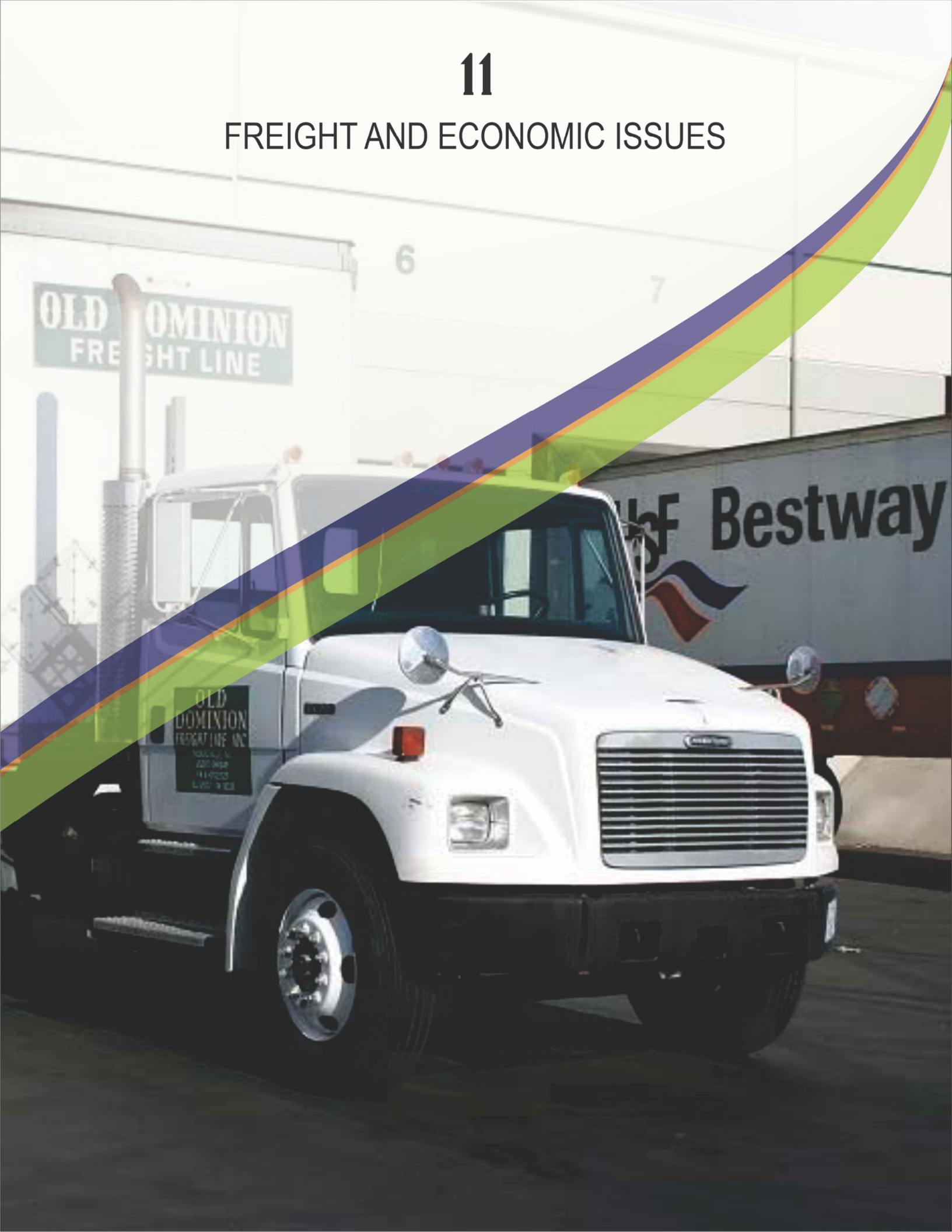
11

FREIGHT AND ECONOMIC ISSUES



11.0 Freight & Commodity Flows

11.1 Freight in the Context of the Long Range Plan

Efficient freight movement is a key component of a well-functioning transportation system. Commodity flows using the various freight modes available in the Pueblo region support industry, manufacturing, agriculture, and retail, and they also provide a framework for the growth of commerce and trade. The Colorado Department of Transportation (CDOT) and the Pueblo Area Council of Governments (PACOG) are equally responsible for ensuring that freight planning is incorporated into the transportation planning process, both to fulfill planning requirements and to build the economic strength of the state and region. CDOT and PACOG have systematically incorporated freight into their planning activities by:

- Defining those elements of a metropolitan area's transportation system that are critical for the efficient movement of freight.
- Identifying ways to measure system performance in terms of freight movement.
- Developing freight-oriented data collection and modeling to identify problems and develop potential solutions.
- Creating and supporting freight advisory committees to advocate for freight issues, including the identification of bottlenecks in the freight network.

11.1.1 Federal Guidance

Federal guidance on freight planning has evolved significantly in the past 20 years, consistently expanding transportation aspects to address emerging elements such as freight-related congestion. Current guidance on freight is provided by the Fixing America's Surface Transportation (FAST) Act legislation enacted in 2015. In general, the freight-related planning requirements in the FAST Act are addressed to the state departments of transportation with the goal of focusing attention on freight at the national level by supporting investment in freight-related surface transportation projects. Specifically, the legislation requires the U.S. secretary of transportation to encourage each state to develop a comprehensive state freight plan and establish a state freight advisory committee. While freight plans and freight advisory committees are not required by the FAST Act, many states and MPOs are in the process of establishing or updating them to support and enable freight plans. As an example of the value of a state freight plan, the FAST Act cites that projects listed in a state freight plan are eligible for a higher percentage of federal matching funds than are unlisted projects. Freight planning at all levels of government simply makes good financial sense in the global economy.

There are four elements that FAST Act requires of state freight plans. States are asked to:

1. Describe how the state freight plan supports national freight goals.
2. Describe freight policies, strategies, and performance measures.
3. Describe freight trends, needs, and issues.
4. Inventory bottlenecks and develop freight improvement strategies.

PACOG's long range transportation plan (LRTP) follows FAST Act guidance. Continued attention to the FAST Act freight requirements at the state level and measuring PACOG's progress toward them are part of the ongoing regional transportation planning (RTP) process. It is further understood that the PACOG LRTP provides a useful repository of 2020 freight summaries, goals, and status. It also reflects progress toward freight goals at all levels and across all modes. The work conducted by PACOG thus folds into work at the state level led by CDOT. Many of the means by which the state supports national freight goals, such as improving the state of good repair, reducing congestion, and growing the economy by means of the freight system, are echoed by PACOG. For example, keeping Interstate 25 (I-25) in a state of good repair is important to the nation, the state, and Pueblo County.

11.1.2 Colorado Department of Transportation Goals for Freight Planning

CDOT established a freight advisory council in 2002; over the past 18 years, the council has conducted important activities with stakeholders in every sector of the freight industry. The council, in partnership with CDOT, has released a number of plans with an emphasis on freight over the course of the years. In 2019, CDOT released its latest statewide freight plan, marking a renewed interest by the state in reformulating the statewide Colorado Freight Advisory Council. **Figure 11.1** provides an overview of the vision and goals established by the state.

11.1.3 PACOG Goals for Freight Planning

In Pueblo County, as in the state and nation, the movement of freight has grown over time with population growth and increased economic activity. The U.S. population grew by 17 percent between 1997 and 2019, reaching 328 million persons in 2019. Population growth in the western states, typified by the state of Colorado, was more significant—32 percent over that same period. The U.S. economy, measured by gross domestic product (GDP), increased by 35 percent in real terms (inflation adjusted) during the same period. In the western states, GDP increased by 44 percent. Growth in population, employment, and the economy have direct implications on the freight transportation system. Understanding the demographic and economic trends is critical when considering long-term transportation infrastructure investment priorities.

The LRTP for PACOG has six stated goals with respect to freight:

1. Improve the freight transportation system's contribution to economic efficiency, productivity, and competitiveness.
2. Reduce congestion on the freight transportation system.
3. Improve the safety, security, and resilience of the freight transportation system.
4. Improve the state of good repair of the freight transportation system.
5. Use advanced technology, performance management, innovation, competition, and accountability in operating and maintaining the freight transportation system.
6. Reduce the freight transportation system's adverse environmental and community impacts.

Figure 11.1: CDOT Freight Vision and Goals

Source: CDOT, *Colorado Freight Plan*, March 20, 2019, p. 79, https://www.codot.gov/programs/planning/transportation-plans-and-studies/assets/march-2019-colorado-freight-plan.pdf.

Cost-effective freight movement is an important element of economic competitiveness, particularly as domestic and global trade continues to expand. In fact, increased competition in today's global economy rewards those regions that actively plan for and pursue efficient freight transportation systems. This planning and policy approach to freight is well understood in Pueblo.

11.2 Freight Modal Profile

This section provides a freight profile of Pueblo County; an overview of commodity flows at the national, state, and Pueblo County levels; and a summary of needs. Freight movement in the PACOG region requires both supply and demand side inventories of highways, railroads, and airports.

11.2.1 Colorado State Profile

In 2020, 454 million tons of freight and $377 billion in freight value will move into, out of, or within Colorado. By 2045, the tonnage is forecast to increase by 20 percent, and the value is expected to increase by 31 percent. While freight traverses Colorado by a variety of modes, the predominant modes are by truck, rail, and pipeline. By tonnage, freight movement by truck accounts for 49 percent of the total moved into, out of, or within the state and 63 percent of the value. Whether moving goods into, out of, or within the state, the truck mode is extremely important to the state economy. At the state level, the interstate highways provide the backbone for freight movements (see **Figure 11.2**). This figure shows Colorado's highways that are part of the National Highway Freight Network, as well as airport, railroads, roadway, and pipeline facilities. Note that much of the intermodal connectivity for freight is located in the Denver area. The key statewide truck freight facility in Pueblo is I-25, which links Pueblo to the state and the nation.

While trucking is an important mode for transporting freight, other modes support freight transportation needs. Two Class I railroads, the Burlington Northern Santa Fe (BNSF) and Union Pacific (UP) dominate in Colorado, supported by several short-line railroads as shown in **Figure 11.3**. BNSF and UP railroads are active within Pueblo County.

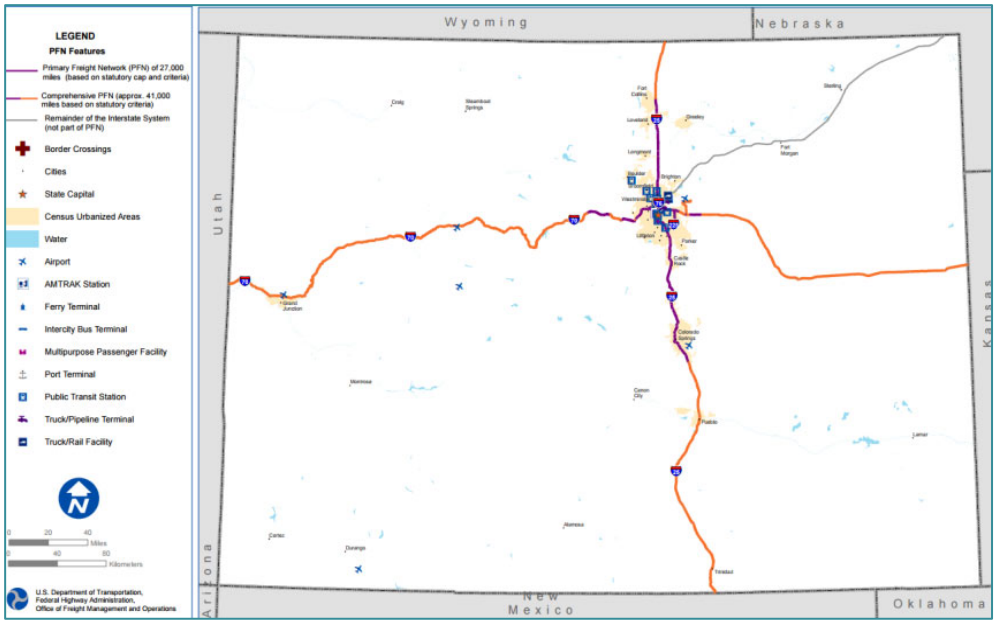


Figure 11.2: Primary Freight Network in Colorado

Source: "National Highway Freight Network: Colorado," Freight Management and Operations, US Department of Transportation, Federal Highway Administration, last modified February 1, 2017, https://ops.fhwa.dot.gov/freight/infrastructure/ismt/state_maps/states/colorado.htm.

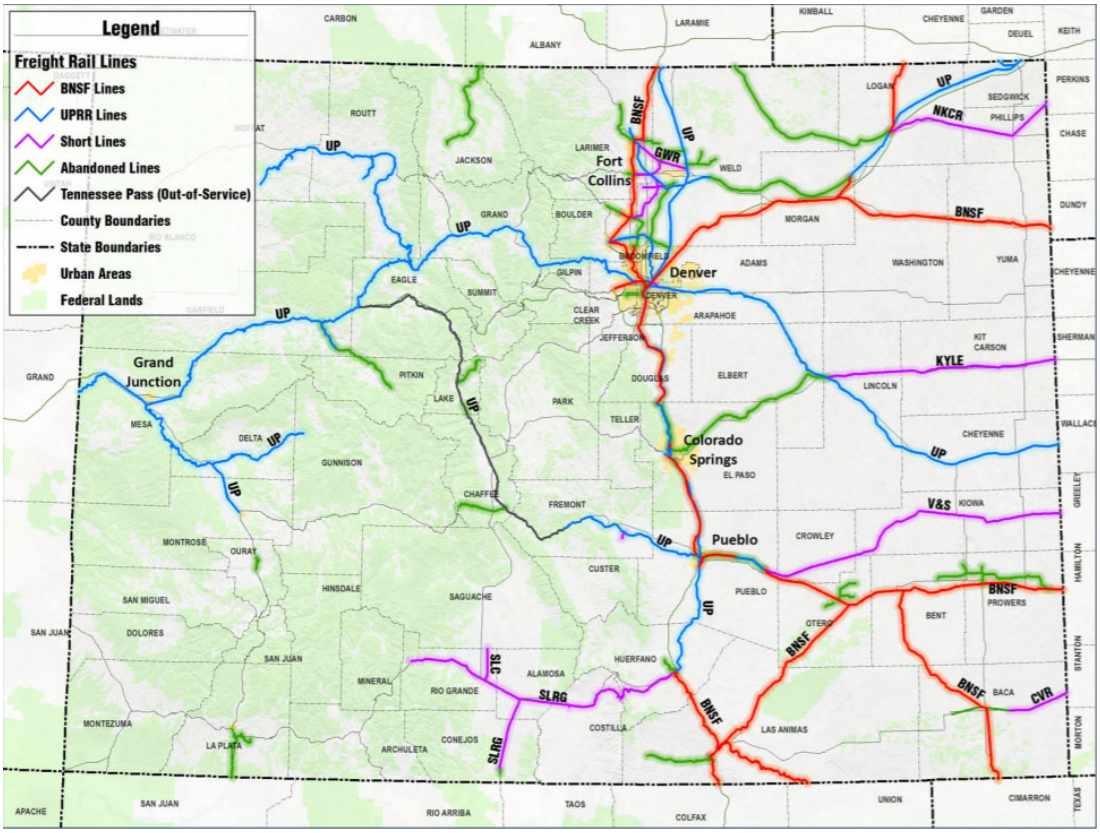


Figure 11.3: Rail Line Ownership in Colorado

Source: CDOT, *Colorado State Freight and Rail Passenger Plan*, March 2012, page 13, https://www.codot.gov/projects/archived-project-sites/PassengerFreightRailPlan/StatePassengerRailPlan-Tasks/SPRP-ExecSummary.

11.2.2 Existing Conditions – Truck Freight in Pueblo County

Moving from the state to the Pueblo MPO region, the major freight routes include the entire I-25 corridor within Pueblo County and the U.S. Highway 50 Corridor. **Figure 11.4** illustrates the highway routes in and through Pueblo County. The primary north-south freight route is I-25, and the primary east-west route is U.S. Highway 50. The I-25 Corridor is of special national significance as it is part of the "El Camino" trade route between Canada and Mexico, as identified in the North American Free Trade Agreement (NAFTA). Colorado state highways CO-96, CO-78, and CO-165 serve the county as well. Additionally, via U.S. Highway 50, the area has access to the Ports-to-Plains Corridor (generally U.S. 287) that runs from Laredo, Texas, through Eastern Colorado to Denver.

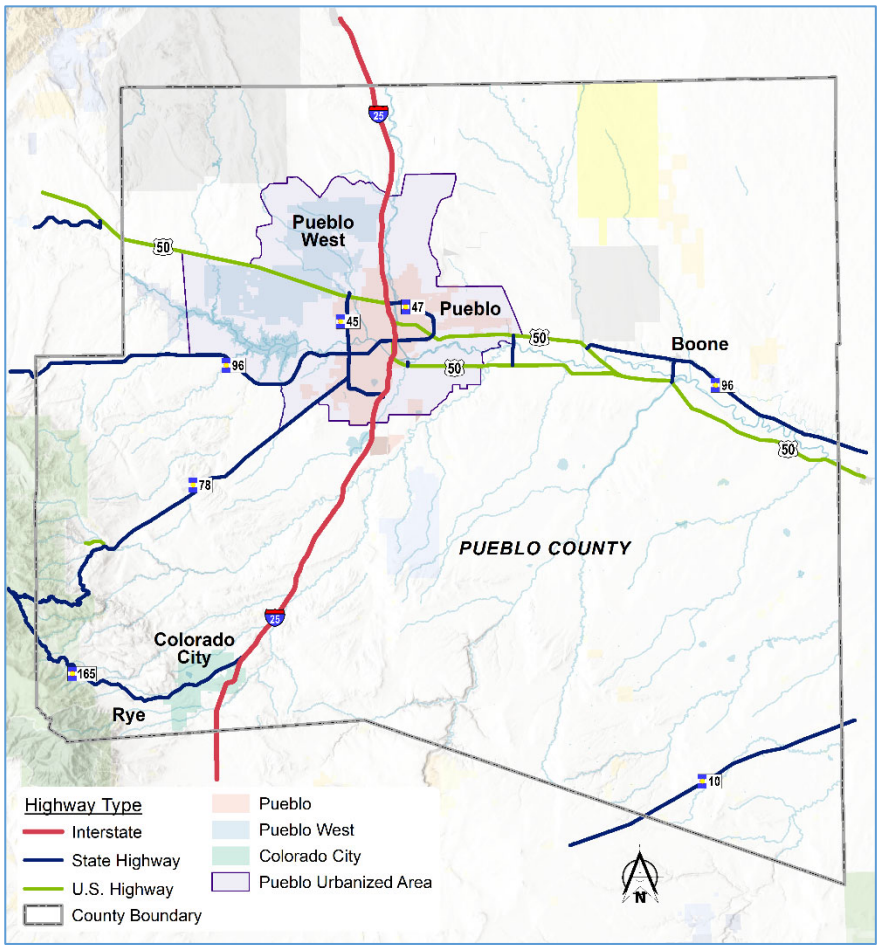


Figure 11.4: Primary Freight Routes in Pueblo County

Source: PACOG GIS Library with CDOT Highway Overlay.

I-25 and U.S. Highway 50 in Pueblo County are also classified as federal high-priority corridors. High-priority corridors, created with the passage of the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA), are federally designated and have remained an active focus of attention and investment since 1991 to the present. High-priority corridor number 27, known as the Camino Real, runs from El Paso, Texas, to Denver, Colorado. Within Colorado, the Camino Real Corridor generally follows I-25 from the New Mexico border, passing through Pueblo, to Denver. High-priority corridor number 48, the U.S. Highway 50 High Plains Corridor, follows the U.S. Highway 50 corridor from Newton, Kansas, to Pueblo, Colorado. Additionally, the Pueblo area has access, via U.S. Highway 50, to high-priority corridor number 38, the previously noted Ports-to-Plains corridor (generally U.S. 287) that runs through Eastern Colorado between Denver and Laredo, Texas.[49] These high-priority corridors are important facilities to be accommodated in long range planning for PACOG. They serve as a key conduit for trucks carrying goods into, out of, and through the region.

[49] "National Highway System: High Priority Corridors," National Highway System, USDOT, FHWA, Office of Planning, Environment & Realty, updated January 15, 2020, https://www.fhwa.dot.gov/Planning/national_highway_system/high_priority_corridors/hpcor.cfm.

Observed Truck Traffic

To better understand truck usage of roadways in Pueblo County, the CDOT Online Traffic Information System (OTIS) 2018 observed data was collected for review of the single-unit and multi-unit (combination) trucks.[50] This assessment reviewed the truck traffic on the two main roadways, I-25 and U.S. Highway 50, both cited above as high-priority corridors.

Interstate 25

In Pueblo County, I-25 is the sole interstate in the region; it runs north-south for about 50 miles through Pueblo County. **Figure 11.5** and **Table 11.1** show 14 truck count locations on I-25 from north to south for the year 2018, the most recent available. The location with the highest truck volumes, about 5,400 trucks, is the one-mile stretch of I-25 between the westbound and eastbound interchanges for U.S. Highway 50. The truck observed volumes are highest within the city of Pueblo, with slightly higher counts on the north end of the county than on the south, consistent with the population densities that lie in the northern parts of the county and with the freight orientation to points north.

There is a clear urban-rural dividing line for both I-25 and U.S. Highway 50. In general, urban roadways carry higher total traffic but with lower truck percentages, and rural roadways carry lower total traffic with higher truck percentages. The percentage of trucks to total traffic ranges from about 6 percent to 8 percent in the urban areas and up to 13 percent in the rural areas. The percentage of all trucks—single-unit and combination—to total traffic is higher in rural areas and lower in urban areas.

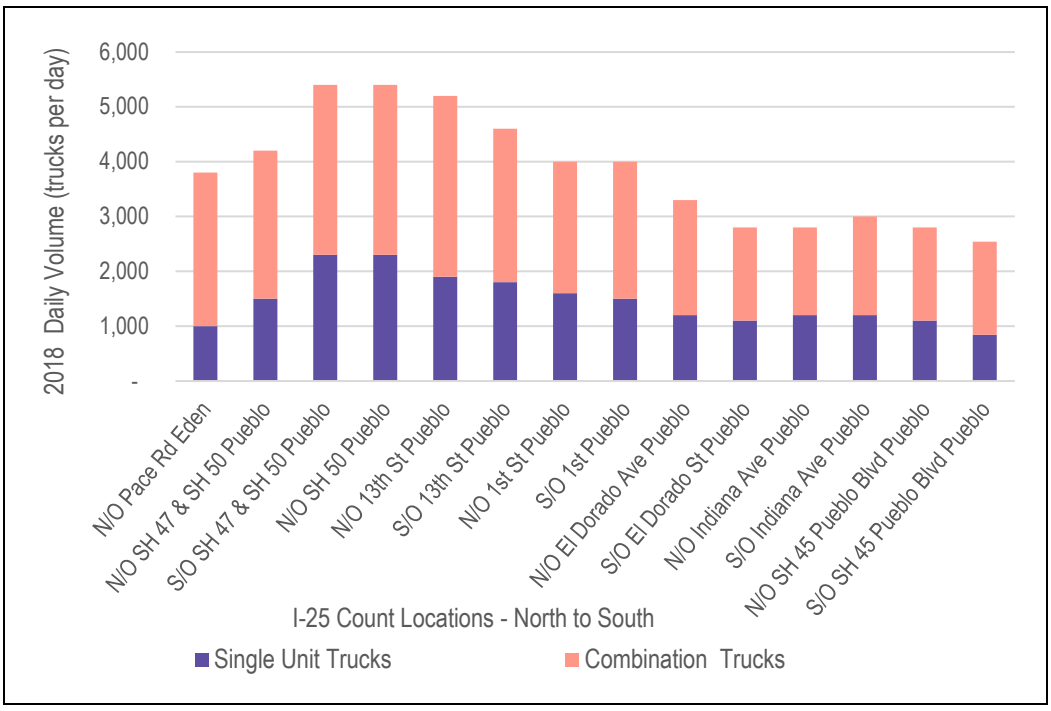


Figure 11.5: Interstate 25 Truck Traffic in Pueblo County (2018 Volumes)

Source: Data from CDOT Online Traffic Information System, accessed April 15, 2020, http://dtdapps.coloradodot.info/otis/TrafficData.

[50] CDOT Online Transportation Information System (OTIS), accessed March 2020, http://dtdapps.coloradodot.info/Otis/.

Table 11.1: Interstate 25 Truck Traffic in Pueblo County (2018 Volumes)

I-25 Truck Traffic in Pueblo County - 2018 ADT Volumes				
Count Location	AADT	Single Unit Trucks	Combination Trucks	% Trucks
N/O Pace Rd Eden	37,000	1,000	2,800	10%
N/O SH 47 & SH 50 Pueblo	41,000	1,500	2,700	10%
S/O SH 47 & SH 50 Pueblo	64,000	2,300	3,100	8%
N/O SH 50 Pueblo	79,000	2,300	3,100	7%
N/O 13th St Pueblo	82,000	1,900	3,300	6%
S/O 13th St Pueblo	77,000	1,800	2,800	6%
N/O 1st St Pueblo	63,000	1,600	2,400	6%
S/O 1st Pueblo	63,000	1,500	2,500	6%
N/O El Dorado Ave Pueblo	58,000	1,200	2,100	6%
S/O El Dorado St Pueblo	49,000	1,100	1,700	6%
N/O Indiana Ave Pueblo	42,000	1,200	1,600	7%
S/O Indiana Ave Pueblo	39,000	1,200	1,800	8%
N/O SH 45 Pueblo Blvd Pueblo	36,000	1,100	1,700	8%
S/O SH 45 Pueblo Blvd Pueblo	19,000	840	1,700	13%

Source: Data from CDOT Online Traffic Information System, accessed April 15, 2020 http://dtdapps.coloradodot.info/otis/TrafficData.

U.S. Highway 50

U.S. Highway 50 is the second most important truck route in Pueblo County. It runs east-west for about 65 miles across Pueblo County. **Figure 11.6** and **Table 11.2** show 26 truck count locations on U.S. Highway 50 from west to east for year 2018, the most recent available. The location with the highest volumes, about 2,500 trucks, is found just east of Elizabeth Street in Pueblo. On U.S. Highway 50, the segments within the City of Pueblo have the highest truck observed volumes.

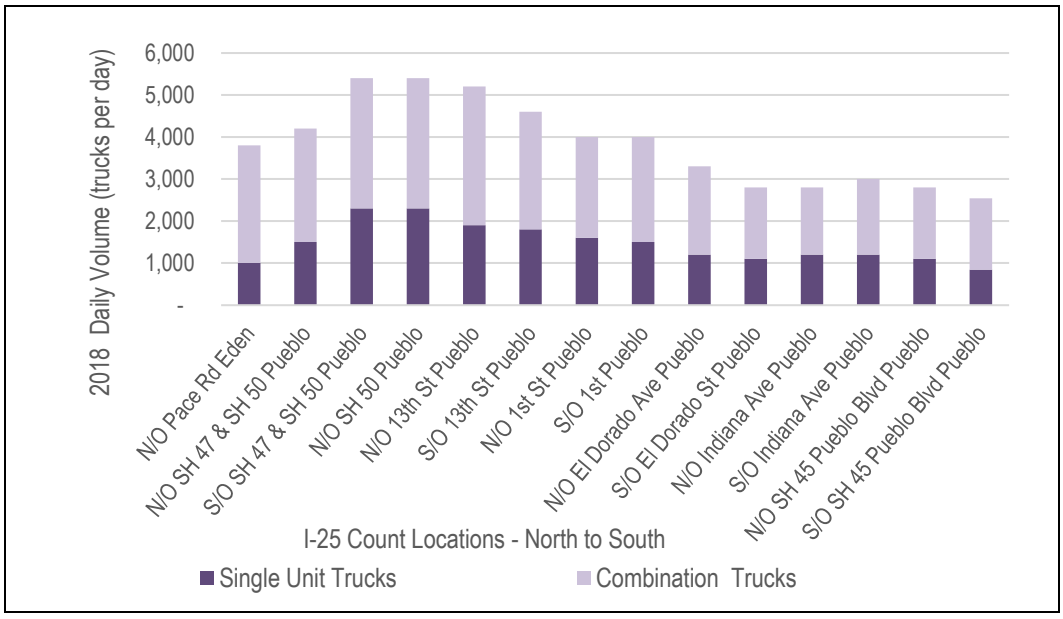


Figure 11.6: U.S. Highway 50 Truck Traffic in Pueblo County (2018 Volumes)

Source: Data from CDOT Online Traffic Information System, accessed April 15, 2020, http://dtdapps.coloradodot.info/otis/TrafficData.

Table 11.2: U.S. Highway 50 Truck Traffic in Pueblo County (2018 Volumes)

U.S. Highway 50 Truck Traffic in Pueblo County - 2018 Volumes				
Count Location	AADT	Single Unit Trucks	Combination Trucks	% Trucks
W/O Swallows Rd CR 103 Pueblo West	10,000	140	410	6%
W/O McCulloch Blvd W Jct Pueblo West	16,000	260	660	6%
W/O Purcell Blvd Pueblo West	25,000	700	800	6%
W/O SH 45 & Wildhorse Rd Pueblo	38,000	1,300	950	6%
E/O SH 45 & Wildhorse Rd Pueblo	53,000	1,300	1200	5%
E/O Willis Blvd Pueblo	43,000	1,100	990	5%
E/O Baltimore Ave Pueblo	40,000	960	880	5%
W/O Elizabeth St Pueblo	44,000	1,100	1000	5%
E/O Elizabeth St Pueblo	53,000	1,300	1200	5%
N/O I-25 Pueblo	31,000	740	990	6%
E/O I-25 S Jct Pueblo	31,000	740	990	6%
E/O Bonforte Blvd & Hudson Ave Pueblo	16,000	530	780	8%
E/O Norwood Ave Pueblo	12,000	460	670	9%
NW/O SH 47 & SH 96	8,500	310	460	9%
SE/O SH 47 & SH 96	17,000	650	710	8%
W/O SH 233 32 1/2 Ln	15,000	660	740	9%
E/O SH 233 32 1/2 Ln	12,000	290	850	10%
E/O CR 3095	11,000	280	830	10%
E/O SH 231 36th Ln Divide	8,200	230	760	12%
SE/O SH 96 & 46th Ln	4,500	190	330	12%
NW/O SH 50 Pueblo Bus Rte Avondale	3,800	130	350	13%
E/O SH 50 Pueblo Bus Rte Avondale	5,600	160	500	12%
E/O Asbury Ln CR 39	5,200	150	410	11%
SE/O SH 209	5,100	200	340	11%
SE/O 57th Ln CR 702	4,800	110	390	10%
E/O 63rd Rd Ln CR 613	4,300	140	380	12%

Source: Data from CDOT Online Traffic Information System, accessed April 15, 2020, http://dtdapps.coloradodot.info/otis/TrafficData.

The state highways in Pueblo County are important to truck freight as well. State Highways 45, 47, 78, 96, and 165 carry a smaller volume of trucks than do I-25 or U.S. Highway 50, with observed truck traffic typically at 100–200 per day. These state roads bring commodities in and out of the smaller municipalities in the region, serving households, retailers, and small industry.

11.2.3 Pueblo County – Rail Freight Existing Conditions

Railroads represent an important freight mode and component of heavy industry critical to the economic health and competitiveness of the Pueblo region. Freight railroads fall into one of four class categories:

Class I Railroads – Line haul freight railroads with 2009 operating revenue of $378.8 million or more.

Class II (Regional Railroads) – Line haul railroads that operate at least 350 miles of track and/or have revenue of between $40 million and the Class I threshold. Regional railroads that qualify using the 350 miles operating criterion must have minimum revenue of $20 million.

Class III (Short Line or Local Railroads) – Line haul railroads that do not qualify as a Class I or Class II railroad. Most of these railroads have less than 100 miles of track.

Class IV (Switching and Terminal Railroads) – Provide switching and/or terminal services. Rather than point-to-point transportation, they usually perform pick-up and delivery services within a special area or funnel traffic between other railroads.

The current rail lines in operation in Pueblo County are the BNSF, UP, and the Victoria & Southern (V&S) Railway, Inc.

Class I Railroads

The two Class I railroads in Pueblo County, the BNSF and the UP, operate over 95 percent of the miles of track and carry the majority of rail freight in the county. They provide north-south and east-west service in Colorado, although only the UP owns trackage across the Continental Divide. In many cases, these two railroads provide trackage rights to each other to jointly operate trains over a single line owned and maintained by one of them. The line that carries the greatest amount of freight is the consolidated mainline, which runs along the Front Range between Denver and Pueblo. Portions of this line are owned by BNSF and UP, but they both operate on it for the length of the line. **Figure 11.7** illustrates the rail lines and facilities in Pueblo County.

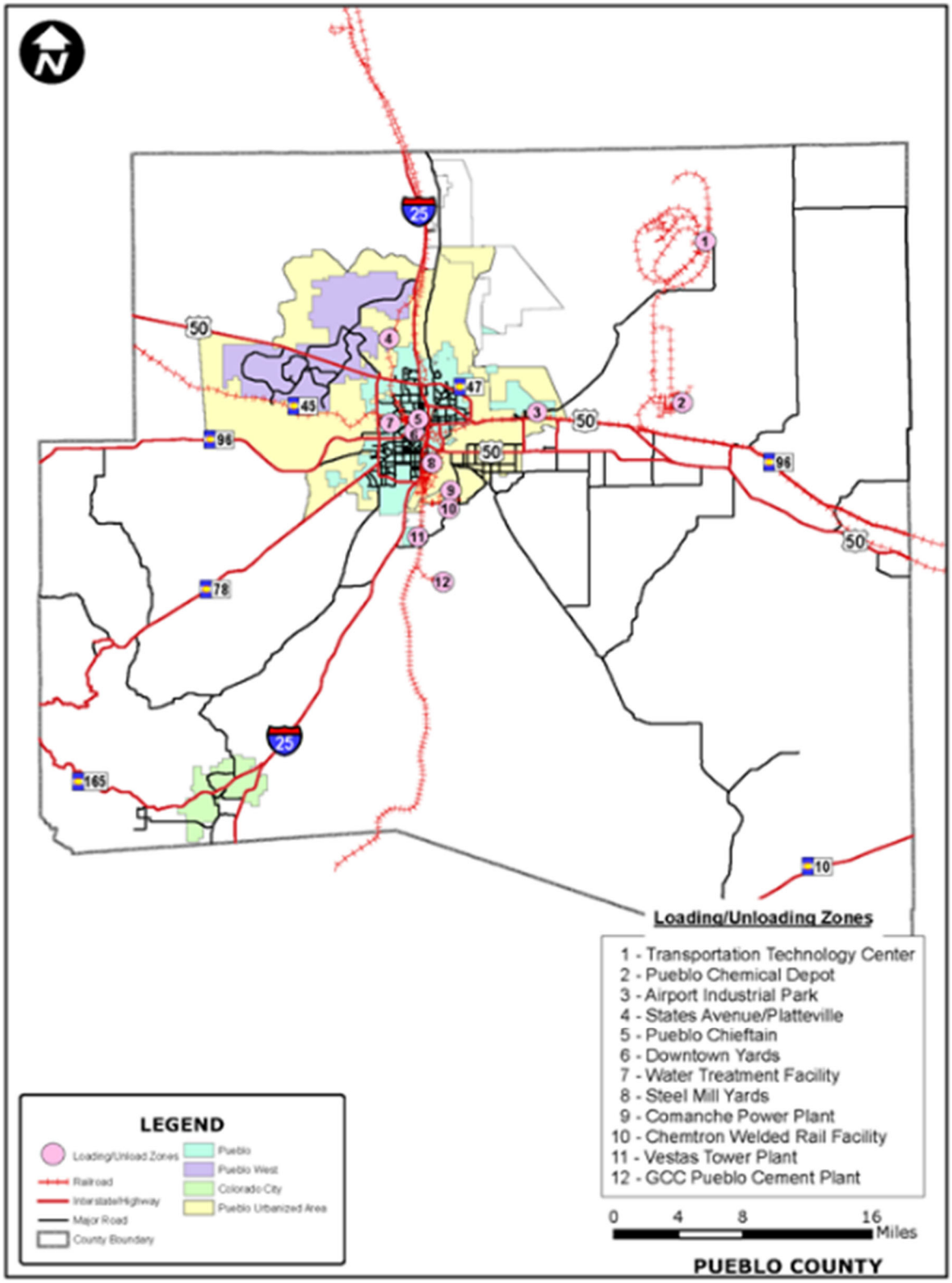


Figure 11.7: Rail Lines and Facilities in Pueblo County

Switching & Terminal Railroads

The Colorado & Wyoming (C&W) Railway Company is located in Pueblo, Colorado, and in 2015 operated a five-mile-long switching line. The C&W has 100 employees who service several companies in the Minnequa Industrial area, including Evraz Rocky Mountain Steel Mills, Xcel Energy, Nortrak, Progress Rail Services, and interchanges with both the UP and BNSF Railroads.

Colorado's freight railroads use intermodal facilities that transfer freight stored in an intermodal container or highway trailer without handling any of the freight itself when changing modes. This process involves the use of equipment to lift and move a single trailer container on a flatcar. A newer trend is the use of well cars that have a container-sized depression in the middle of the car, allowing for two containers to be accommodated in a double-stack configuration. Double-stack containers also require additional vertical clearance. In Colorado, not all rail lines and structures are currently double-stack capable. Since transfer between modes requires handling of commodities, transload facilities are designed to minimize handling. These methods of transport reduce cargo handling, damages, and losses, and they allow freight to be transported faster. There are two intermodal/transload facilities currently operating in Colorado. They are owned and operated by the BNSF and the UP and are located in the Denver Metropolitan Area. At present there are no intermodal (direct freight transfer) facilities in Pueblo, but there are a number of areas where rail loading and unloading facilities exist and are provided with rail service.

Transportation Technology Center, Inc.

Of note in any rail discussion in Pueblo County is the Transportation Technology Center, Inc. (TTCI). An internationally recognized facility, TTCI offers a wide range of unique capabilities for research, development, testing, consulting, and training for railway-related technologies. The site, 21 miles northeast of Pueblo, Colorado, is owned by the United States Department of Transportation (USDOT) and is operated and maintained by TTCI, under a care, custody, and control contract with the Federal Railroad Administration (FRA) and Association of American Railroads (AAR). **Figure 11.8** illustrates the TTCI trackage.

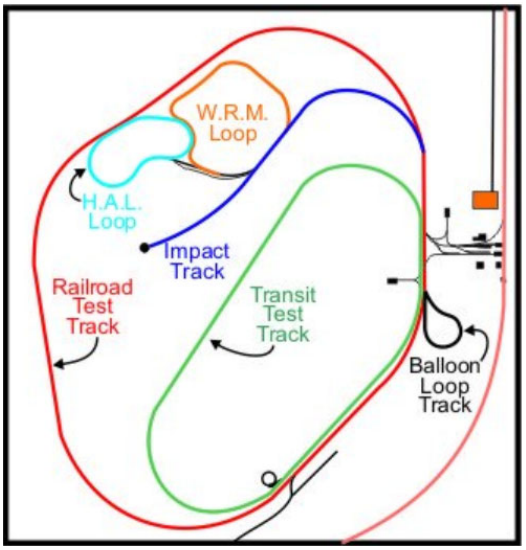


Figure 11.8: Transportation Technology Center Trackage

Source: Data from ResearchGate, "Discrete Element Modeling of Railroad Ballast Using Imaging Based Aggregate Morphology Characterization," Figure 4, https://www.researchgate.net/figure/TTCI-Test-Track-Courtesy-of-Transportation-Technology-Center-Inc_fig20_43939624/download.

11.2.4 Pueblo County – Air Freight Existing Conditions

The Pueblo Memorial Airport (PUB) is located at 31201 Bryan Circle, about six miles east of downtown Pueblo. It features:

- Three runways with the longest measuring 10,496 feet.
- A Federal Aviation Administration (FAA) air traffic control tower, the Terminal Radar Approach Control in Tower Cab (TRACAB).
- The National Weather Service on site with Next-Generation Radar (NEXRAD) and Automated Surface Observing Systems (ASOS).
- A 24-hour fire station with airport rescue firefighting on site and Index B capabilities.
- Airport facilities, including terminal, restaurant space, and rental car services.
- Navigational aids, including very high-frequency omni-directional range (VOR), instrumental landing system (ILS), non-directional beacon (NDB), and Global Positioning System (GPS) instrument approaches.
- Two fixed-base operators (FBOs), a flight school, and a self-serve 100LL fuel station.

Air-based freight movement in and out of Pueblo is a very small proportion of total freight flows. The USDOT Bureau of Transportation Statistics (BTS) provides records for air carrier statistics (T-100 data) for all U.S. airports. Both mail and freight use the air cargo facilities at the Pueblo Airport, and the tonnage shows only small variation over the past five years. Outbound combined freight/mail shipments by air in 2019 summed to 51,000 pounds. [51]

11.3 Commodity Flows by Freight Mode

The goal of conducting an inventory of freight infrastructure and use of facilities is to understand the modes that are in place to move commodities. This section looks beneath the actual freight mode, such as truck, rail, or air, to identify the goods that are being moved into, out of, and within Pueblo County. The type of commodities and the changes expected to occur provide some insight for county freight planning. The framework of analyzing freight at the national, then state, and then Pueblo County level is used.

11.3.1 Data Sources

PACOG has a key data source available for tabulating freight mode and commodity flows for both a base (current) year and a future year: the Federal Highway Administration (FHWA) Freight Analysis Framework (FAF) data. Supported by the FHWA, FAF is a public database that integrates data from a variety of business sources to create a comprehensive picture of freight movement among states and major metropolitan areas by all modes of transportation. With data from the 2012 Commodity Flow Survey and additional sources, FAF version 4 (FAF4) provides estimates for tonnage and value by region of origin and destination, commodity type, and mode for individual years from 2002 to 2045. These tabulations are used to provide national, state, and Pueblo County freight tabulation for 2020 and 2045 to serve the PACOG LRTP.[52]

It is important to note that this report has been released during the 2020 COVID-19 pandemic, which has greatly affected all industries throughout the United States.

[51] "Airline Activity: Air Freight Summary," USDOT, Bureau of Transportation Statistics, accessed July 28, 2020, https://www.transtats.bts.gov/airports.asp?pn=1&Airport=PUB&Airport_Name=Pueblo, CO: Pueblo Memorial&carrier=FACTS.

[52] FHWA Freight Analysis Framework (FAF) Data Tabulation Tool, data for US & Colorado, accessed April 15, 2020, https://faf.ornl.gov/fafweb/Extraction1.aspx.

The commodity flow estimates for 2020 and projections for 2045 were made using pre-COVID-19 FAF4 data, which represents the best estimate possible without including any impacts from COVID-19. There will clearly be a COVID-19 effect on freight and commodity flows. For example, in quarter one of 2020, the United States saw a decline in gross domestic product at an annual rate of 4.8 percent. While it is still unclear how the short-term and long-term impacts of the pandemic will affect the freight industry, it is clear that they will have a negative impact.

11.3.2 National Freight Commodity Flows

2020 projections show that the nation's transportation system will move an annual average of about 19 billion tons of freight. As shown in **Table 11.3** and **Figure 11.9**, the majority of freight moved in the U.S., approximately 64–68 percent, is transported by truck, regardless of whether the share of total freight is based on weight or value. Pipeline (20 percent by weight) and rail (9 percent by weight) are also important. This reliance on trucks and on the highway system for the movement of freight is also seen within the state of Colorado.

Table 11.3: National Freight Mode Share by Weight and Value (2020)

Freight Mode	2020			
	Tons (000s)	%	Value $ (000,000s)	%
Truck	12,417,523	64%	14,529,846	68%
Rail	1,795,948	9%	900,499	4%
Water	780,553	4%	543,350	3%
Air/Truck-Air	9,703	0%	1,006,715	5%
Multiple Modes/Mail	478,272	2%	2,616,171	12%
Pipeline	3,976,704	20%	1,747,286	8%
Other and Unknown	32,402	0%	106,095	0%
Total	**19,491,106**	**100%**	**21,449,962**	**100%**

Source: Data from FHWA Freight Analysis Framework (FAF) Data Tabulation Tool, https://faf.ornl.gov/fafweb/Extraction1.aspx.

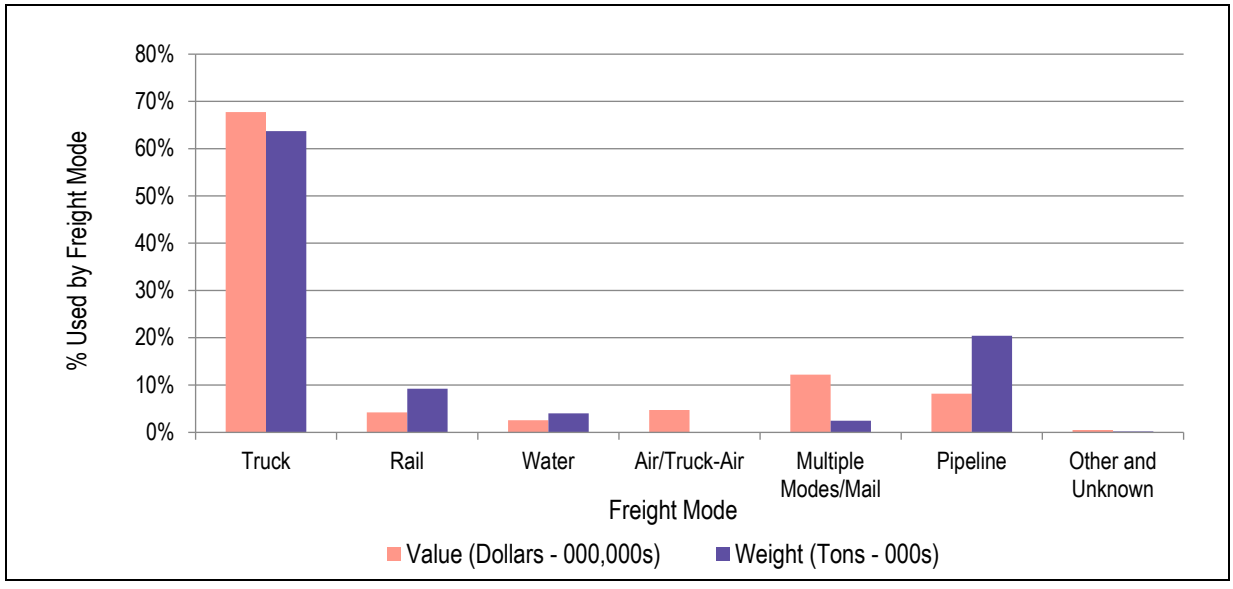


Figure 11.9: National Freight Mode Share by Weight and Value (2020)

Source: Data from Center for Transportation Analysis, "Freight Analysis Framework Data Tabulation Tool (FAF4)," last modified December 17, 2019, https://faf.ornl.gov/fafweb/Extraction1.aspx.

11.3.3 State of Colorado Freight Commodity Flows

The FAF data can also be used to summarize a single state. To better understand Colorado, the FAF for the state was tabulated by tons and by dollars for each mode for 2020 and 2045. According to the FAF, approximately 454 million tons of freight valued at $377 billion will be shipped to, from, and within Colorado via the various modes of transportation in 2020. Tonnage is projected to increase 20 percent between 2020 and 2045 and value by 48 percent. **Table 11.4** shows the Colorado shipments by weight and value for 2020 and 2045.

Figure 11.10 shows the 2020 data in bar chart format. Freight tonnage in the state of Colorado is moved primarily by truck, with 49 percent by weight and 63 percent by value using this mode in 2020. A large share of freight tonnage in Colorado (38 percent) is estimated to be shipped by pipeline in 2020, particularly as compared to the U.S. value (20 percent). Rail carries 11 percent of all freight by weight in Colorado. The drop in total rail tonnage between 2020 and 2045 is due to the reduction of coal shipments forecast by the FAF economic researchers. Most other freight modes are expected to grow.

Table 11.4: Colorado Shipments by Weight and Value (2020 and 2045)

	2020				2045				Growth 2020 to 2045	
	Tons (000s)		Dollars (2012 millions)		Tons (000s)		Dollars (2012 millions)		Tons	Dollars
	# of tons	% of total	Value (000,000s of dollars)	% of total	# of tons	% of total	Value (000,000s of dollars)	% of total	%	%
Truck	222,702	49%	$238,325	63%	284,140	50%	$474,675	65%	22%	50%
Rail	49,136	11%	$9,086	2%	44,295	8%	$15,324	2%	-11%	41%
Air (include truck-air)	159	0%	$13,671	4%	388	0%	$39,448	5%	59%	65%
Multiple modes & mail	11,972	3%	$72,086	19%	16,718	3%	$132,006	18%	28%	45%
Pipeline	170,929	38%	$44,185	12%	225,798	40%	$67,602	9%	24%	35%
Other and unknown	29	0%	$238	0%	83	0%	$922	0%	65%	74%
Total	454,927	100%	$377,592	100%	571,422	100%	$729,976	100%	20%	48%

Source: Data from Center for Transportation Analysis, FAF4, last modified December 17, 2019, https://faf.ornl.gov/fafweb/Extraction1.aspx.

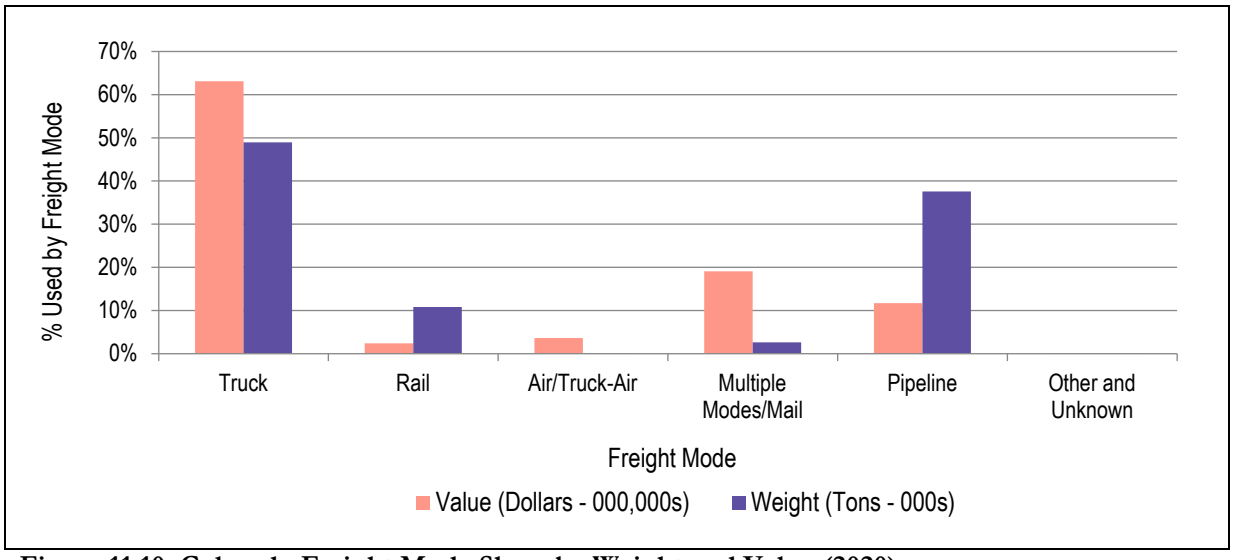


Figure 11.10: Colorado Freight Mode Share by Weight and Value (2020)

Source: Data from Center for Transportation Analysis, FAF4, last modified December 17, /2019, https://faf.ornl.gov/fafweb/Extraction1.aspx.

Colorado Freight Flows by Direction

FAF commodity flows can also be reviewed by direction, examining what specific commodities are imported, exported, or moved within the state. The overall freight picture differs when the direction of goods movement is considered. For example, trucking is somewhat less significant for freight originating in Colorado compared with freight destined for the state. The following sections describe freight modal shares into, out of, and within Colorado.

Outbound Freight Transportation by Mode (Colorado)

Outbound freight accounts for over 144 million tons annually. Based on tonnage, and as shown in **Figure 11.11** and **Table 11.5**, the highest freight mode for outgoing goods (63 percent) from Colorado is shipped by pipeline. Trucks account for 24 percent of total tonnage transported out of Colorado and rail transport another 10 percent.

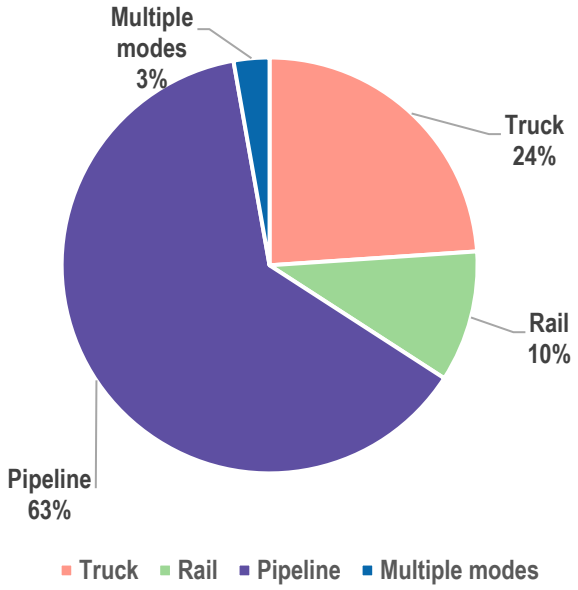


Figure 11.11: Mode Share for Freight Originating in Colorado by Weight (2020)

Source: Data from Center for Transportation Analysis, FAF4, last modified December 17, 2019, https://faf.ornl.gov/fafweb/Extraction1.aspx.

Table 11.5: Mode Share for Freight Originating in Colorado by Weight (2020)

Mode	Tons (000s)	% of Total
Truck	34,530	24%
Rail	14,723	10%
Pipeline	91,040	63%
Multiple Modes	4,019	3%
Total	**144,311**	**100%**

Source: Data from Center for Transportation Analysis, FAF4, last modified December 17, /2019, https://faf.ornl.gov/fafweb/Extraction1.aspx.

Inbound Freight Transportation by Mode (Colorado)

Inbound freight accounts for almost 88 million tons annually. Coming into the state as imports, the shares by freight mode differ from the outbound. Forty-three percent of all freight destined for Colorado arrives by pipeline, another 27 percent by rail, and 25 percent by truck. **Figure 11.12** and **Table 11.6** illustrate the percentages for incoming commodities.

It is important to note that **Figure 11.11** and **Figure 11.12**, and corresponding **Table 11.5** and **Table 11.6**, respectively**,** do not include freight that was shipped within Colorado. The figures presented are strictly outbound and inbound. Air freight was not tabulated since this freight mode is less than 1 percent of the total.

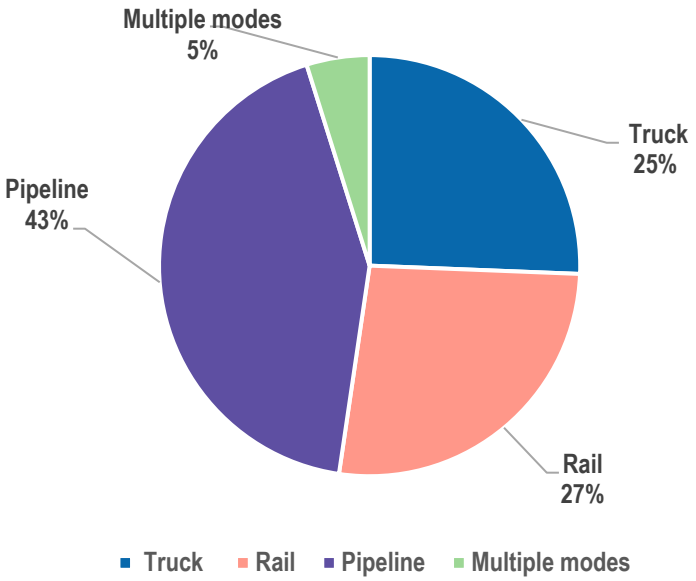


Figure 11.12: Mode Share for Freight Destined for Colorado by Weight (2020)

Source: Data from Center for Transportation Analysis, FAF4, last modified December 17, /2019, https://faf.ornl.gov/fafweb/Extraction1.aspx.

Table 11.6: Mode Share for Freight Destined for Colorado by Weight (2020)

Mode	Tons (000s)	% of Total
Truck	22,531	25%
Rail	23,469	27%
Pipeline	37,652	43%
Multiple modes	4,253	5%
Total	**87,906**	**100%**

Source: Data from Center for Transportation Analysis, FAF4, last modified December 17, /2019, https://faf.ornl.gov/fafweb/Extraction1.aspx.

Freight Transportation within Colorado

Intrastate freight, or freight that begins and ends its trip in Colorado, accounts for over 222 million tons annually. Roughly 74 percent of freight shipped within Colorado, by weight, is by truck. **Figure 11.13** and **Table 11.7** illustrate the internal freight mode percentages.

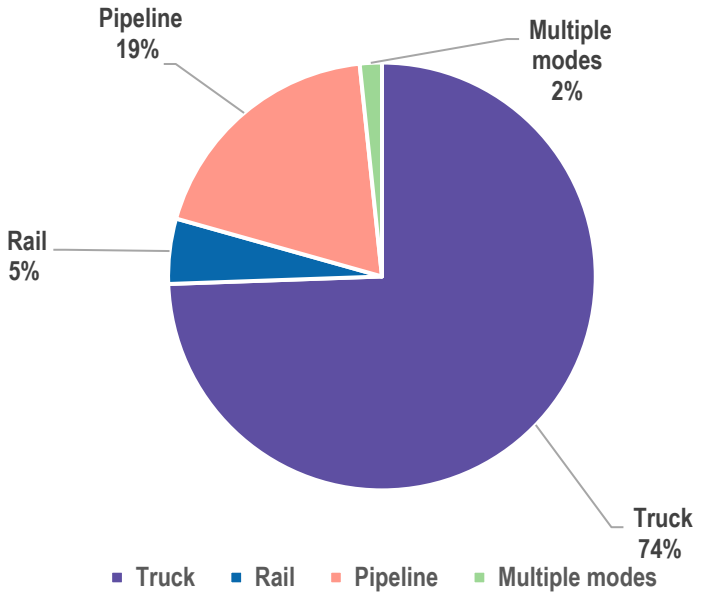


Figure 11.13: Mode Share for Colorado Intrastate Freight by Weight

Source: Data from Center for Transportation Analysis, FAF4, last modified December 17, /2019, https://faf.ornl.gov/fafweb/Extraction1.aspx.

Table 11.7: Mode Share for Colorado Intrastate Freight by Weight

Mode	Tons (000s)	% of Total
Truck	165,641	74%
Rail	10,944	5%
Pipeline	42,237	19%
Multiple modes	3,700	2%
Total	**222,522**	**100%**

Source: Data from Center for Transportation Analysis, FAF4, last modified December 17, /2019, https://faf.ornl.gov/fafweb/Extraction1.aspx.

Top Commodities Statewide

To better understand the freight environment, it is also valuable to tabulate the types of commodities that are shipped into, out of, and within Colorado. Based on the FAF4 data and ranked by weight, the top 10 commodities shipped into, out of, and within Colorado are presented in **Figure 11.14** and **Table 11.8** below. Coal and coal products, which include solid and liquid coal by-products, rank highest, representing 44 percent of all Colorado freight tonnage transported. Regardless of direction, more coal is shipped into and out of Colorado than any other commodity. The other top performers are gravel, non-mineral products, and natural sands. It is important to note that **Figure 11.14** classifies goods by weight; the picture changes when the value of goods is used.

When ranked by value, no single commodity dominates in Colorado**. Figure 11.15 and Table 11.9** show that coal and coal products are still ranked highest, representing 16 percent of all value. However, coal's dominance is nowhere near the 44 percent tonnage share when tabulated by weight. Electronics, mixed freight, motorized vehicles, and precision instruments range from 11 percent to 6 percent of total value of goods shipped; the remaining commodities lie below 6 percent. Note that many of the top commodities in **Figure 11.15** and **Table 11.9** are value-added manufactured products such as electronics, pharmaceuticals, and precision instruments.

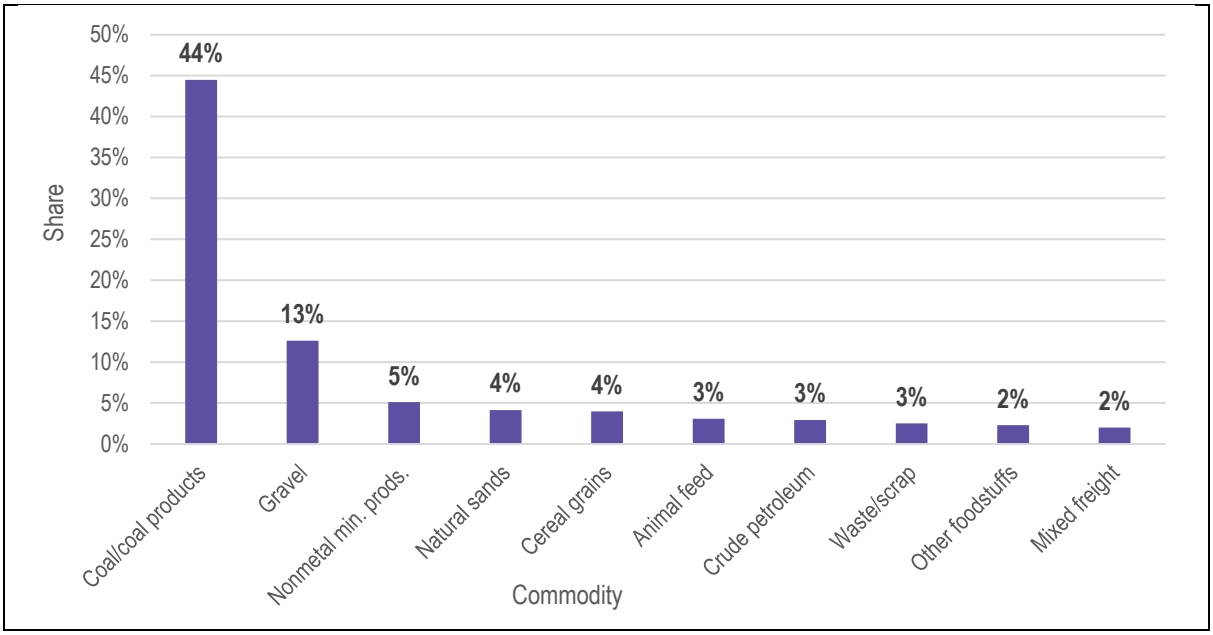


Figure 11.14: Top 10 Commodities Shipped Into, Out Of, and Within Colorado by Weight (2020)

Source: Data from Center for Transportation Analysis, FAF4, last modified December 17, /2019, https://faf.ornl.gov/fafweb/Extraction1.aspx.

Table 11.8: Top 10 Commodities Shipped Into, Out Of, and Within Colorado by Weight (2020)

Commodity Tons	Share
Coal/coal products	44%
Gravel	13%
Nonmetal min. prods.	5%
Natural sands	4%
Cereal grains	4%
Animal feed	3%
Crude petroleum	3%
Waste/scrap	3%
Other foodstuffs	2%
Mixed freight	2%
All Other	17%
Total	**100%**

Source: Data from FHWA Freight Analysis Framework (FAF) Data Tabulation Tool, https://faf.ornl.gov/fafweb/Extraction1.aspx.

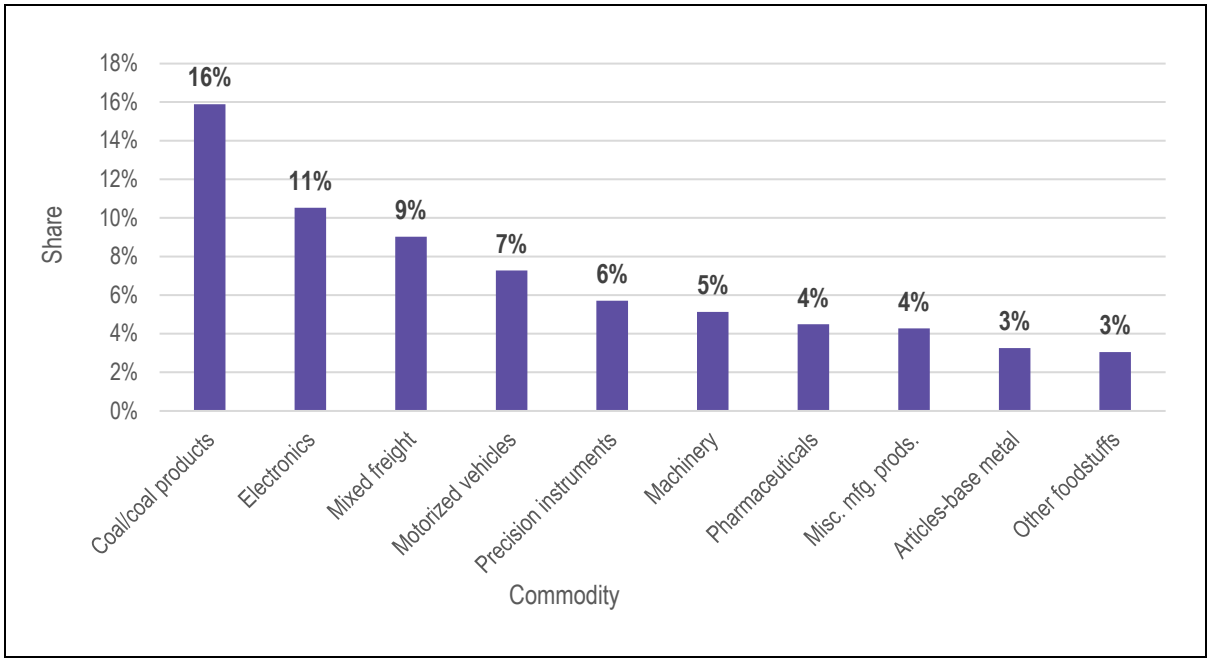


Figure 11.15: Top 10 Commodities Shipped Into, Out Of, and Within Colorado by Value (2020)

Source: Data from Center for Transportation Analysis, FAF4, last modified December 17, /2019, https://faf.ornl.gov/fafweb/Extraction1.aspx.

Table 11.9: Top 10 Commodities Shipped To, From, and Within Colorado, Based on Value (2020)

Commodity	Share
Coal/coal products	16%
Electronics	11%
Mixed freight	9%
Motorized vehicles	7%
Precision instruments	6%
Machinery	5%
Pharmaceuticals	4%
Misc. mfg. prods.	4%
Articles-base metal	3%
Other foodstuffs	3%
All Other	31%
Total	**100%**

Source: Data from Center for Transportation Analysis, FAF4, last modified December 17, /2019, https://faf.ornl.gov/fafweb/Extraction1.aspx.

Summaries by tonnage and value, combining all directional movements, in Colorado follow:

- **By Tonnage**: Colorado transports energy-related freight, such as coal and coal-related products, at a high rate, particularly by rail. Stone, gravel, and sand make up a large part of the tonnage moved as well. Heavy industry shows its influence through the transfer of nonmetal mineral products, scrap, and mixed freight, often for processing into higher-value goods.
- **By Value**: By value the picture is different. There is no dominant commodity being shipped. Coal leads by value as well as tonnage, due to the very large amounts of it in transit. However, products that are manufactured in Colorado, and in Pueblo, appear in the top 10: articles of base metal (including steel), electronics, motorized vehicles, precision instruments, machinery, and pharmaceuticals.

These summaries of the state of Colorado provide a look at the top commodities traveling in the state. In many ways, Pueblo County reflects the profile of the state. Energy-related commodities like coal predominate; stone, sand and gravel continue to play an important part; and manufacturing of machinery and steel products emerge as key commodities carried on roads and rails. In Pueblo County, for example, the coal-fired Comanche Station power plant drives the steel production for which the city is known and has led to a value-oriented manufacturing environment in the county with respect to manufactured goods.

11.3.4 Pueblo County Trends

Pueblo County 2020 and 2045

The FAF data is provided from FHWA at the statewide and major metropolitan area level. To better understand the conditions within Pueblo County, a disaggregation of the FAF data was done at the county level. From this disaggregation, freight movements by mode as well as commodity were developed and analyzed for Pueblo County.[53] The following framework was used:

- Years 2020 and 2045 were selected, conforming to the scenario years in the PACOG travel demand model.
- The Standard Category of Transported Goods (SCTG) commodity types, utilized by FAF, organized the tabulation.
- Top commodities by tonnage were tabulated. The disaggregation does not support dollar value tabulation at the county scale.
- Tables were separated by commodities leaving, entering, and moving within the county.

Table 11.10 shows the Pueblo County shipments by weight, estimated for 2020 and projected for 2045, for the three most prevalent freight modes: truck, rail, and multiple modes. According to the FAF, approximately 16.4 million tons of freight will be shipped to, from, and within the county in 2020 and 15.5 million tons in 2045. Freight tonnage in Pueblo County is primarily moved by truck, with 55 percent of commodities using this mode in 2020 and 70 percent in 2045. The rail freight mode is a close second with 42 percent in 2020 and 25 percent in 2045. Total tonnage is projected to decrease by 6 percent between 2020 and 2045; the key contributing factor is the drop-off of rail freight shipping. Rail freight will decline by 44 percent, a finding that is largely due to the expected shift away from coal shipping and use. The non-coal-related products that move in and out of Pueblo County by rail are expected to remain stable or grow between 2020 and 2045.

The next section reviews the freight flows and presents the top 10 incoming and outgoing commodities for Pueblo County for 2020 and 2045 as estimated by the FAF dataset.

Table 11.10: Pueblo County Shipments by Mode by Weight (2020 and 2045)

Freight Mode	2020		2045		Growth 2020 to 2045
	Tons (000s)	% of Total	Tons (000s)	% of Total	% Change
Truck	8,974	55%	10,835	70%	21%
Rail	6,941	42%	3,880	25%	-44%
Multiple Modes	548	3%	756	5%	38%
Total	**16,463**	**100%**	**15,471**	**100%**	**-6%**

Source: Data from WSP county-to-county disaggregation of Freight Analysis Framework (FAF).

Outbound Freight Commodities (Pueblo County) – Top Ten

Table 11.11 shows the outgoing commodities from the county based on tonnage. Looking at goods by weight in 2020, raw materials such as gravel, base metals and articles manufactured from metal, chemicals, waste/scrap, foodstuffs, and animal feed travel out of Pueblo County. 2045 has a similar profile to 2020 with all commodities departing from the county showing growth over the 25-year span.

[53] "FAF 4.2 Commodity Flow Disaggregation Methodology: Technical Memorandum," county-to-county disaggregation database, Parsons Brinckerhoff, December 2016.

Table 11.11: Top Commodities from Pueblo County by Weight (2020 and 2045)

Commodity	2020 Tons (000s)	% of Total	2045 Tons (000s)	% of Total
Gravel	1,353	34%	1,796	32%
Nonmetal min. prods.	600	15%	905	16%
Base metals	472	12%	757	14%
Waste/scrap	162	4%	193	3%
Articles-base metal	154	4%	217	4%
Basic chemicals	153	4%	225	4%
Other foodstuffs	142	4%	214	4%
Animal feed	139	3%	188	3%
Natural sands	116	3%	183	3%
Fuel oils	94	2%	121	2%
All other	593	15%	789	14%
Total Tonnage	**3,978**	**100%**	**5,588**	**100%**

Source: Data from WSP county-to-county disaggregation of Freight Analysis Framework (FAF).

Inbound Freight Commodities (Pueblo County) – Top Ten

Table 11.12 shows the incoming commodities from the county based on tonnage. Coal dominates both the 2020 and 2045 incoming commodity categories due to the presence of the Comanche Station in Pueblo, the largest power plant in Colorado, which burns coal. It is located near Evraz Steel Mill, which is the single largest commercial account for Xcel Energy in Colorado and requires raw materials coming into the county to fuel significant production of metal products manufacturing. 2045 has a similar profile to 2020 with most commodities entering the county showing growth over the 25-year span.

Table 11.12: Top Commodities to Pueblo County by Weight (2020 and 2045)

Commodity	2020 Tons (000s)	% of Total	2045 Tons (000s)	% of Total
Coal/Coal Products	7,745	63%	3,912	41%
Gravel	1,114	9%	1,478	15%
Nonmetal min. prods.	431	3%	508	5%
Gasoline	306	2%	291	3%
Fuel oils	264	2%	197	2%
Waste/scrap	261	2%	311	3%
Other foodstuffs	243	2%	297	3%
Natural sands	183	1%	283	3%
Milled grain prods.	153	1%	226	2%
Articles-base metal	150	1%	202	2%
Other	1,457	12%	1,947	20%
Total Tonnage	**12,307**	**100%**	**9,652**	**100%**

Source: Data from WSP county-to-county disaggregation of Freight Analysis Framework (FAF).

In summary, Pueblo County attracts energy-related commodities such as coal and coal products to fuel the steel industry, which, apart from steel products, also processes scrap metal into higher-value goods. Building materials, such as stone, sand, and gravel, are also important commodity flows moving into and out of the county. Manufacturing beyond steel includes machinery, railroad products, chemicals, and foodstuffs.

The primary needs for investment in freight modes of transportation are continued monitoring of the roadways and access/egress points to serve industry in the county and rail and rail access infrastructure to carry products in and out of the county.

11.4 Freight Needs

11.4.1 Freight Needs – Truck

Past surveys of shipping companies identified improvements to I-25 as the major freight need within the region. Adequate access to the Pueblo Central Business District from I-25, access to industrial locations, and access to the Airport Industrial Park (AIP) were identified as well. The second access to the AIP through the western William White Boulevard extension significantly improved the freight access to the area. This extension, named Pete Jimenez Boulevard, was completed in 2009.

11.4.2 Freight Needs – Rail

At this time, no specific needs for additional railroad freight facilities have been identified, as the majority of infrastructure improvements are made privately through the railroads themselves. The City of Pueblo has made improvements at the AIP to accommodate rail access to a facility very close to the airport. The improved access to rail at the AIP could prove beneficial since this area has multimodal access via roads, rail, and air. Some sections of the rail lines in the AIP are weight limited and will need to be upgraded to support business entities that may want to relocate to the AIP.

TTCI will continue to emphasize and expand their facility. Planning for improved access to this facility will continue to be included in this plan and future LRTPs.

As part of the potential relocation of the mainline freight rail lines farther east of Pueblo County, there may be opportunities for the redevelopment of the existing rail yards. Within Pueblo, consideration must be given to relocating freight rail traffic from the existing UP tracks adjacent to I-25 to joint tracks or operations using the BNSF route in western Pueblo. If rail facilities are relocated and the existing rail yards redeveloped, encouraging a transit-oriented design would improve the viability of a commuter rail service running along the Front Range of Colorado from Wyoming through the major Front Range urbanized areas, including Pueblo to New Mexico.

11.4.3 Rail Corridor Preservation

In June 2000, the Colorado Transportation Commission approved a Rail Corridor Preservation Policy containing planning concepts that have continuing value for Pueblo County. The policy states:

- Preserving rail corridors for future use may save money, since the cost to preserve a corridor for future transportation purposes is often far less than having to purchase an equivalent corridor in the future.
- Rail transportation may be needed in certain corridors to supplement the highway system and to provide adequate mobility and travel capacity.
- Rail transportation can be a cost-effective and environmentally preferable mode of freight transportation in certain situations.
- Preserving existing freight rail service by preventing a railroad from being abandoned can reduce the maintenance costs on state highways, since the transportation of displaced rail freight by trucks will increase deterioration of the state highway system.
- Freight rail service can serve as a lifeline to the economic health of a community when there are no other modes that adequately and economically serve the needs of the community.

The Rail Corridor Preservation Policy also identified the following criteria to be used to prioritize corridors for funding:

- Magnitude of negative impacts upon adjacent highways.
- Immediacy of the possible abandonment of the rail line.
- Immediacy of possible encroachment on an existing rail corridor that may jeopardize the implementation of passenger rail service in the corridor.
- Estimated cost to acquire the rail corridor.
- Opportunity for public-private partnerships.

Subsequently, in November 2000, CDOT identified a list of State Significant Rail Corridors, which was adopted by the Transportation Commission as part of the Statewide Transportation Plan. The criteria used to identify these state corridors included existing and potential future demand for passenger and freight services and local/regional support for the preservation of the corridor.[54] It is the intent of PACOG to remain aware and involved in CDOT rail preservation efforts.

In 2018, CDOT updated this effort with a follow-on report examining rail abandonment and the potential for rail line acquisition.[55] In the Pueblo region, the single relevant service noted was Amtrak's Southwest Chief.

11.5 Summary

PACOG understands the FAST Act environment and how the MPO collaborates with federal and state efforts to leverage freight planning. PACOG conducts planning with full knowledge of the assets in place in the MPO region as well as the commodities that move in and out of the region. On the freight supply side for trucks in the MPO, there are two strategic national highways, I-25 and U.S. Highway 50, plus a set of state highways. Two Class I railroads (BNSF and UP) and the C&W switching railroad also serve the PACOG area. The Pueblo Airport provides a third means of moving cargo. In service of the PACOG LRTP, an FHWA data source was tapped to understand the commodity flows into and out of the state and county. This source was the 2020 and 2045 FAF, which provided a snapshot of goods movements in the region. Key long-range plans related to freight are to focus on concepts cited in the PACOG freight plan: safety, efficiency, economic vitality, and environmental stewardship. Tactics include investment in I-25, U.S. Highway 50, and rail and air assets in the region.

[54] "Prioritization of Railroad Corridors for Preservation," Colorado Department of Transportation, October 1, 2013, pp. 5–6, https://www.colorado.gov/pacific/sites/default/files/CDOT%20Prioritization%20of%20Railroad%20Corridors%20for%20Preservation.pdf.

[55] "Report to the Transportation Legislation Review Committee on Rail Abandonments and the Potential for Rail Line Acquisitions", Colorado Department of Transportation, September 2018, https://www.codot.gov/programs/transitandrail/plans-studies-reports/report-to-the-transportation-legislation-review-committee-on-rail-abandonments-and-the-potential-for-rail-line-acquisitions