other related efforts that contribute air quality improvements and provide congestion relief. Jointly administered by FHWA and FTA, the CMAQ program provides authorizations to state DOTs and MPOs and their project sponsors for a growing variety of transportation-environmental projects. An apportioned program, each year's CMAQ funding is distributed to the states via a statutory formula based on population and air quality classification as designated by the EPA. The State of New Mexico receives flexible CMAQ funding and MRCOG, which serves as the MPO for the Albuquerque region, receives mandatory CMAQ funding for the Albuquerque regional carbon monoxide nonattainment area.

While CMAQ funds have not been used to fund capital improvements related to Rail Runner, the State of New Mexico used $50 million of its flexible CMAQ funding to support Rail Runner operations from 2006 through 2011. The congressional Omnibus Appropriations Act of 2009 included a provision that permits the permanent use of CMAQ funds to support Rail Runner operations between Belen and Bernalillo.

MAP-21 continues to make operating support for new and expanded passenger rail service an eligible use of CMAQ funds. These funds may be used for rail

projects that meet CMAQ goals of reducing highway traffic congestion and help meet Federal Clean Air Act requirements. MAP-21 established a five-year limit on the use of CMAQ funds for operating support for new and expanded services. FTA has issued interim guidance indicating entities such as Rail Runner which had permanent use of CMAQ funds under SAFETEA-LU will continue to be able to use CMAQ funds for operating support, but will be subject to the five year limit.

Rio Metro RTD has not requested or used any mandatory CMAQ funding that is provided to MRCOG for the Albuquerque non-attainment area for Rail Runner operations or capital projects.

Short Line Railroad Tax Credit

Section 45G of the Federal Internal Revenue Code, originally enacted in 2004, provides a tax credit of 50 cents for every dollar a short line railroad invests in track improvements. This credit is capped based on the number of miles of track a railroad owns. This program has been extended by Congress in one and two year increments and is presently set to expire on December 31, 2013.

Potential State and Local Funding Options

The New Mexico constitution's Anti-Donation Clause places severe and explicit restrictions on where and how State and local governments can spend money to benefit private entities such as railroads and the businesses that receive freight service by rail. State or local support of rail improvements that would benefit privately-owned railroads and/or private shippers is limited by the Anti-Donation Clause to providing land, buildings, or facilities to support new or expanding businesses that create new job opportunities, granted pursuant to general implementing legislation. The decision by the State to purchase the railroad on which Rail Runner was to be developed was driven in large part by concerns that the Anti-Donation Clause would significantly delay or even prevent the State from making improvements to the line necessary for Rail Runner if the line continued to be owned by BNSF. Improvements to privately-owned railroads to facilitate proposed publicly-owned passenger rail services in other parts of the State to be funded in whole or in part with State or local funds must also take the Anti-Donation Clause into account.

The State of New Mexico is shifting the future burden for financing Rail Runner operations and maintenance, capital maintenance, and capital improvements to the two regional transit districts that encompass the four counties in which Rail Runner operates, working primarily with Rio Metro RTD, the managing agency for Rail Runner. As of the end of FY 2013, the State has committed more than $840 million in capital development, debt service, and operations subsidies for Rail Runner, while the four counties that are directly served by Rail Runner have contributed a little over $50 million through local gross receipt taxes (GRT) passed to provide funding for Rio Metro RTD and North Central RTD. The local GRT is the only dedicated, permanent local funding source for Rail Runner and

is anticipated to provide $13 to $14 million annually over the next several years to Rail Runner, with the potential for growth as the region's economy expands.

With these restrictions in mind, this section identifies potential State and local funding sources that could be considered to support rail investments. Some of these revenue sources are currently in use in New Mexico, but allocated to other uses.

Regional Transit District Funding

The 2003 Regional Transit District Act authorized the creation of RTDs in New Mexico comprised of one or more units of government. An RTD may operate transit service or finance transit-related capital projects within and outside its boundaries.

In 2004, RTDs were given the authority to impose GRTs in the counties that comprise the RTD, subject to a majority vote in a special joint election or general election where the tax question appears on the ballot in all units of government within the RTD. Each RTD may assess taxes within its district up to 0.5 percent of the gross receipts of its district that may be collected as GRT. Based on voter approval of a November 4, 2008, ballot measure, the Rio Metro RTD and North Central RTD each collect GRT of 0.125 percent, with the four counties served by Rail Runner contributing half of that amount to Rail Runner and the remaining half to other transit services. Rio Metro's GRT is in effect in perpetuity. North Central RTD's GRT will sunset on June 30, 2024, unless the voters of the NCRTD approve an extension. Each RTD has the authority to increase its GRT to support Rail Runner, to increase the proportion of GRT revenues collected that go to Rail Runner, or take both of these actions. The RTDs may also increase their current GRT rate in increments of at least one-sixteenth percent, subject to the 0.5 percent maximum, with the approval of the RTD electorate at a general or special election.

Additionally, each RTD may issue bonds for the purpose of financing the purchase, construction, renovation, equipping or furnishing of a regional transit system project. These bonds must have a dedicated revenue stream pledged to support payment of principal and interest on the bonds.

Tax Increment Financing

Tax increment financing (TIF), also known as value capture, collects the local government tax revenues associated with property value increases from transportation improvements and assigns these to a TIF district that is a political subdivision of the State. When a TIF district is created, future property tax proceeds beyond a certain base rate accrue to the TIF district instead of other local governments. These proceeds can be used to pay for public infrastructure improvements in the TIF district. Using this mechanism, transportation beneficiaries contribute to system improvements. The cost of infrastructure is

paid, partially or in full, by the properties that are deemed to benefit from the infrastructure.

The New Mexico Legislature has approved legislation that enables creation of TIF districts or their equivalent. Most New Mexico TIF district-enabling legislation limits investments to public benefits such as roadways, utilities, and sewers, or restricts investments to land owned by the TIF district. Two current statutes authorize local governments to create districts that may invest in rail: the Municipal Improvement District Act (NMSA 3-33) and the County Improvement District Act (NMSA 4-55A). Improvement districts created by these statutes may construct, acquire, repair or maintain "railroad spurs, railroad tracks, railyards, rail switches and any necessary real property" in addition to roadways, utilities, sewers, and flood control projects.

Statewide Transit Fund

Establishing a statewide transit fund to benefit public transit in New Mexico and enabling it to also fund commuter rail was one proposal raised by stakeholders. A statewide transit fund would be funded by directing certain specified statewide revenues into it. A bill to create a statewide transit fund was introduced in the Legislature in 2009 but did not pass. That bill prohibited use of the proposed statewide transit fund to support commuter rail. One of the objections to the bill was that the Regional Transit District Act already provides counties that desire to fund their own public transit needs with a means to do so.

Public-Private Partnerships

Public-private partnerships (PPP) involve contracts among private and public sector partners. The U.S. DOT defines PPPs as "contractual agreements formed between a public agency and a private sector entity that allow for greater private sector participation in the delivery and financing of transportation projects."[89] There are many different types of PPP arrangements with varying degrees of private sector responsibility, including financial risk. Private firms could take revenue risk in building and operating a transportation facility or could contribute equity financing to leverage other public and private investments. In California, Wisconsin, and Washington, for example, freight railroads have contributed to passenger railroad improvements that have also enhanced freight rail capacity. Alternatively, Wisconsin and North Carolina have intercity passenger rail stations constructed and improved by private firms that have development rights at the station. PPPs can provide substantial benefits in terms of accelerating project development and construction, providing more efficient operation and superior service, and introducing new technologies.

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[89] U.S. Department of Transportation, Federal Highway Administration, Innovative Program Delivery. http://www.fhwa.dot.gov/ipd/p3/faqs/index.htm

NMDOT would require additional statutory authority from the State Legislature in order to pursue rail public-private partnership ventures, even if such ventures were found to be allowable within the Anti-Donation Clause restrictions. Providing public funds to privately owned railroads for improvements is severely impaired by the Anti-Donation Clause. As discussed in Chapter 3, the Anti-Donation Clause stems from a time of heavy investment by the public sector to build railroads. States, counties, and municipalities that made investments would find themselves responsible for bonds when the railroads went bankrupt or were never built. In order to curb this issue, New Mexico and many other states included an anti-subsidy provision into the State's constitution. Many states have since amended or repealed these clauses and have made investments in rail where there is a demonstrated public and private benefit. New Mexico, however, has not amended its Anti-Donation Clause.

Another form of public-private partnership is permitted by the Anti-Donation Clause through the Local Economic Development Act. The State or a local government may provide public funding for land, buildings, or infrastructure if that funding will allow a private entity to create private-sector jobs. As an example, the State could construct rail improvements or facilities if doing so would entice a railroad to expand its operations in the State and move employees to New Mexico.

Private Investment

Due to the Anti-Donation Clause in the New Mexico constitution, the State and its political subdivisions are severely limited in financially assisting private railroads. Private investment remains the main source of funding in New Mexico and the State benefits from private railroad investment. NMRX is the only publicly-owned freight carrying railroad in the State. The AAR estimates a $24.5 billion investment by the nation's major freight railroads in 2013 to maintain and upgrade the nation's freight rail networks. Examples of private investment are intermodal terminals that facilitate truck to train freight transport, new track, bridges and tunnels, modernized safety equipment, and new locomotives and rail cars. The State of New Mexico will benefit from a $400 million investment by UP to build an intermodal yard in Santa Teresa that UP estimates will have a $500 million impact on the New Mexico economy and become the home for 600 permanent jobs.[90] BNSF is currently working with the Navajo Nation to build a transloading center in Thoreau and with the owners of the former Gamerco property northwest of Gallup to build an inland port facility. With the growth of hydraulic fracturing in the region, railroads serving New Mexico are seeing a surge in crude oil traffic and increased private investment and local economic

[90] Union Pacific Railroad, Santa Teresa Fact Sheet. http://www.up.com/newsinfo/attachments/media_kit/regional/western/santa_teresa/santa-teresa_factsheet.pdf

development. Specifics of private railroad investments are not typically revealed in advance by railroads.

Locomotive Fuel Tax Deduction

A GRT deduction for railroad fuel was adopted by the 2011 Legislature to encourage the development of a new railroad refueling facility in southern New Mexico. The legislation aims to encourage rail industry growth and spur more exports and manufacturing in the State as well as local economic investment. To qualify for the deduction, a business must have made a capital investment in railroad infrastructure that meets certain criteria. Under this legislation, after July 1, 2011, any railroad that made a capital investment of $100 million or more in new construction or renovations at the railroad locomotive refueling facility in which the fuel is sold qualified for this deduction. UP committed $400 million dollars to an intermodal rail facility/inland port outside of Santa Teresa, NM which will serve as a strategic focal point for goods movement. Construction began in 2011 and is expected to be completed in 2015.

In 2013, State legislation was enacted to enable railroads operating in the State to also receive the GRT deduction if they invest at least $50 million in new railroad infrastructure improvements on or after July 1, 2012, including railroad facilities, track, signals, and supporting railroad network located in New Mexico. It is expected that BNSF will meet this criteria and qualify for the locomotive fuel tax deduction beginning July 1, 2013. There are no known plans for any Class III railroads to meet these conditions.

Summary

Many of the Federal, State, and local funding options described above are not practical sources of revenue for New Mexico rail investments, due either to a lack of funding appropriations at the Federal level or to restrictions imposed by the Anti-Donation Clause in the New Mexico Constitution on expenditures benefiting private entities at the State and local level.

In the short term, Rail Runner will rely on Section 5307 and Section 5337 formula grants as well as revenue generated by the local GRT taxes levied by the Rio Metro RTD and North Central RTD for public funding. Emphasis will be placed on maintaining Rail Runner assets in a state of good repair and a safe condition, and complying with Federal mandates such as Positive Train Control requirements. The RTDs that fund Rail Runner also have the opportunity, with the approval of the RTD's electorate, to increase the GRT rate dedicated to Rail Runner. These same sources would be available for long-term support of any proposed new commuter rail services in New Mexico, but identifying funding sources for the initial development of such services is problematic.

New freight rail lines and facilities would primarily be funded through private sources, perhaps assisted by targeted tax breaks that would not take effect until specific investments are made, with Federal assistance for the major projects a

possibility even where the Anti-Donation Clause prohibits State or local government contributions.

An additional factor that complicates the future of rail service in New Mexico, especially Amtrak and commuter rail service, is the short- and long-term uncertainty of Federal funding for rail projects and operations. MAP-21, which did not include a rail title, is a two-year authorization bill that must be renewed, extended, or revised to continue several FTA funding programs for passenger rail. Similarly, the two primary rail authorization bills, PRIIA and RSIA, are scheduled to expire September 30, 2013, and there is no clear consensus regarding the future of the programs and mandates established under these rail authorizing acts.

6.0 Long-Range Service and Investment Program

The final product of the New Mexico State Rail Plan is a prioritized list of projects and investments that combines the system needs and potential improvements identified in Chapter 4 with the available funding sources identified in Chapter 5. This chapter presents the methodology developed to prioritize potential freight and passenger rail projects throughout the State, taking into account the potential public and private benefits of each project. Comparing the prioritized project list against a realistic assessment of available rail funding, the chapter also presents a fiscally-constrained, long-range rail service and investment program. A supplemental program of prioritized unfunded projects is also discussed. The implications of limited Federal funding on the ability of New Mexico to undertake future rail investments are also discussed. Lastly, items identified as objectives in Chapter 1 that are not included in the prioritized list of projects are discussed.

6.1 PROJECT PRIORITIZATION METHODOLOGY

To evaluate the proposed rail projects identified in Chapter 4, NMDOT developed a transparent methodology to prioritize projects for inclusion in the long-range service and investment program. To develop a qualitative prioritization matrix, NMDOT identified nine evaluation categories that address a full range of public and private benefits from potential investment in future freight and passenger rail projects. These evaluation categories are summarized in Table 6.1. Using a qualitative assessment or objective analysis of a project's expected performance, each project was assigned a rating of High (10 points), Medium (7 points), Low (4 points), or None/Not applicable (0 points) for each category.

Table 6.1 Prioritization Matrix Evaluation Categories

Evaluation Category	Example Benefits/Evaluation Criteria
Statewide Benefits	• Job creation • Tax revenues • Economic growth • Expanded system capacity
Community Benefits	• Reduced roadway congestion • Noise/vibration mitigation • Enhances local aesthetics, business access • Effects on environmental justice (EJ) communities • Effects on emergency response access
Safety and Security Benefits	• Reduces collisions (vehicle-vehicle, vehicle-train) • Enhances pedestrian and bicycle safety • Hazardous materials safety • Security, natural disaster response
Environmental Benefits	• Fuel consumption • Air quality • Impacts on natural resources
Shipper Benefits	• Faster, more reliable freight service • Access to freight rail service • Shipper cost savings
Rail Passenger Benefits	• System connectivity • Travel cost reductions • Travel time savings • Passenger rail capacity
Railroad Benefits	• System velocity improvements • Train delay, yard dwell time reductions • Operational cost savings • Equipment utilization, revenue increases
Mandatory Requirements	• Federal safety requirement • Capital maintenance requirements for current operations • Operational costs for existing services
Project Status	• Leveraging multiple funding sources • Funding Availability • Ongoing State/local expenses • Project readiness, environmental clearance

Each evaluation category was then assigned a weight reflecting its relative importance as a contribution to a proposed project's overall "qualitative score." Stakeholder feedback collected during the development of the rail plan was an important consideration when assigning weights to each category. The same weighting scale, shown in Table 6.2, was applied consistently to all projects.

Table 6.2 Weighted Priorities of State Rail Investments

Evaluation Category	Assigned Weight	Rationale
Statewide Benefits	20	Statewide and community benefits are weighted equally to show a balance and reflect that State tax-funded rail investments should have some kind of statewide benefit.
Community Benefits	20	Equivalent to statewide benefits to show a balance, while reflecting the importance of community to neighborhoods and tribes.
Safety and Security Benefits	10	Encompasses a fairly wide description of potential safety and security benefits.
Environmental Benefits	10	Diffuse benefits distinguished from localized effects of community concerns (noise, aesthetics).
Shipper Benefits	10	Both reflecting private benefits, shipper and railroad benefits are weighted equally. In combination, shipper and railroad weights are equal to the rail passenger weight.
Rail Passenger Benefits	20	Highly weighted to reflect the interest of NM stakeholders and elected officials in passenger rail issues as well as the State's recent investments in intrastate passenger rail.
Railroad Benefits	10	Small weight because it involves use of public finance for private sector benefit (restricted by the New Mexico Anti-Donation Clause).
Mandatory Requirements	30	Highly weighted to reflect projects tied to Federal mandates or investments required to maintain current assets and operations.
Project Status	20	Recognizes the advantages of project readiness, funding availability, environmental clearance, and/or leveraged funds from multiple sources to advance a project toward implementation.
Total	150	

The project scoring matrices shown in Tables 6.3 through 6.5 for proposed freight rail, intercity passenger rail, and commuter rail improvement projects, respectively, combine the qualitative ratings for each category with the category weights to generate a composite score for each project. The maximum composite score for a project is 1,500, though the range of actual scores ranged from 680 (NMRX – PTC implementation) to 120 (Upgrade Rail Runner alignment to Class 5).

Table 6.3 Project Scoring Matrix – Proposed Freight Rail Improvement Projects

	Statewide	Community	Safety	Environ-mental	Shipper	Rail Passenger	Railroad	Mandatory	Project	Composite Score
Capacity Improvements										
BNSF – Double track Vaughn	0	0	0	0	4	0	10	0	7	280
BNSF – Double track Fort Sumner	0	0	0	0	4	0	10	0	7	280
NMRX – Chloe Siding reconstruction	0	0	0	0	0	4	7	0	4	230
Facilities and Operations										
Santa Teresa border crossing	7	0	4	0	7	0	4	0	4	370
Navajo Energy Hub at Thoreau	4	0	0	4	4	0	4	0	4	280
Gamerco Logistics Hub	4	0	0	4	4	0	4	0	4	280
Peru Mill rail improvements	4	4	0	0	4	0	4	0	0	240
Freight service for Spaceport	0	4	4	4	4	0	4	0	0	240
Freight rail – Farmington freight rail link	4	0	0	4	7	0	4	0	0	230
Permian Railways extension at Hobbs	4	0	0	0	4	0	4	0	0	160
Safety Improvements										
BNSF – PTC implementation	4	0	10	0	0	0	4	10	7	660
UP – PTC implementation	4	0	10	0	0	0	4	10	7	660
AZER – PTC implementation	0	0	4	0	0	0	0	10	7	480

Qualitative Rating Key:	High 10	Medium 7	Low 4	None/Not Applicable 0

Table 6.4 Project Scoring Matrix – Proposed Intercity Passenger Rail Improvement Projects

	Statewide	Community	Safety	Environ-mental	Shipper	Rail Passenger	Railroad	Mandatory	Project	Composite Score
Track and Signal Improvements										
Power switch machines – Lamy	0	0	0	0	0	4	4	0	4	200
Rehabilitate Albuquerque wye	0	0	0	0	0	4	4	0	4	200
Track and Signal Improvements – Lamy to Colorado State Line	0	0	0	0	0	4	4	0	4	200
CTC- CP Madrid to Lamy	0	0	4	0	0	4	4	0	0	160
Tie replacement – CP Madrid to Lamy	0	0	4	0	0	4	4	0	0	160
Station Improvements										
Amtrak Station Improvement – Deming	0	4	4	0	0	4	0	0	0	200
Amtrak Station Improvement – Lordsburg	0	4	4	0	0	4	0	0	0	200
Proposed New Service										
High Speed Rail – El Paso to Denver	4	4	0	0	0	4	0	0	0	240

Qualitative Rating Key:	High 10	Medium 7	Low 4	None/Not Applicable 0

Table 6.5 Project Scoring Matrix – Proposed Commuter Rail Improvement Projects

	Statewide	Community	Safety	Environ-mental	Shipper	Rail Passenger	Railroad	Mandatory	Project	Composite Score
Track and Signal Improvements										
NMRX Capital maintenance	0	0	4	0	4	4	0	10	4	540
NMDOT Bridge Management Plan	0	0	7	0	0	0	4	10	4	490
CTC – Abajo to Hahn	4	0	4	0	0	4	7	0	4	350
NMRX – Double track Hahn to El Pueblo	0	0	4	0	0	7	7	0	4	330
Tie replacement – Hahn to Waldo tie replacement	0	0	4	0	4	4	7	0	4	310
NMRX – Siding – Alameda siding	0	0	0	0	0	7	7	0	4	290
Continuous welded rail – Hahn to Bernalillo	0	0	0	0	4	4	7	0	4	270
NMRX – Siding – Los Lunas siding rehabilitation	0	0	0	0	0	4	7	0	4	230
NMRX – Siding – Isleta siding to CP Abajo	0	0	0	0	0	4	7	0	4	230
NMRX – Siding- Richardson siding to Faught siding	0	0	0	0	0	4	7	0	4	230
NMRX – Siding – Bernalillo siding to Herzog siding	0	0	0	0	0	4	4	0	4	200
NMRX – Siding – Domingo siding to Silva siding	0	0	0	0	0	4	4	0	4	200
NMRX – Siding – Herzog siding to Domingo siding	0	0	0	0	0	4	4	0	4	200
NMRX – Siding – Silva siding to Richardson siding	0	0	0	0	0	4	0	0	4	160
NMRX – Santa Fe Railyard capacity – Storage	0	0	0	4	0	0	4	0	4	160

	Statewide	Community	Safety	Environ-mental	Shipper	Rail Passenger	Railroad	Mandatory	Project	Composite Score
Upgrade Rail Runner alignment to Class 5	0	0	0	0	0	4	4	0	0	120
Safety Improvements										
NMRX – PTC implementation	4	0	10	0	0	4	4	10	4	680
Station Improvements										
Rail Runner platform extensions	0	0	0	0	0	7	4	0	7	320
Rail Runner station parking capacity increases and relocation	0	4	0	0	0	4	0	0	7	300
Proposed New Commuter Rail Service										
Commuter Rail – Las Cruces to El Paso	4	4	4	4	4	4	4	0	0	400
Commuter Rail – Eldorado to Santa Fe	0	4	0	4	0	4	0	0	0	200
Commuter Rail – Taos to Santa Fe via Espanola	0	4	0	0	0	4	0	0	0	160
Commuter Rail – Gallup to Albuquerque	0	4	0	0	0	4	0	0	0	160
Commuter Rail – Raton and Las Vegas to Santa Fe	0	4	0	0	0	4	0	0	0	160

Qualitative Rating Key:	High 10	Medium 7	Low 4	None/Not Applicable 0

6.2 LONG-RANGE RAIL INVESTMENT PROGRAM

Table 6.6 presents a comprehensive list of the proposed rail improvement projects sorted by total composite score. Several factors affect the prioritization of potential railroad projects for the State of New Mexico. These are:

- The need to maintain the State's existing railroad infrastructure in a state of good repair;
- The need to comply with Federal safety mandates;
- Limited overall available public funding from Federal, State and local sources;
- Restrictions on the types of projects on which Federal funding can be used; and
- The restrictions imposed by New Mexico's Anti-Donation Clause against State and local spending on private railroads.

Table 6.6 Project Prioritization Matrix

Project Name	Project Category	Composite Score	Project Cost ($million)
NMRX – PTC implementation	Commuter Rail – Safety	680	$30.0
BNSF – PTC implementation	Freight Rail – Safety	660	$77.3
UP – PTC implementation	Freight Rail – Safety	660	$53.3
NMRX Capital maintenance	Commuter Rail – Track & Signal Improvements	540	$2.5 annually
NMDOT Bridge Management Plan	Commuter Rail – Track & Signal Improvements	490	$20.0
AZER – PTC implementation	Freight Rail – Safety	480	$0.2
Commuter Rail – Las Cruces to El Paso	Commuter Rail – New Service	400	$900.0
Santa Teresa border crossing	Freight Rail – Facilities and Operations	370	$150.0
CTC – Abajo to Hahn	Commuter Rail – Track & Signal Improvements	350	$5.2
NMRX – Double track Hahn to El Pueblo	Commuter Rail – Track & Signal Improvements	330	$12.0
Rail Runner platform extensions	Commuter Rail – Station Improvements	320	$5.0
Tie replacement – Hahn to Waldo tie replacement	Commuter Rail – Track & Signal Improvements	310	$8.0
Rail Runner station parking capacity increases and relocation	Commuter Rail – Station Improvements	300	$2.6

Project Name	Project Category	Composite Score	Project Cost ($million)
NMRX – Siding – Alameda siding	Commuter Rail – Track & Signal Improvements	290	$6.5
BNSF – Double track Vaughn	Freight Rail – Capacity Improvements	280	$31.3
BNSF – Double track Fort Sumner	Freight Rail – Capacity Improvements	280	$17.4
Navajo Energy Hub at Thoreau	Freight Rail – Facilities and Operations	280	$21.0
Gamerco Logistics Hub	Freight Rail – Facilities and Operations	280	$15.0
Continuous welded rail – Hahn to Bernalillo	Commuter Rail – Track & Signal Improvements	270	$7.2
Peru Mill rail improvements	Freight Rail – Facilities and Operations	240	$5.5
Freight service for Spaceport	Freight Rail – Facilities and Operations	240	$6.6
High Speed Rail – El Paso to Denver	Intercity Rail – New Service	240	$45,000.0
NMRX – Siding – Los Lunas siding rehabilitation	Commuter Rail – Track & Signal Improvements	230	$5.9
NMRX – Siding – Isleta siding to CP Abajo	Commuter Rail – Track & Signal Improvements	230	$3.4
NMRX – Siding- Richardson siding to Faught siding	Commuter Rail – Track & Signal Improvements	230	$1.2
NMRX – Chloe Siding reconstruction	Freight Rail – Capacity Improvements	230	$6.0
Freight rail – Farmington freight rail link	Freight Rail – Facilities and Operations	230	$553.0
Commuter Rail – Eldorado to Santa Fe	Commuter Rail – New Service	200	$48.0
NMRX – Siding – Bernalillo siding to Herzog siding	Commuter Rail – Track & Signal Improvements	200	$3.4
NMRX – Siding – Domingo siding to Silva siding	Commuter Rail – Track & Signal Improvements	200	$3.4
NMRX – Siding – Herzog siding to Domingo siding	Commuter Rail – Track & Signal Improvements	200	$3.4
Amtrak Station Improvement – Deming	Intercity Rail – Station Improvements	200	$0.6
Amtrak Station Improvement – Lordsburg	Intercity Rail – Station Improvements	200	$0.6
Power switch machines – Lamy	Intercity Rail – Track and Signal Improvements	200	$0.5

Project Name	Project Category	Composite Score	Project Cost ($million)
Rehabilitate Albuquerque wye	Intercity Rail – Track and Signal Improvements	200	$3.4
Track and Signal Improvements – Lamy to Colorado State Line	Intercity Rail – Track and Signal Improvements	200	$3.8
Commuter Rail – Taos to Santa Fe via Espanola	Commuter Rail – New Service	160	$725.0
Commuter Rail – Gallup to Albuquerque	Commuter Rail – New Service	160	$100.0
Commuter Rail – Raton and Las Vegas to Santa Fe	Commuter Rail – New Service	160	$454.0
NMRX – Siding – Silva siding to Richardson siding	Commuter Rail – Track & Signal Improvements	160	$3.4
NMRX – Santa Fe Railyard capacity – Storage	Commuter Rail – Track & Signal Improvements	160	$0.9-$2.5
Permian Railways extension at Hobbs	Freight Rail – Facilities and Operations	160	$90.0
CTC- CP Madrid to Lamy	Intercity Rail – Track and Signal Improvements	160	$23.3
Tie replacement – CP Madrid to Lamy	Intercity Rail – Track and Signal Improvements	160	$3.9
Upgrade Rail Runner alignment to Class 5	Commuter Rail – Track & Signal Improvements	120	$15.0

Passenger Rail

The absence of appropriations at the Federal level since fiscal year 2010 for intercity passenger rail and railroad safety projects and the presumed continuation of this in future Federal budgets simplifies the process of prioritizing projects. Projects that are not mandated or that are not necessary to maintain State-owned railroad lines in a state of good repair are unlikely to occur in the next five years. New Mexico does not anticipate pursuing either new commuter rail services or intercity passenger rail services in the foreseeable future. Neither the demand for such service or funding for building and operating such service is available currently or during the planning horizon of this plan.

The New Mexico Rail Runner Express has transitioned funding for capital needs from State funding to FTA formula grants with local matches provided by the GRT dedicated to the two RTDs served by Rail Runner. Rail Runner has also transitioned from having the State be responsible for providing local funding to having Rio Metro provide these funds. These changes coincide with a shift in the priority of Rail Runner capital expenditures from providing new and expanded services and facilities to maintaining the existing infrastructure in a state of good repair. NMDOT and Rio Metro will jointly develop a five-year capital

maintenance and capital improvement plan that will be reviewed annually and updated at least every two years. FTA Urbanized Area Formula Grants (Section 5307) and State of Good Repair Grants (Section 5337) should provide the funding necessary to keep the existing infrastructure in a state of good repair over the next five years. Rail Runner's funding challenge over the next several years will be finding sufficient local funds to cover both its operating expenses and its local match obligations for FTA formula grants. Revenues collected by the dedicated GRT presently have historically been used to cover half the operating expenses of Rail Runner and the NMRX rail lines.

Freight Rail

The expansion to the State's rail system that is occurring is primarily on the freight side, utilizing private funding. Growth in oil production in the Permian Basin has resulted in booming business for the Texas-New Mexico Railroad, both in shipping in oilfield supplies and in shipping out crude oil by rail, with TNMR now shipping unit trains of crude oil from Lea County. The Southwestern Railroad's Carlsbad Division is also benefiting from this boom, and has begun shipping oil by rail as well. The State's northwest corner appears ready to experience major growth in crude oil extraction, and major new transshipment facilities are expected to open in Thoreau and Gallup over the next two to three years. BNSF, shippers, the Navajo Nation, and economic development agencies in northwest New Mexico and at the State level are working to determine whether building a potential rail line to the Farmington area from the BNSF Transcon is feasible. A Farmington rail line would be a long-term project, as even if it is determined to be feasible construction of the line would be at least a decade away.

At the national level, both BNSF and UP are working to improve the capacity of their major rail lines through New Mexico. BNSF completed double tracking of the Transcon through Abo Canyon in 2011 and has plans to ultimately double track the remaining two single track sections in Fort Sumner and Vaughn. UP is constructing a major new facility near Santa Teresa that will relieve stress on both its El Paso and Southern California yards. Internationally, Mexico and the United States are looking to open a new rail port of entry near Santa Teresa.

The public role in these freight rail projects will primarily be in ensuring that public infrastructure, such as roadway facilities, is adequate to meet the demands of these facilities and their associated economic activity.

6.3 SUPPLEMENTAL PROGRAM OF PRIORITIZED UNFUNDED PROJECTS

Unless there are significant new public funding sources identified, it is expected that the only publicly-funded projects that will be undertaken during the next five years are those with a composite score above 400. Planning activities will continue for the proposed Santa Teresa border crossing and may resume for the

proposed Las Cruces to El Paso commuter rail line, but neither project is expected to see ground breaking during the next five years.

With the exception of the Federal PTC mandate, no privately funded projects had composite scores that exceeded 400. There are a number of privately funded projects with composite score below 400 that are likely to occur within the next five years, however. Precise schedules for privately funded projects are generally not shared with public entities until ground breaking is imminent. While BNSF and UP have identified capacity expansions on their major corridors as priorities, each railroad will prioritize its own projects after considering its other needs, expected trends in shipping demand, and the overall budget available for capital investment. Although projects such as the Navajo and Gamerco freight facilities are expected to become reality in the next few years, neither project has advanced to the final design stage nor has its funding plan been completely developed.

6.4 ITEMS EXCLUDED FROM THE PRIORITIZATION

Some of the rail objectives identified in Chapter 1 do not lend themselves to categorization as projects to be ranked in the prioritization. These include promoting rail-related tourism, implementation of safety-related measures other than PTC that are identified in RSIA, and efforts to improve rail security. Additionally, proposed highway-rail grade separations and quiet zones were excluded from the prioritization as there were a number of such projects proposed and it is not the function of this State Rail Plan to establish priorities for these types of projects.

Rail-Related Tourism

The New Mexico Department of Tourism web site includes many pages promoting railroads in New Mexico:

- The narrow gauge C&TS Railroad has its own page on the web site and is also featured on the "Ride the Rails of New Mexico" page and the Village of Chama page;
- The J-9 Narrow Gauge Scenic Byway between Dulce and the Colorado border, which parallels approximately 10 miles of the abandoned narrow gauge railroad alignment that once linked Chama and Durango, Colorado, is featured on the Parks & Byways page of the web site. The C&TS is working to have the scenic byway designation extended to the entire route of the narrow gauge railroad from Chama to Durango;
- Rail Runner has its own page on the web site and is also featured on the "Ride the Rails of New Mexico" page and on the Public Transportation page;

- The silver spike in Deming, where the nation's second transcontinental railroad was completed, is featured on the Deming page and on the "Ride the Rails of New Mexico" page;
- The Harvey House restaurants and hotels that served rail passengers throughout New Mexico and the west for decades are also featured on many pages; and
- Amtrak depots and service are noted on a number of pages.

Safety-Related Measures in RSIA

RSIA included a number of safety-related measures in addition to the PTC requirement. Many of these measures either require no significant capital outlays, apply only to certain classes of railroads, require issuance of final rules from FRA before railroads can take steps to comply, or some combination of the above. New Mexico railroads are all taking the necessary steps to comply with these RSIA requirements. Key elements of RSIA that affect New Mexico railroads include:

- A railroad safety risk reduction program that systematically evaluates railroad safety risks and manages those risks in order to reduce the numbers and rates of railroad accidents, incidents, injuries and fatalities is required of Class I railroads, railroad carriers that provide intercity rail passenger or commuter rail passenger transportation, or railroad carriers determined by the U.S. DOT Secretary as having inadequate safety performance. No New Mexico railroads have been identified as having inadequate safety performance.
- All railroads are required to keep the national crossing inventory of public and private railroad crossings maintained by FRA current, with updates provided at least annually. Inventory records must identify the warning devices and signage at each crossing.
- All railroads are required to establish and maintain a toll-free telephone service for rights-of-way over which they dispatch trains to directly receive calls reporting malfunctions of signals, crossing gates, and other safety devices at grade crossings, disabled vehicles blocking railroad tracks at grade crossings, obstructions of view, or other safety information involving such grade crossings and to immediately contact trains operating near the grade crossing to warn them of the malfunction or disabled vehicle. Signage must be placed at each grade crossing providing the toll-free telephone number that lists the national crossing inventory number and the purpose of the signage.
- All railroad owners are required to adopt a bridge safety management program to prevent the deterioration of railroad bridges and reduce the risk of catastrophic bridge failure. The bridge safety management program must identify the load capacity of each bridge, include annual inspections of all railroad bridges documenting the conditions of each bridge, develop written procedures to ensure that bridges are not loaded beyond their capacities, and

maintain records of the design documents of each bridge and documentation of all repairs, modifications, and inspections of each bridge.

Rail Security

Specific rail security issues were not identified by stakeholders in developing the Rail Plan, but are important nonetheless. New Mexico's role as a pass-through State for two major east-west freight corridors makes preventing disruptions to service on these corridors from terrorism or sabotage important to the national economy. The international rail gateway in El Paso and proposed international rail gateway in Santa Teresa also raise issues of the conflict between rail freight security and the need to minimize costly delays in freight movements. The U.S. Department of Homeland Security and the New Mexico Department of Homeland Security and Emergency Management each work with New Mexico railroads on security issues.

For Rail Runner, passenger security at stations and on trains is critical to providing a safe, secure, and welcome environment for passengers. Multiple cameras are installed at each station to enhance security, and call buttons are located on station platforms that passengers can use to connect with the NMRX dispatcher in the event of an emergency. Rail Runner does not have its own police force, and relies on local police departments to act as first responders and the New Mexico State Police for investigations.

Grade Separations

Several proposed highway-rail grade separation projects were identified during the course of developing the New Mexico State Rail Plan. These generally have been proposed by local constituencies seeking to eliminate delays at grade crossings on the State's busiest rail lines. The cost of a single grade separation greatly exceeds the entire annual $1.5 million budget of the State's Section 130 grade crossing hazard elimination program, so that is not a viable funding source for grade separations. While there are safety benefits to railroads and to motor vehicles from eliminating highway-rail grade crossings, potential grade separations that have been submitted for funding through the HSIP have not been rated highly enough for their safety benefits to receive funding. As such, specific proposed highway-rail grade separation projects are not identified, evaluated, or prioritized in the New Mexico State Rail Plan.

Quiet Zones

FRA rules require that all trains begin sounding train horns a half mile from each grade crossing to alert vehicles that a train is approaching, even if the crossing is equipped with active warning devices that detect the approaching train. The rule includes an exception to this if the public roadway authority responsible for the roadway crossing the railroad equips the crossing with supplemental safety measures such as installing four quadrant gates or extended raised medians on the approaches to the crossing that prevent vehicles from maneuvering around

the gates when they are down. These supplemental safety measures must be submitted to FRA for review and approval or denial, and the affected railroad(s) may indicate their support for or opposition to the proposed quiet zone during this process.

Railroads carefully review quiet zone applications to determine whether the supplemental safety measures taken to establish the quiet zone will not create hazards for trains and the general public, as eliminating the requirement that train horns be sounded while approaching crossings makes crossings less safe. Additionally, while establishing a quiet zone is supposed to transfer liability for damages from collisions at grade crossings to the roadway authority, railroads note that this transfer of liability has not been tested in the courts.

The issuance of the FRA quiet zone rule coincided with the inauguration of Rail Runner service in 2006. Safety improvements were made to a number of crossings on the Rail Runner alignment, using funds appropriated through the New Mexico Legislature's capital outlay process, which established quiet zones along the Rail Runner alignment to reduce the noise impact of trains on surrounding neighborhoods. There is ongoing interest in other communities for creating quiet zones, both on the Rail Runner alignment and on other New Mexico railroads, with several proposed quiet zones identified during the process of developing the New Mexico State Rail Plan. There are no established criteria for ranking the relative merit of proposed quiet zones in the New Mexico State Rail Plan, either against other quiet zones or against other rail-related improvements. The success of individual quiet zone proposals depends on a number of factors, such as the cost of providing the supplemental safety measures, whether or not the railroad opposes the creation of the quiet zone, the presence of private crossings in the vicinity of the quiet zone, and in many cases the ability of local legislators to appropriate money through the capital outlay process to install the supplemental safety measures to create the quiet zone.

A. Glossary

Abandonment: The discontinuance of service on a rail line segment, with no intention of resuming that service.

Active warning devices: Traffic control devices that give positive notice to highway users of the approach or presence of a train. These devices may include a flashing red light signal (a device which, when activated, displays red lights flashing alternately), a bell (a device which, when activated, provides an audible warning, usually used with a flashing red light signal), automatic gates (a mechanism added to flashing red light signals to provide a cantilevered arm that can lower across the lanes of the roadway equipped with flashing red light signals and extending over one or more lanes of traffic).

Amtrak: Name for the National Rail Passenger Corporation, a government-subsidized railroad created by the Rail Passenger Service Act of 1970.

Automatic Block System (ABS): A series of signals that control blocks of track between the signals. The signals automatically detect track occupancy by way of a low-voltage current running through the track and protects following trains traveling in a signaled direction. Unlike CTC signals, ABS system signals are not centrally controlled.

Automatic Train Stop (ATS): This alerts an engineer when a decrease in speed is necessary. ATS inductors are magnetically set up so that when there is no power, they are inert. When an ATS-equipped train passes its ATS shoe over the inert inductor, it receives a magnetic signal which sets off an alarm in the cab. If the engineer does not acknowledge this alarm within five to ten seconds, the Pneumatic Control Switch opens, dropping the engine's load and applying a full set to the brakes, forcing the train to stop.

Automotive ramp facility: A terminal where motor vehicles are transferred between rail and highway modes.

Block Register Territory (BRT): Typically used on branch lines normally occupied by one train at a time, BRT requires that a train crew record date and time of a proposed movement in the Block Register before proceeding. Previous entries in the Block Register are completed after a train has cleared the territory. If a second train needs to occupy the BRT at the same time, movements of both trains are required to operate at Restrict Speed (typically no faster than 15 mph).

Block swap yard: A facility used to sort containers for trains going to specific locations.

Bulk transfer facility: A facility for transferring liquid or solid bulk commodities, such as petroleum or gravel, between transport modes, typically between rail and truck.

Centralized Traffic Control (CTC): A system in which signals indicate authorized train movements and when it is safe for a train to proceed. Signals may be used to control traffic in both directions and may be automatic or directly controlled by a dispatcher.

Double track: Two sets of track side by side, most often used for travel in opposite directions.

Grade crossing: Area where a roadway and a railroad cross at the same level. Also known as a "highway-rail intersection" and "railroad crossing."

Grade separation: Crossing of a roadway and a railroad at different elevations, such as a bridge structure carrying the highway over the railroad or vice versa.

Haulage right(s): The limited right (or combination of rights) of one railroad to have its freight traffic moved by another railroad over the designated lines of the railroad.

Interchange point: Point at which two or more railroads join to exchange freight traffic.

Intermodal ramp/facility: A site consisting of tracks, lifting equipment, paved and/or unpaved areas, and a control point for the transfer (receiving, loading, unloading, and dispatching) of trailers and containers between rail and highway modes of transportation.

Mainline: A designation by each railroad of its own track signifying a line over which through-trains pass with relatively high frequency.

Passive warning devices: Traffic control devices that do not give positive notice to highway users of the approach or presence of a train. These devices may include signs and pavement markings, located at, or in advance of, railroad crossings to indicate the presence of a crossing and the presence of a train. These signs are either regulatory or nonregulatory and may include parallel track signs, crossbucks, stop signs, yield signs, and constantly flashing lights.

Positive train control (PTC): A technology that prevents train-to-train collisions, overspeed derailments, incursions into established work zone limits, and train movements through a switch left in the wrong position. Systems vary widely in complexity and sophistication.

Railroad Class: Refers to Surface Transportation Board (STB) classification of railroads based on their level of annual operating revenue, as follows:

Railroad Class	Annual Operating Revenues in 2009 (adjusted annually based on changes in Railroad Freight Price Index)
Class I	$378.8 million or more
Class II	$30.3 million to $378.8 million
Class III	$30.3 million or less

Rail yard: A location or facility with multiple tracks where rail operators switch and store rail cars.

Right-of-way: Property owned by a railroad over which tracks have been laid.

Route miles: Length of a railroad line, regardless of the number of tracks.

Siding: A track parallel to a main track that is connected to the main track at each end. A siding is used for the passing and/or storage of trains.

Single-track: A route where only one track is provided for both directions of travel.

Shortline railroad: Line-haul railroad operating less than 350 miles of road and/or earning less than $40 million in revenue. Generally, Class III carriers are referred to as shortlines.

Surface Transportation Board (STB): An independent adjudicatory body within the U.S. Department of Transportation that is responsible for the regulation of interstate surface transportation, primarily railroads.

Switch: The portion of the track structure used to direct cars and locomotives from one track to another.

Trackage rights: Rights obtained by a railroad to operate its trains over another railroad's tracks.

Track class: Refers to the general condition of a section of track measured in terms of the maximum speed at which trains may be safely operated. Classes are as follows:

	Maximum Allowable Operating Speed	
FRA Class	**Freight**	**Passenger**
Excepted Track	10 mph	N/A
Class 1	10 mph	15 mph
Class 2	25 mph	30 mph
Class 3	40 mph	60 mph
Class 4	60 mph	80 mph
Class 5	80 mph	90 mph
Class 6	N/A	110 mph
Class 7	N/A	125 mph
Class 8	N/A	150 mph
Class 9	N/A	200 mph

Track Warrant Control (TWC): Used on unsignalized systems, a track warrant provides permission to occupy main track between two specific points, typically defined by stations and mileposts. Dispatchers typically issue track warrants verbally by radio.

Yard: System of tracks branching from a common track. Yards are used for switching, maintenance, assembly of trains, and storage of railcars.

B. Descriptions of Freight Flow Datasets

B.1 Surface Transportation Board (STB) Carload Waybill Sample Data

The Carload Waybill Sample is a stratified sample of rail waybills for terminated shipments by U.S. railroad carriers. The Association of American Railroads (AAR) collects Waybill data annually for the STB from railroads that have terminated at least 4,500 carloads each year for each of the previous three years, or which move 5% or more of any State's total rail traffic. Sample stratification is based on the number of railcars a railroad moves and on the number of carloads in a movement. Waybills reporting large number of carloads, such as unit train movements involving more than 100 carloads, have a higher probability of selection than smaller movements.

AAR generates both a Public Use waybill sample, and a more detailed dataset for the same sample that is restricted to internal government use. The Public Use File provides estimates of annual origin-to-destination tonnages and revenues received by specific railroads at the State-to-State and BEA (Bureau of Economic Analysis) region-to-region level. Commodities are reported at the 5-digit level using STCC (Standard Transportation Commodity Codes). The restricted dataset incorporates added geographic detail for both O-D identification and railway routing. Expansion factors are provided for both datasets that allow users to expand the sample data to national totals. While the sample covers all commodities carried by in-scope U.S freight railroads, it does not capture export shipments carried on Canadian railroads operating inside the United States.

B.2 Freight Analysis Framework Version 3.0 (FAF3) Commodity Flow Database

The Freight Analysis Framework (FAF) is a commodity flow database that integrates data from a variety of sources to create a comprehensive picture of freight movement among states and major metropolitan areas by all modes of transportation. With data from the 2007 Commodity Flow Survey and additional sources FAF version 3 (FAF3) provides estimates for tonnage and value, by commodity type, mode, origin, and destination for 2007, the most recent year,

and forecasts through 2040[91]. The FAF3 freight flows matrix is made up of 131 Origins (O), 131 Destinations (D), 43 2-digit Standard Classification of Transported Goods (SCTG) Commodity Classes (C), and 8 Modal Categories (M), for each of 2 reporting metrics, annual tons and annual dollar values[92].

B.3 COMPARABILITY ISSUES

It is important to note that direct comparability of the STB Carload Waybill data to the FAF3 forecasts is problematic for several reasons: 1) FAF3 combines several sources of data, one being the public version of STB Rail Waybill data. However, the Bureau of Economic Analysis (BEA) regions used in the public version do not exactly align with the New Mexico state boundary, and the focus on carloads tends to under represent intermodal movements. FAF3 thus uses alternate data sources for indirectly estimating cargo movements involving multiple modes; 2) Rail Waybill is based on real data, whereas FAF3 is a model. 3) Rail Waybill reports freight flows in Standard Transportation Commodity Code (STCC) while FAF3 reports freight flows in Standard Classification of Transported Goods (SCTG) code; and 4) FAF3 does not directly report through flows as this would require routing of the FAF3 flows on a rail network to identify origin-destination pairs that can potentially use New Mexico rail infrastructure.

[91] http://ops.fhwa.dot.gov/freight/freight_analysis/faf/index.htm (Last accessed on May 9, 2011)

[92] http://faf.ornl.gov/fafweb/Data/FAF3ODCMOverview.pdf (Last accessed on May 9, 2011)

C. PRIIA Section 207 Performance Metrics

Section 207 of the Passenger Rail Investment and Improvement Act of 2008 (PRIIA) defines a set of intercity passenger rail performance metrics and standards that are measured on a quarterly basis, except where otherwise noted. In New Mexico, many of these metrics apply to the Southwest Chief, Sunset Limited, and/or NMRX as a host railroad for the Southwest Chief. This appendix identifies and defines the PRIIA performance metrics by category that are relevant to New Mexico's intercity passenger rail system.

FINANCIAL METRICS

Financial measures are each calculated on a moving eight-quarter average basis and must show "continuous year-over-year improvement." Dollar-denominated metrics are reported in constant dollars of the reporting year.

- **Percent of Short-Term Avoidable Operating Cost Covered by Passenger-Related Revenue** (excluding capital charges)**.** "Short-term avoidable operating costs" are costs that would cease to exist one year after a specific route ceases to operate. Data for this metric will not be available until the avoidable costing methodology for the Amtrak Performance Tracking (APT) System has been completed.
- **Percent of Fully Allocated Operating Cost Covered by Passenger-Related Revenue** (excluding capital charges). "Fully-allocated costs" are the total costs of operating a route, including all types of production costs (direct materials, direct labor, and fixed and variable overhead) and also a share of marketing, administrative, financing, and other central corporate expenses. Data for this metric will not be available until the first quarter of FY 2012, as the fully allocated cost components of the APT system were implemented in October 2009 and eight quarters of data have not been accumulated.
- **Adjusted Loss per Passenger-Mile.** "Adjusted loss" is defined as net loss of Amtrak's Operating Business Lines, adjusted to eliminate the effects of depreciation, other post-employment benefits (OPEB's), project costs covered by capital funding, and net interest income. Data for this metric will not be available until the avoidable costing methodology for the Amtrak Performance Tracking (APT) System has been completed.
- **Passenger miles/train-mile.** This is an average load factor for the entire route and is not reported by the host railroad. Rather, it is calculated on a moving eight-quarter average basis and must show "continuous year-over-year improvement."

ON-TIME PERFORMANCE

There are three on-time performance (OTP) measures that must each be met:

- **Endpoint OTP**. This is the percent of trains that arrive at their scheduled end point on-time, with "on-time" defined as no more than 30 minutes after the scheduled arrival. In FY 2010, the Endpoint OTP must be at least 80 percent for long-distance routes. Beginning in FY 2014, the minimum Endpoint OTP increases to 85 percent.
- **Change in "Effective Speed."** The effective speed of each route is the number of one-way miles on the route divided by the sum of the scheduled end-to-end running time and the average endpoint terminal lateness. Values over each four-quarter period must be equal to or better than the average effective speed for FY 2008.
- **All-Stations OTP.** This is the percentage of train times that take place within 15 minutes of the time in the public schedule, with the departure time used for the origin station and the arrival time used for all other stations. Although it is being reported now, this measure does not become effective until FY 2012 with a minimum 80 percent All-Stations OTP for long-distance routes. This measure increases to 85 percent in FY 2014.

TRAIN DELAYS

Train delays are expressed in terms of minutes of delay per 10,000 train-miles, with measures for Amtrak-responsible delays and host-responsible delays. Delays are reported even if the train makes up lost time later in the route.

- **Amtrak-responsible Delays per 10,000 Train-Miles.** Amtrak-responsible delays must be no more than 325 minutes per 10,000 train-miles. This works out to an average of 74 minutes or less per trip on the Southwest Chief and 64 minutes or less per trip on the Sunset Limited.
- **Host-responsible Delays per 10,000 Train-Miles.** Host-responsible delays must be no more than 900 minutes per 10,000 train-miles. For the Southwest Chief, this works out to an average of 7.2 minutes or less per trip on the NMRX system and 197.8 minutes or less on the BNSF system. For the Sunset Limited, the standard for host-responsible delays is limited to 160.6 minutes or less on the UP system.

OTHER SERVICE QUALITY

"Other Service Quality" metrics are survey-based responses of Amtrak's quality of service by route derived from the Amtrak Customer Service Index (CSI). Except where noted, the standards for these metrics require a "very satisfied"

rating from 80 percent of passengers in 2010 and 90 percent in 2014. Percent of passengers "very satisfied" with:

- Overall Service (standards for this metric are 82 percent in 2010 and 90 percent in 2014);
- Amtrak personnel;
- Information Given;
- On-Board Comfort;
- On-Board Cleanliness;
- On-Board Food Service;
- Overall station experience (this is a future metric, standard to be determined); and
- Overall Sleeping Car Experience (this is a future metric, standard to be determined).