

**FEASIBILITY &  
MARKET ANALYSIS  
OF RAIL FREIGHT  
SERVICE IN THE FORT  
BRAGG, WILLITS &  
CLOVERDALE  
CORRIDOR**

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## 1. Executive Summary

This report explores freight options for moving goods and commodities between Cloverdale, Willits and Fort Bragg. It also explores if the cost to upgrade the tracks from Cloverdale to Fort Bragg (e.g. capitalization) can be supported by estimated revenues from operating a freight line in the corridor given realistic demand for rail freight and competitive truck freight pricing.

Table 1 summarizes the relative competitive advantage of truck freight versus rail freight for this transportation market. The remainder of the report provides the detailed analysis and backup data and documentation that form the basis for the conclusions.

**Table 1: Relative Competitive Advantage of Truck Versus Rail Freight, Cloverdale to Fort Bragg, 2024**

Competitive Issue	Truck Freight	Rail Freight
<b>Service Availability</b>	Service is currently provided.	No service provided.
<b>Price/ton from Cloverdale to Willits.</b>	The current delivery price is \$29.14/ton (Table 4).	If service were re-established, the minimum cost/ton (annual capitalization/maximum demand) would be \$458/ton (Table 6).
<b>Price/ton from Willits to Fort Bragg.</b>	The current average delivery price for this short haul is \$38.35/ton. (Table 4)	If service were re-established, the minimum cost/ton (annual capitalization/maximum demand) would be \$608/ton (Table 6).
<b>Total Annual Freight Demand Cloverdale to Willits Corridor (Tons)</b>	641,000 tons (Table 2)	24,000 tons (Table 2)
<b>Total Annual Freight Demand Cloverdale to Willits (Loads)</b>	23,737 Truck Loads (Table 2)	303 railcar loads (Table 2)
<b>Door to Door Service</b>	Provided as part of freight cost, through extensive highway and road system (see Figure 3)	Not provided by rail freight service. This would be an additional cost to the customer that would be provided by a local truck at an additional cost.
<b>Schedule Frequency &amp; Flexibility</b>	Freight services are provided by 20+ local trucking companies, which haul 7 days a week and 52 weeks per year (see Table 5).	No current schedule. Estimated demand might result in one freight train of 30 cars per month. This will not meet most potential customer shipping schedules.
<b>Trip Time</b>	The truck drive time from Cloverdale to Fort Bragg is 1 hour and 50 minutes.	Estimated rail travel time from Cloverdale to Fort Bragg is 10 hours. Estimated rail time from Willits to Fort Bragg is 6 hours due

	The truck drive time from Cloverdale to Willits is an hour and from Willits to Fort Bragg is 50 minutes.	to the steep grade and hairpin turns, while rail travel time from Willits to Cloverdale would be an estimated 4 hours.
Trip Risk	Very limited trip risk, as trucks can predictably traverse Highway 101 and 20. When mud slides or a tree falls on these highways, Caltrans quickly removes them.	Trains often run late, and travel time is unpredictable. Additionally, the length of time and bumpiness of a freight train do not lend themselves well to many potential large customers (breweries, wine grapes, etc.).

## Freight Options

### Fort Bragg to Willits

- **Rail.** There is currently no operating rail freight service between Fort Bragg and Willits. Mendocino Railway advertises freight services on the Skunk Train website at a rate of (\$1,440/railcar) + (\$400/day for a rail car rental) + (\$800/day for the crew) for a total of \$2,640/80-ton-railcar or \$33/ton. However, this service is either a fiction or subcontracted to a trucking company as the rail line is blocked by a tunnel collapse and rail line is not currently rated for freight. Additionally, the advertised pricing is purely hypothetical, as the Skunk Train would need to charge a higher rate of \$608/ton (as illustrated below and in Table 6) to capitalize rail line repairs and recover operating costs.
  - The total capital costs to repair the rail line between Fort Bragg and Willits is \$30,982,000, which would be capitalized at 10.58% for an annal payment of \$3,277,896.<sup>1</sup>
  - Operating costs for this line would be \$2,442,934/year.<sup>2</sup>
  - Total annual operating and capitalized rail repair costs would be \$5,720,830 per year.
  - With a maximum annual demand of 118 rail cars (Table 4), the break-even cost would be \$48,626/rail car or \$608/ton.
  - If Mendocino Railway is awarded a \$31 million federal loan to fund the repair of the line between Fort Bragg and Willits, the break-even cost would be \$35,227/railcar or \$441/ton.
- **Truck.** The truck freight business is very competitive as follows:
  - Highway 20 has many tight curves and can accommodate only shorter trucks, additionally as the average speed of Highway 20 is low, truck freight from Willits to Fort Bragg is currently provided by independent operators and small trucking companies, which provide freight service at \$38/ton for delivered freight, which is considerably less than the railcar rate of \$608/ton.

<sup>1</sup> D&A Enterprises LLC, [Operations Assessment Report Fort Bragg to Willits and Willits to Cloverdale](#), Dec 27, 2023, Page 5

<sup>2</sup> D&A Enterprises LLC, [Operations Assessment Report Fort Bragg to Willits and Willits to Cloverdale](#), Dec 27, 2023

## Cloverdale to Willits

Highway 101 stretches between Cloverdale and Willits providing freight access to a number of small communities including: Cloverdale, Hopland, Ukiah and Willits.

- **Rail.** The rail line requires extensive repairs which must be financed to re-establish rail service (see Table 6).
  - The total capitalization cost for repairing the rail line between Willits and Cloverdale is \$56,561,000, which would be capitalized at 10.58% for a loan payment of \$5,984,154 per year.<sup>3</sup>
  - Operating costs for this line would be \$5,097,457/year.<sup>4</sup>
  - Total operating and capitalized rail repair costs would be \$11,081,611 per year.
  - With a maximum annual demand of 303 rail cars (Table 6), the break-even cost would be \$36,618/rail car or \$458/ton.
- **Truck.** This area has 30+ low-cost competitive trucking companies that provide trucking transportation services in a price-competitive market with a fleet of more than 200 trucks.
  - Truckstop.com is a web-based truck freight channel that serves as a master broker for brokers, truckers and shippers throughout the US with extensive data on real time load and rate information. According to Truckstop.com the Cloverdale to Willits lane (highway 101 corridor) averages \$786.67/load and \$29.14/ton.

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***Fully capitalized rail freight rates for Cloverdale to Willits  
would be **\$458/ton**, while the current (January 2024)  
truck freight rate from Cloverdale to Willits is  
**\$29.14/Ton.**  
Rail freight is not price competitive.***

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## Conclusion

Overall, there is little market demand for rail freight between Cloverdale, Willits and Fort Bragg. Rail freight is not an economically viable business as transportation costs would be prohibitively high given rail rehabilitation costs and annual operating costs. Mendocino Railroad (d/b/a) Skunk Train benefits from the fiction that it is a freight railroad in the flow of interstate commerce and subject to STB jurisdiction as such on three accounts.

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<sup>3</sup> Dave Anderson, Railroad Rehabilitation Assessment Cloverdale MP 85.6 to Willits MP 139.5, American Rail Engineers, 2023, Page 33

<sup>4</sup> Dave Anderson, Railroad Rehabilitation Assessment Cloverdale MP 85.6 to Willits MP 139.5, American Rail Engineers, 2023,

1. Pursuant to the pretense (legal fiction) that it is a freight railroad, the Skunk Train maintains that it is exempt from local land use controls (zoning and building regulation) over their 300-acre vacant coastal property in Fort Bragg. They are in court with the City of Fort Bragg and the California Coastal Commission over their claimed land use regulation exemption and maintain their exemption either as a “public utility” or pursuant to federal preemption under the ICC Termination Act.
2. The legal fiction is also presumably the basis on which Mendocino Railway has applied to the US Department of Transportation for Federal funds on three occasions to fix the collapsed tunnel on its Fort Bragg to Willits line and otherwise to repair the rail line for tourist excursion purposes.
3. Moreover, Mendocino Railway will likely contract with itself (or sister companies) to accomplish reconstruction work with a primary goal of making a profit from the federally funded construction effort. In the end, the chief freight that would be moved on Mendocino/Skunk Train’s line would be material for the reconstruction of the line, and not for freight customers of the line, because trucks are much cheaper and more flexible than rail for this short-haul low demand route.
4. Mendocino Railway has used the threat of eminent domain to acquire the former Georgia-Pacific Mill Site (300 acres of coast property) from Georgia Pacific for significantly less than its fair market value. Likewise, it used the threat of eminent domain and a subsequent lawsuit to acquire 16 acres of property along the Willits line.

In conclusion, there is not sufficient demand for short haul rail freight to defray operating costs, the cost of the capital improvements, or to attract the capital investment required to make this rail line operational.

## 2. Methodology

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The methodology for this feasibility analysis, includes the following steps: 1) a demand analysis of rail freight; 2) market analysis of competitive truck pricing, delivery scheduling and delivery locations; and 3) a feasibility of required railway freight pricing and volume given capitalization costs, operating costs, maintenance costs, and debt service. The methodology for each step is described further below.

### **Demand Analysis**

This report analyzes the potential demand for rail freight throughout the transportation corridor using three methodologies.

1. First the report analyzes potential rail freight demand based on population. The report estimates the maximum likely rail freight demand given the area's total population by utilizing per-capita (nationwide) rail freight demand for short haul rail trips. This approach overestimates demand because the population in this corridor is low density, making rail delivery less competitive.
2. Next the report analyzes potential freight demand based on area GDP/capita. This methodology accounts for any potential rail freight demand if Mendocino County had a particularly high GDP/capita, which it does not have.
3. Finally, the Demand Analysis also included the collection of primary demand data. MJC directly contacted major manufacturers in Mendocino County to determine how much freight demand they might have if this rail line was refurbished and re-established. However, during these calls no information was provided about potential pricing or transport time. Potential shippers were simply asked if a rail connection between Fort Bragg and Cloverdale could potentially be useful to them. This analysis is included in the appendix.

### **Market Analysis**

This report includes a market study to determine the freight rates, delivery time, and service reliability required for rail freight to be competitive with truck freight. The market analysis characterizes the existing freight market with which rail service must compete to attract customers.

1. The truck freight market was analyzed with market research by Truckstop.com, which is a truck freight consolidator that collects thousands of truck freight orders each day and allows individual trucks and companies to bid on those freight orders. The market analysis includes daily freight rates to and from Fort Bragg, Willits and Cloverdale, paid by real shippers to real truckers.
2. A list of the truck freight providers indicates that there are many trucking companies that serve this route which results in price competition to keep rates low.
3. The rail freight market was analyzed by looking at advertised freight rates on Mendocino Railway's website, although they do not provide any rail service at this time due to a tunnel collapse and rail lines that are not rated for freight service.
4. The market analysis also compares the competitive difference between rail and truck freight on the following metrics: point-to-point service, shipping times, scheduling frequency, and reliability.



## Feasibility Analysis

The feasibility analysis identifies all costs (capitalization, operating, maintenance, interest), and based on likely demand, identifies the breakeven price/ton for rail freight. Rail's break-even freight cost is compared with existing truck shipping rates for each destination. The feasibility analysis includes the following steps:

1. **Calculate Capitalization Costs.** The Capitalization Cost is the return that an investor would need to receive per the STB (Surface Transportation Board) for a capital investment in rail. The annual capitalization cost for this project is determined by multiplying the required rehabilitation costs by the cost of capital (set by the STB) to determine the annual "profit" that an investor would need to earn for a rail investment, and therefore what a rail business must pay to access that capital.
2. **Calculate Operating Costs.** Project costs include annual operating costs, maintenance and repair costs, and interest costs. Operating costs and maintenance and repair costs were developed for both segments of this rail line by Dave Anderson of American Rail Engineers (see his report *Railroad Rehabilitation Assessment Cloverdale MP 85.6 to Willits MP 139.5*). Interest costs for the loan were calculated based on a 35-year term at 4.29% interest, which are the currently advertised interest rate and terms on the RRIF loan webpage.
3. **Break Even Price Feasibility Analysis.** Given the capitalization amount and operating costs, and estimated demand for rail traffic, the analysis calculates the breakeven point for cost/railcar and cost/ton to determine if the rail line can offer competitive pricing compared with truck transportation. This analysis was also completed assuming that Mendocino Railway obtains a \$31 million low interest government loan.
4. **Break Even Volume Feasibility Analysis.** Given the capitalization amount and operating costs, and existing trucking rates, this analysis calculates the breakeven demand required for the rail line to cover all of its costs and compete with existing truck rates.

### 3. Freight Demand of Cloverdale, Willits & Fort Bragg

#### Area Freight Demand – Based on Population

The US Department of Transportation provides detailed data regarding total freight moved per year by truck and rail. Table 2 analyzes maximum freight demand by both modes (rail and truck) in the market areas for the Highway 101/20 corridor between Cloverdale and Fort Bragg. The exact freight demand is not available from published data for this small market area. This table was created by determining the total tons of freight delivered on a per capita basis nationwide on short haul trips (less than 100 miles) and then using that ratio with the area population to determine proportional local short-haul freight tonnage.

All trips from Cloverdale to Fort Bragg are defined as short haul of less than 100 miles. Thirty-six percent of all freight in the United States is hauled for less than 100 miles. Of the freight that is hauled less than 100 miles, only 4.3% is hauled by rail (see Table 13 Appendix B). However, this is a maximum estimate because the market area does not have large manufacturing or distribution warehouses or ports which together account for most rail freight.<sup>5</sup> Even though the analysis below likely overestimates potential rail freight demand, these numbers form the basis of the feasibility analysis (section 4).

**Table 2: Maximum Potential Freight Demand, Truck and Rail, Cloverdale to Fort Bragg**

<b>Maximum Potential Freight Demand as a Ratio of Population, 2023</b>					
	Population	Maximum Truck Freight Per Year		Maximum Rail Freight Per Year	
		Truck Loads	Tons (thousands)	Carloads	Tons (thousands)
Short Haul Freight (<100 miles), United States	331,900,000	209,333,333	5,652,000	3,275,000	262,000
<b>Potential Market Area</b>					
Cloverdale	8,912	5,621	152	88	7
Mendocino County	91,603	57,775	1,560	904	72
Ukiah	16,800	10,596	286	166	13
Willits	4,957	3,126	84	49	4
Fort Bragg	6966	4,394	119	69	5
<b>Total Mendocino County &amp; Cloverdale</b>	<b>100,515</b>	<b>63,396</b>	<b>1,712</b>	<b>992</b>	<b>79</b>
<b>Total - Cloverdale to Willits</b>	<b>37,635</b>	<b>23,737</b>	<b>641</b>	<b>303</b>	<b>24</b>
<b>Total - Fort Bragg to Willits</b>	<b>11,923</b>	<b>7,520</b>	<b>203</b>	<b>118</b>	<b>9</b>

1) All trips from Cloverdale to Willits to Fort Bragg are defined as short haul less than 100 miles. Thirty-six percent of all freight is hauled for less than 100 miles. Of the freight that is hauled less than 100 miles, only 4.3% is hauled by rail. For more information, see the link below.

Source: MJC, 2023; <https://data.bts.gov/stories/s/Moving-Goods-in-the-United-States/bcyt-rqmu/#:~:text=Total%20freight%20moved%20by%20distance,origin%20and%20destination%20in%202023.>

<sup>5</sup> DOT, Bureau of Transportation Statistics, *Fact and Figures Moving Goods in the United States*, 2023

<https://data.bts.gov/stories/s/Moving-Goods-in-the-United-States/bcyt-rqmu/#:~:text=Total%20freight%20moved%20by%20distance,origin%20and%20destination%20in%202023.>

**Based on this conservative analysis, the area could support an annual maximum demand for 303 rail carloads of rail freight per year.** Actual real demand would be less than this maximum potential demand due to: 1) a lack of manufacturing companies and warehouse distributing facilities in the region; 2) no major concentration of raw materials (such as coal, copper or other deposits); 3) no large port for international freight shipments, which is the source of most rail freight (Appendix B).

### **Area Freight Demand – Based on GDP**

Table 3 analyzes freight demand using relative Gross Domestic Product for the United States, Sonoma County and Mendocino County. The analysis (Table 3) found a comparable total maximum demand for rail freight throughout the entirety of Mendocino County (much of which would not be well served by the proposed rail line running along Highway 101) of 579 rail cars/year or 46,000 tons. As Cloverdale is on the very northern border of Sonoma County, it would not be accurate to include the potential rail demand from Sonoma County for this analysis, because this demand would travel south towards population centers not north into rural Mendocino County.

**Table 3: Maximum Potential Freight Demand as a Ratio of GDP**

<b>Maximum Potential Freight Demand as a Ratio of GDP, 2023</b>						
	GDP in (1,000\$)	% GDP	Maximum Truck Freight Per Year		Maximum Rail Freight Per Year	
			Truck Loads	Tons (1000s)	Carloads	Tons (1000s)
Short Haul Freight (<100 miles), United States	23,315,081,000	100%	209,333,333	5,652,000	3,275,000	262,000
<b>Potential Market Area</b>						
Sonoma County	34,450,901	0.1478%	309,316	8,352	4,839	387
Mendocino County	4,123,820	0.0177%	37,026	1,000	579	46

Sources: MJC, 2023

US Department of Transportation, *Transportation as an Economic Indicator: Seasonally-adjusted transportation data, 2023*  
<https://data.bts.gov/stories/s/Transportation-as-an-Economic-Indicator-Seasonally/j32x-7fku/>

California REAP: GDP Analysis for Mendocino County, Sonoma County and United States

<https://california.reaproject.org/analysis/comparative-trends-analysis/gross-domestic-product/tools/0/60045/>

### **Cloverdale Economic Overview & Potential Rail Demand**

This section provides a brief overview of the economy and includes results from direct interviews with larger companies in the region that have been identified by Mendocino Railway as potential rail shippers. It shows that MR consistently overestimated interest in short haul rail shipments in their DOT Build Applications (See Appendix A), such that the over-estimates can fairly be characterized as deceptions.

Cloverdale is a small middle-class community with a significant Latino population and many commuters that work in Santa Rosa and Windsor. As a small community with a small economy, it is not a significant source of freight. Cloverdale has a population of 8,996 people, with a median annual household income and earnings of \$96,894 per year, which is slightly lower than California as a whole. Its 4,357 residents have full or part-time work primarily in the education, manufacturing, agriculture, construction and retail trade sector.

**Major Cloverdale Employers.** Of the top 25 employers in Sonoma County, none are located in Cloverdale. However, according to Dun & Bradstreet, Cloverdale is home to the following large companies.<sup>6</sup>

- Bear Republic Brewing Company has \$23 million in sales of specialty beer products. They are not interested in shipping their products by rail due to the cost, limited service, lack of predictability and potential damage to a vibration sensitive product.
- Nu Forest Products provides sawn lumber products and employes 80 people. They are not interested in using Rail to serve their customers due to cost, limited service, lack of flexibility and predictability of deliveries.
- MGM Brakes has \$4.5 million in sales and manufactures electronic brake systems for trucks and buses. They are not interested in using rail to ship orders due to limited service.

## ***Mendocino County Economic Overview & Potential Rail Demand***

Appendix C of this analysis includes a brief overview of the Mendocino Economy to identify if current or future economic or population growth could support the re-establishment of rail freight along the Fort Bragg Willits corridor. Here are some of the top-level findings of this summary:

- Mendocino's population growth is constrained by its remote location, low housing production numbers and very slow job growth. In 2022 Mendocino's population was 91,603, which is just 0.2% of the State population. Mendocino County's population has remained relatively flat for the past 70 years.
- Mendocino's economy is very small and stagnant. Mendocino GDP ranks 38th from the top of California's 58 counties. Since 2010, Gross Domestic Product has grown only 0.78%/year in Mendocino (ranked 38 out of 58 counties). Ranked #46 out of 57 Counties, Mendocino County total employment shrank by -0.35% from 2010 to 2020.
- Of the 45,293 jobs in Mendocino County, only a very small portion might result in freight trips as follows.
  - Mining is a small component of the economy at 0.3% and experienced a significant job contraction from 121 jobs in 2010 to 71 jobs in 2020, a decline of 41.32%. Mining in Mendocino County is almost exclusively related to aggregate extraction, and as noted in Appendix A, rail freight is not price competitive with truck delivery prices for aggregate.
  - Forestry and Fishing experienced a slight increase of 170 jobs (+12.36%) in the ten-year timeframe. Fishing products are not a suitable product for rail transport due to perishability. Forestry is a difficult item to transport via rail because timber harvests are geographically dispersed and transport by rail would require a truck, rail and truck transfer scenario with very large logs for an average short-haul 40-mile transport distance.

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<sup>6</sup> <https://www.dnb.com/business-directory/company-information.manufacturing.us.california.cloverdale.html>

- Manufacturing is a relatively small sector of the Mendocino Coast economy. It represents just 6% of all jobs and experienced a nominal growth of 1.86% during this timeframe, most of the manufacturing jobs are located along the Highway 101 corridor in and around Ukiah.
- Housing production averages 148 units/year or 0.36% annual growth rate, which represents a very slow increase in housing units and a small market for building materials freight.

**Major Mendocino County Employers.** Of the top 25 employers in Mendocino County, five are healthcare providers, eight are governmental agencies, two are schools, two are grocery stores, and only two qualify as manufacturing companies with significant freight needs.

- Fetzer Vineyards located in Hopland, is a large Winery that is not interested in shipping by rail as grapes must be transported by truck immediately from the vines to the processing facility and rail does not have the flexibility to do this. Further they expressed concern about damage to finished wines due to transport delays and bumpiness.
- Mendocino Redwood Co LLC, located in Calpella is a sawmill for which rail would not work because the forest of Mendocino County is distributed over a vast territory and rail cannot service that territory (see Appendix B).

Contrary to claims repeatedly made by the Mendocino Railway in various unsuccessful DOT Build grant applications, there is little to no actual demand for rail freight between Fort Bragg and Willits (Appendix A).

- North Coast Brewery has no interest in rail freight for either the delivery of hops or the transport of finished beer, due to high transportation costs, potential product damage, and the unreliability of and time for transport.
- If shipping rates were competitive, Flow Beds could ship three railcars of latex per year, but only if Mendocino Railway was connected to the interstate rail network. Due to an embargo imposed by the federal government as well as a tunnel collapse south of Willits, it is not.
- Timber is not a good customer for rail transport. It is easier, more efficient, and less expensive to continue transporting timber via truck from dispersed harvest areas to area lumber mills.
- All solid waste generated on the coast would fit in 1 railcar/day. However, rail freight is not a good fit because State law requires removal of all solid waste from a transfer station within 24 hours and the Waste Operator has a company fleet and a transfer station which is a half mile from the Railhead, making utilization of rail unfeasible.

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***MR consistently overestimates interest in short haul rail shipments in their TOT Build Applications (see Appendix A).  
These over-estimates are fabrications.***

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## 4. Freight Rates

### Truck Freight Rates & Supply

Trucking is the only existing transportation option between Willits and Cloverdale. Trucking is truly a commodity transportation service with very little difference in rates between operators in a given market area.

- Highway 101, the primary north to south highway through Mendocino County (see figure 3) is a two-lane highway which easily accommodates 53-ft trucks which can carry up to 54,000 lbs. (27 tons).
- Highway 20, which runs east to west from Sacramento to Fort Bragg, is a winding two-lane highway, which due to curves can only accommodate 48' tractor trailers. Forty-eight-foot tractor trailers are permitted to carry up to 44,000 lbs. (22 tons) on this route.

Table 4, below, illustrates transportation costs per ton for truck freight between Cloverdale, Willits and Fort Bragg. The average truck freight delivery cost is \$29.14/ton between Cloverdale and Willits and \$38.35/ton between Willits and Fort Bragg. The cost from Cloverdale to Fort Bragg is also \$38.35/ton, because most trucking companies come from Santa Rosa and cover the same distance for both trips. Table 4 also shows that a railcar of 80 tons must charge less than \$3,067/railcar to be price competitive with truck freight from Cloverdale to Fort Bragg.

**Table 4: Trucking Costs/Ton, Cloverdale to Fort Bragg**

	Average Trucking Rate/Mile	One Way Haul Cost	Haul Weight (lbs.)	Haul Weight (Tons)/ Truck load	Truck Haul Price per Ton	Truck Haul Price per 80 Tons (1 Railcar Equivalent)
<b>Cloverdale to Willits -51.2 miles</b>						
Van Freight Rates	\$ 14.57	\$ 746.00	54,000	27	\$ 27.63	\$ 2,210.37
Refer Freight rates	\$ 18.16	\$ 930.00	54,000	27	\$ 34.44	\$ 2,755.56
Flat bed rates	\$ 13.36	\$ 684.00	54,000	27	\$ 25.33	\$ 2,026.67
<b>Average</b>	<b>\$ 15.36</b>	<b>\$ 786.67</b>			<b>\$ 29.14</b>	<b>\$ 2,330.86</b>
<b>Willits to Fort Bragg -34.9 miles</b>						
Van Freight Rates	\$ 21.78	\$ 760.00	44,000	22	\$ 34.55	\$ 2,763.64
Refer Freight rates	\$ 27.22	\$ 950.00	44,000	22	\$ 43.18	\$ 3,454.55
Flat bed rates	\$ 23.52	\$ 821.00	44,000	22	\$ 37.32	\$ 2,985.45
<b>Average</b>	<b>\$ 24.17</b>	<b>\$ 843.67</b>			<b>\$ 38.35</b>	<b>\$ 3,067.88</b>
<b>Cloverdale to Fort Bragg - 86.1 miles</b>						
Van Freight Rates	\$ 8.83	\$ 760.00	44,000	22	\$ 34.55	\$ 2,763.64
Refer Freight rates	\$ 11.03	\$ 950.00	44,000	22	\$ 43.18	\$ 3,454.55
Flat bed rates	\$ 9.54	\$ 821.00	44,000	22	\$ 37.32	\$ 2,985.45
<b>Average</b>	<b>\$ 9.80</b>	<b>\$ 843.67</b>			<b>\$ 38.35</b>	<b>\$ 3,067.88</b>

Source: MJC, 2024; Google, 2024; TruckStop.com Rate Insight Tool; 2024

## Truck Freight Providers

Table 5 identifies 21 trucking companies located between Cloverdale and Fort Bragg with an estimated total fleet of 207 trucks.

**Table 5: Area Trucking Companies, by Location & Size**

Area Trucking Companies by Location & Size		
Name of Company	Primary Products Hauled	Estimated Fleet Size
<b>Cloverdale</b>		
All Coast Forest Products	Logs, Poles, Beams, Lumber Building Materials	5
Kinsey Trucking	Building Materials	1
Regie Construction Inc.	General Freight Building Materials Construction	4
Garibaldi & Sons LLC	General Freight	7
Denbest Trucking Company	General Freight	2
<b>Willits, Ukiah &amp; Fort Bragg Trucking Companies</b>		
Shuster's Transportation Inc. Willits Ca	General Freight	5
Jim Maciel Trucking	General Freight	1
KVS Trucking Inc, Ukiah CA	General Freight	1
Sterling Transport, Albion Ca	General Freight	1
Mendocino Coast Express	General Freight	5
<b>Santa Rosa</b>		
Atech Logistics and Distribution	General Freight	50
Doss Flatbed Freight	General Freight	10
Strategic Integrated Transportation	General Freight Broker	10
Colton Transport	Flat Deck, LTL and FTL	5
R & S Transport	General Freight	5
Valdivia Trucking	Construction Freight	25
Moga Logistics	Construction Freight	5
Doss Logistics	Flat Deck, LTL and FTL	25
Hansen Transport	Agricultural, Vineyard	10
Butch Cameron Trucking	Bulk Wine and Case Goods	5
Marathon Express	Same Day Freight	25
<b>Total</b>		<b>207</b>

Sources: MJC, 2024; Google, 2024; Clutch.co, 2024

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***A railcar of 80 tons must charge less than \$38.25/ton  
to be price competitive with truck freight from  
Cloverdale to Fort Bragg.***

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## Rail Freight Rates & Supply

Currently there is no freight service in Mendocino County. Mendocino Railway (aka the Skunk Train) provides pricing for freight service on their website, but they do not provide rail freight service between Fort Bragg and Willits due to a tunnel collapse and tracks unrated for freight. This means that the advertised freight price is hypothetical. It is advertised as \$1,440 per car for a one-way trip from Willits to Fort Bragg (see Figure 1). Additionally, Mendocino Railway charges \$400/railcar/day and an \$800 labor fee. Together this hypothetical rate structure amounts to \$2,640/railcar which is less than existing trucking rates. However, it would have been about the same rate in 2022 when this rate sheet was published.

Figure 1: Mendocino Railway Freight Rates. Source: [www.Skunktrain.com](http://www.Skunktrain.com)

MENDOCINO RAILWAY			
CWR 9500			
SECTION 2			
Switching charges			
(Charges in dollars and cents per car, except as otherwise noted)			
LINEHAUL CHARGES (Rule 11)			
ITEM 2000			
BETWEEN	AND	COMMODITY	CHARGE
Willits CA.	Northspur, CA (Willits Subdivision)	All Other, FAK (Note 1)	\$1080.00 per car
Willits CA.	Fort Bragg, CA (Fort Bragg Subdivision)	All Other, FAK (Note 1)	\$1440.00 per car
ITEM 2010			
BETWEEN	AND	COMMODITY	CHARGE
Willits CA.	Northspur, CA (Willits Subdivision)	Empty rail cars for dismantling or furtherance to off rail points (Note 1)	\$480.00 per car
Willits CA.	Fort Bragg, CA (Fort Bragg Subdivision)	Empty rail cars for dismantling or furtherance to off rail points (Note 1)	\$720.00 per car
ITEM 2020			
BETWEEN	AND	COMMODITY	CHARGE
Willits CA.	Northspur, CA (Willits Subdivision)	Hazardous Materials, STCC 28,29,48,49	\$1320.00 per car
Willits CA.	Fort Bragg, CA (Fort Bragg Subdivision)	Hazardous Materials, STCC 28,29,48,49	\$1680.00 per car

One could speculate that Mendocino Railway either: 1) provides "rail" freight via a subcontract with a trucking company and/or 2) provides this website information to mislead regulators and State and Federal agencies that provide low interest loans and grants for freight rail reconstruction. Indeed, Mendocino Railways has submitted three unsuccessful Build grants to DOT for tens of millions in grant funding to reconstruct their collapsed tunnel and rail line, while there is no evidence that they actually ship freight for anything other than making repairs to its line.

The Skunk Train currently only provides tourist excursion services (no commuter service or freight). The tourist excursion from Fort Bragg extends roughly 3 miles up the tracks where it is stopped by a tunnel collapse. The tourist excursion from Willits extends 7 miles up the tracks to "wolf tree" (Crowley) before it returns to Willits. Crowley is no longer a town, and there are no other towns along either excursion route. See website ad below illustrating current tourism excursions for the Skunk train. The tourism train (Pudding Creek Express) is a slow



ride, traveling roughly 7 miles round trip in 75 minutes. They also provide rail bikes for longer excursions past the collapsed tunnel.

Figure 2: Skunk Train Tourism Services

Service	Departure	Length	Duration	Description
Pudding Creek Express	Fort Bragg	7 Miles	75 Minutes	Enjoy a 7-mile, 75-minute, roundtrip along the Pudding Creek Estuary departing year-round from Fort Bragg.
Wolf Tree Turn	Willits	16 Miles	2 Hours	A scenic 16-mile, 2-hour journey over the highest point of our line to the majestic Wolf Tree, departing seasonally from Willits.
Days of Steam	Fort Bragg	7 Miles	75 Minutes	August and September join us aboard a historic steam engine as we travel along the Pudding Creek along the Redwood Route.
Railbikes on Pudding Creek	Fort Bragg	7 Miles	1 Hour 45 Minutes	Discover a new side of the world-famous Redwood Route on our two-person Railbikes, departing seasonally from Fort Bragg.
Railbikes on the Noyo	Fort Bragg	25 Miles	4 Hours	Discover a new side of the Redwood Route aboard our custom-built, two-person electric railbike.
Hike to The Glen	Fort Bragg	7 Miles	Variable	Experience an entirely new side of the Redwood Route with our unique Hike to The Glen.

Source: <https://www.Skunktrain.com/>

The graph below illustrates Skunk Train recreational ridership, which Mendocino Railway used in unsuccessful applications for government grants for freight rail improvements.

Figure 3: Skunk Train Ridership 2002-2020



Source: Skunk Train 2020 Build Grant

## Point to Point Service

Trucks currently provide point to point freight service. The railroad would not. This is a significant competitive disadvantage for rail service as it adds transport time, logistics and transfers to any trip, which are especially burdensome for short haul trips in this market area.



**Truck Freight.** Figure 4, below, illustrates the state highway system that is currently available for use by freight trucks, along with a myriad number of secondary roads (not shown) which connect the entire County for point-to-point freight delivery by truck. This allows for easy and fast service without transfers and associated wait time and logistics.

**Figure 3: Primary Highways in Mendocino County**



**Rail Freight.** By contrast Figure 2 illustrates the proposed rail freight line connection between Cloverdale in Northern Sonoma County and Willits and then out to the coast. Most of this rail line would need to be significantly rehabilitated in order to provide service. This rail line route does not provide direct connectivity to most of Mendocino County and any rail customers would have to transport their goods to the rail terminal by truck.

**Figure 4: Rail Lines in Mendocino County**

-  Rail line requires substantial rehabilitation, currently non-operational.
-  Rail Line used for recreational excursions must be upgraded for freight.



## 5. Feasibility Analysis

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### METHODOLOGY

#### Cost of Capital

To understand any railroad capital project feasibility analysis, first one must understand what the STB's cost of capital figure is and how it is used to determine feasibility.

"The STB's cost-of-capital figure (10.58%) represents the Board's estimate of the average rate of return needed to persuade investors to provide capital to the freight rail industry. The Board uses this figure in a variety of regulatory proceedings, including railroad revenue adequacy determinations, rate reasonableness cases, feeder-line applications, rail line abandonments, trackage rights cases, and rail merger reviews. The annual cost of capital figure is also used as an input in the Uniform Railroad Costing System. The cost-of-capital finding may also be used in other regulatory proceedings, including (but not limited to) those involving the prescription of maximum reasonable rate levels, the proposed abandonment of rail lines, and the setting of compensation for use of another carrier's lines."<sup>7</sup>

In other words, the Cost of Capital is used to define the anticipated rate of return for a private sector investor who might invest in a railroad enterprise/capital improvement. It does not include operating costs, maintenance cost or interest costs for a loan, which also must be considered to determine feasibility.

The feasibility analysis includes the following:

#### 1. Calculation of all Costs

- The annual dollar amount return that an investor would expect to receive from a capital investment, which is calculated by multiplying the investment amount by the cost of capital to determine the annual "profit" that an investor would anticipate earning from such an investment.
- Annual operating costs;
- Annual maintenance and repair costs; and
- Annual interest costs.

#### 2. Calculation of Break-Even Pricing given Costs and Demand

- Given all project costs, and estimate demand for rail traffic, the breakeven point for cost/railcar and cost/ton is calculated to determine if the rail line can offer competitive pricing compared with truck transportation.

#### 3. Calculation of Required Demand Given Costs and Competitive Truck Pricing

- Given all project costs and competitive truck pricing, the analysis also looks at how much demand would be required to break even if the rail freight service was priced at the same rate/ton as truck freight.

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<sup>7</sup> See the Surface Transportation Board's Economic Data Website under Data Issued in Regulatory Proceedings: cost of Capital Tab. <https://www.stb.gov/reports-data/economic-data/>

The following feasibility analysis includes these three steps for two different capitalization scenarios:

- **Scenario 1: Private investor financing funds all improvements.**
- **Scenario 2: A mix of private investor financing and a \$31 million RRIF loan at 4.29% for a 35-year term. Mendocino Railway has applied for a \$31 million loan, which has been processed but not finalized pending completion of environmental review. But this analysis is utilized to determine the potential feasibility, if the loan is awarded.**

### ***SCENARIO 1 FEASIBILITY ANALYSIS – PRIVATE INVESTORS ONLY***

This feasibility analysis (Table 6) calculates the minimum cost/ton that Mendocino Railway would need to charge to cover all annual cost given likely demand (Table 2), which include:

- The rehabilitation cost for the Willits to Cloverdale line annualized at the 2022 Surface Transportation Board capitalization 10.58% (e.g. \$56 million in rehabilitation costs times 10.58% is \$5.98 million in annual capitalization costs).
- The rehabilitation cost for the Willits to Fort Bragg Skunk Train line, which is \$31 million in rehabilitation costs times 10.58% is \$3.27 million in annual capitalization costs.
- Annual operating costs for both legs of the railroad which are estimated at a little over \$5 million for the Cloverdale to Willits rail line and \$2.4 million for the for the Fort Bragg to Willits rail line.

The annual capitalization for each rail line is then divided by the maximum annual rail car demand (Table 2) to calculate the minimum breakeven price/railcar and price/ton. Which as illustrated in the table is:

- \$36,618 per railcar or \$458/ton from Cloverdale to Willits:
- \$48,626 per rail car or \$608/ton from Willits to Fort Bragg; and
- \$85,244 per rail car or \$1,066/ton from Cloverdale to Fort Bragg.

**Table 6: Rail Freight Cost/Ton and Cost/Railcar - Cloverdale to Fort Bragg**

<b>Rail Transport Cost Per Ton including Capitalization and Operating Costs (Cloverdale to Willits to Fort Bragg)</b>						
	Rehabilitation Cost (1 & 2)	Capitalization Rate	Annual Capitalization	Annual Rail Car Demand (3)	Annual Cost/ Rail Car	Cost Per Ton
<b>Total Acquisition and Rehabilitation Costs</b>						
Cloverdale to Willits Acquisition	unknown	10.58%	unknown	303	unknown	Unknown
Cloverdale to Willits Rail Line Rehabilitation Cost (1)	\$ 56,561,000	10.58%	\$ 5,984,154	303	\$ 19,774	\$ 247
Willits to Fort Bragg Rail Line Rehabilitation Costs (2)	\$ 30,982,000	10.58%	\$ 3,277,896	118	\$ 27,862	\$ 348
<b>Total Rehabilitation Costs</b>	<b>\$ 87,543,000</b>		<b>\$ 9,262,049</b>		<b>\$ 47,636</b>	<b>\$ 595</b>
<b>Annual Operating &amp; Maintenance Costs</b>						
Cloverdale to Willits (1 & 2)			\$ 5,097,457	303	\$ 16,844	\$ 211
Willits to Fort Bragg (2)			\$ 2,442,934	118	\$ 20,765	\$ 260
<b>Total Annual Operating Costs</b>			<b>\$ 7,540,391</b>		<b>\$ 37,609</b>	
Total Annual Operating Costs and Annual Capitalization Cloverdale to Willits			\$ 11,081,611	303	\$ 36,618	\$ 458
Total Annual Operating Costs and Annual Capitalization Willits to Fort Bragg			\$ 5,720,830	118	\$ 48,626	\$ 608
<b>Total Annual Operating Costs and Annual Capitalization</b>			<b>\$ 16,802,440</b>		<b>\$ 85,244</b>	<b>\$ 1,066</b>

Source: 1) Dave Anderson, *Railroad Rehabilitation Assessment Cloverdale MP 85.6 to Willits MP 139.5*, American Rail Engineers, 2023, Page 33

2) D&A Enterprises LLC, *Operations Assessment Report Fort Bragg to Willits and Willits to Cloverdale*, Dec 27, 2023, Page 5

3) MJC, 2023; US Census; US DOT; <https://data.bts.gov/stories/s/Transportation-as-an-Economic-Indicator-Seasonally/j32x-7fku/>

To be competitive with trucking prices, a railcar from Cloverdale to Willits would need to cost less than \$2,220 for an 80-ton railcar excluding material loading and unloading costs (see table 4). Clearly, rail freight is not competitive at a price of \$85,244/railcar, which is 2,700% more expensive than trucking.

***The rail line extension is infeasible based on cost alone once capitalization and operating costs are included. This is the standard methodology to evaluate all private sector development projects. Rail freight is 2,700% more expensive than trucking.***

Additionally, this analysis does not include the cost of property acquisition for the line from Willits to Cloverdale which would require an additional \$10-\$25 million.

### Scenario 1 - Breakeven Demand Analysis

Table 7 below calculates the number of railcars Mendocino Railway would need to haul per year at the current trucking rate to break even. Mendocino Railway would need to move more than 4,700 freight cars of demand per year on the Cloverdale to Willits line to capitalize the railway sufficiently at a trucking price competitive rate of \$2,331/railcar (annual capitalization/competitive trucking railcar rate = number of required railcars per

year, e.g.  $\$11,081,611/\$2,331=4,754$  railcars). Likewise, they would need to run 1,865 railcars on the Fort Bragg to Willits line to break even. Clearly, there is insufficient demand for this volume of freight, given that the best-case scenario results in an estimate of 303 railcars per year (see Table 2). There is insufficient demand, even under Mendocino Railway’s unprovable claim of 1,028 Railcars/year (Build 2018 Grant Application) or 1,528 railcars/year (2020 Build Grant Application) to make this project economically feasible.

**Table 7: Required Annual Railcar Volume to Compete with Truck Freight Costs**

<b>Required Annual Railcar Volume for Competitive Freight Cost</b>					
<b>Cloverdale to Willits</b>		<b>Amount</b>	<b>Willits to Fort Bragg</b>		<b>Amount</b>
Annualized Capitalization of Cloverdale to Willits Rail Line Rehabilitation (1)		\$ 5,984,154	Annualized Capitalization of Willits to Fort Bragg Rail line Rehabilitation (2)		\$ 3,277,896
Annual Operating Costs (1)		\$ 5,097,457	Annual Operating Costs (2)		\$2,442,934
Total		\$ 11,081,611	Total		\$5,720,830
Competitive Trucking Rate/Rail Car from Cloverdale to Willits (see Table 4 of this report)		\$ 2,331	Competitive Trucking Rate/Rail Car from Willits to Fort Bragg (see Table 4 of this report)		\$ 3,068
Annual Rail Cars to Break Even		<b>4,754</b>	Annual Rail Cars to Break Even		<b>1,865</b>

Source: 1) Dave Anderson, *Railroad Rehabilitation Assessment Cloverdale MP 85.6 to Willits MP 139.5*, American Rail Engineers, 2023, Page 33

2) D&A Enterprises LLC, *Operations Assessment Report Fort Bragg to Willits and Willits to Cloverdale*, Dec 27, 2023, Page 5

3) MIC, 2023; US Census; US DOT; <https://data.bts.gov/stories/s/Transportation-as-an-Economic-Indicator-Seasonally/j32x-7fku/>

## **SCENARIO 2 FEASIBILITY ANALYSIS – INVESTORS PLUS RRIF LOAN**

This analysis (Table 8) calculates the minimum cost/ton that Mendocino Railway would need to charge to cover all annual cost given likely demand (Table 2) and the award of a \$31 million low interest federal loan.

The annual cost for each rail segment is divided by the maximum annual rail car demand (Table 2) to calculate the minimum breakeven price/railcar and price/ton. Which as illustrated in the table is:

- \$36,618 per railcar or \$458/ton from Cloverdale to Willits,
- \$35,345 per railcar or \$441/ton from Willits to Fort Bragg, and
- \$57,450 per rail car or \$899/ton from Cloverdale to Fort Bragg.

**Table 8 Rail Freight Cost/Ton and Cost/Railcar with \$31 Million Loan - Cloverdale to Fort Bragg**

<b>Rail Transport Cost Per Ton including Capitalization, Operating and Loan Costs (Cloverdale to Willits to Fort Bragg)</b>						
	Rehabilitation Cost (1 & 2)	Capitalization Rate	Annual Capitalization	Annual Rail Car Demand (3)	Annual Cost/ Rail Car	Cost Per Ton
<b>Total Acquisition and Rehabilitation Costs</b>						
Cloverdale to Willits Acquisition	unknown	10.58%	unknown	303	unknown	Unknown
Cloverdale to Willits Rail Line Rehabilitation Cost (1)	\$ 56,561,000	10.58%	\$ 5,984,154	303	\$ 19,774	\$ 247
Willits to Fort Bragg Rail Line Rehabilitation Costs (2)	\$ 30,982,000	0.00%	\$ -	118	\$ -	\$ -
<b>Total Rehabilitation Costs</b>	<b>\$ 87,543,000</b>		<b>\$ 5,984,154</b>		<b>\$ 19,774</b>	<b>\$ 247</b>
<b>Annual Operating &amp; Maintenance Costs</b>			<b>Annual Cost</b>			
Cloverdale to Willits (1 & 2)			\$ 5,097,457	303	\$ 16,844	\$ 211
Willits to Fort Bragg (2)			\$ 2,442,934	118	\$ 20,765	\$ 260
RRIF Loan \$31,000,000 @4.29% for 35 years to Finance Willits to Fort Bragg Rail Line Rehabilitation Costs	\$ 31,000,000		\$ 1,712,450	118	\$ 14,512	\$ 181
<b>Total Annual Operating Costs</b>			<b>\$ 7,540,391</b>		<b>\$ 37,609</b>	<b>\$ 652</b>
Total Annual Operating Costs and Annual Capitalization Cloverdale to Willits (rows 2 & 5)			\$ 11,081,611	303	\$ 36,618	\$ 458
Total Annual Operating Costs Willits to Fort Bragg (Rows 6, & 7)			\$ 4,155,384	118	\$ 35,277	\$ 441
<b>Total Annual Operating Costs and Annual Capitalization</b>			<b>\$ 13,524,545</b>		<b>\$ 57,383</b>	<b>\$ 899</b>

Source: 1) Dave Anderson, *Railroad Rehabilitation Assessment Cloverdale MP 85.6 to Willits MP 139.5*, American Rail Engineers, 2023, Page 33

2) D&A Enterprises LLC, *Operations Assessment Report Fort Bragg to Willits and Willits to Cloverdale*, Dec 27, 2023, Page 5

3) MJC, 2023; US Census; US DOT; <https://data.bts.gov/stories/s/Transportation-as-an-Economic-Indicator-Seasonally/32x-7fku/>

To be competitive with trucking prices, a railcar from Cloverdale to Willits would need to cost less than \$2,220 for an 80-ton railcar excluding material loading and unloading costs (see table 4). Even with the award of a \$31 million low interest federal loan, rail freight is still not competitive at a price of \$57,450/railcar or \$900/ton, which is 2,346% more expensive than trucking.

***The rail line extension is again infeasible, even if a significant portion of the rail line is financed with a \$31 million low interest federal loan. Even with the loan, rail freight is 2,346% more expensive than trucking.***

Again, this analysis does not include the cost of property acquisition for the line from Willits to Cloverdale, which would be a significant additional expense.



## Scenario 2 - Breakeven Demand Analysis

Table 9 provides an equivalent Breakeven Damen Analysis as Table 7, but it assumes that Mendocino Railway does receive a \$31 million low interest loan and does not use private capital to finance the rehabilitation of the Fort Bragg to Willits line. Mendocino Railway would still need to move more than 4,700 freight cars/year on the Cloverdale to Willits line to capitalize the railway sufficiently at a trucking price competitive rate of \$2,331/railcar. Even with the low interest loan they would need to run 1,354 railcars on the Fort Bragg to Willits line to break even. Clearly there is insufficient demand for this volume of freight, given that the best case scenario results in an estimate of 303 railcars per year (see Table 2).

**Table 9: Required Annual Railcar Volume to Compete with Truck Freight Costs, with possible \$31 million loan.**

Required Annual Railcar Volume for Competitive Freight Cost			
Cloverdale to Willits	Amount	Willits to Fort Bragg	Amount
Annualized Capitalization of Cloverdale to Willits Rail Line Rehabilitation (1)	\$ 5,984,154	RRIF Loan \$31,000,000 @4.29% for 35 years to Finance Willits to Fort Bragg Rail Line Rehabilitation Costs	\$ 1,712,450
Annual Operating Costs (1)	\$ 5,097,457	Annual Operating Costs (2)	\$2,442,934
Total	\$ 11,081,611	Total	\$4,155,384
Competitive Trucking Rate/Rail Car from Cloverdale to Willits (see Table 4 of this report)	\$ 2,331	Competitive Trucking Rate/Rail Car from Willits to Fort Bragg (see Table 4 of this report)	\$ 3,067.88
Annual Rail Cars to Break Even	<b>4,754</b>	Annual Rail Cars to Break Even	<b>1,354</b>

Source: 1) Dave Anderson, *Railroad Rehabilitation Assessment Cloverdale MP 85.6 to Willits MP 139.5*, American Rail Engineers, 2023, Page 33

2) D&A Enterprises LLC, *Operations Assessment Report Fort Bragg to Willits and Willits to Cloverdale*, Dec 27, 2023, Page 5

3) MJC, 2023; US Census; US DOT; <https://data.bts.gov/stories/s/Transportation-as-an-Economic-Indicator-Seasonally/j32x-7fku/>

## 6. National Truck vs Train Trends

Appendix B of this report, which examines general transportation trends Nationwide, finds that the results of this feasibility analysis also hold true throughout the country, as follows:

- Nationwide truck shipments accounts for \$12,578 billion dollars of shipment value while rail ships \$837 billion worth of goods per year. Indeed 69% of the value of all freight shipments is by truck, while 5% of the value of all shipments is by rail nationwide.
- Trucks also ship more by weight. In 2016 the total weight of truck shipments was 11,619 million tons, while all goods shipped by rail weighed in at 1,835 million tons. By weight, trucks ship 66% of all goods, while railroads ship 10% of all goods.
- Rail is not even competitive with truck freight in “ton miles traveled.” Trucks move 40% of all freight by ton miles traveled (2,023 billion) while rail moves 28% (1,527 billion) of all freight by ton miles traveled.
- Rail as a freight mode is in decline. Overall rail carloads declined from 1.5 million in 2000 to less than a million in 2022. Truck freight on the other hand increased by 50% from 2002 through 2022.

- Finally, there is no rail freight activity on the Northern California coast or 101 corridor and very little rail freight activity through the Central Valley. Most rail freight activity is from major shipping ports on the west coast to population centers in the Midwest and east coast.
- Nationwide trends indicate that rail service is not competitive with truck transport, it is prohibitive for short haul distances such as Cloverdale to Willits (51 miles) and Willits to Fort Bragg (40 miles).

## 7. Mendocino Railway: Why ask for an OFA if Freight is not Viable?

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Mendocino Railway faces unresolvable hurdles in their efforts to re-establish freight service between Cloverdale, Ukiah, Willits and Fort Bragg, including:

1. **Much Higher Cost.** Truck freight is **three orders of magnitude (2700%) less expensive** than the lowest rates that Mendocino Railway can possibly charge to break even.
2. **Discontinuity.** The railroad tracks are currently discontinuous (due to tunnel failures) and therefore it cannot provide any freight services. Even if collapsed tunnels and the railroad tracks are upgraded to handle freight, the rail line end is discontinuous with the rest of the intercontinental rail system. Even if these hurdles are overcome, there are significant upgrades necessary to reach American Canyon (actual interconnection with the national rail network). The line north of Windsor is embargoed. The line from Cloverdale to American Canyon is owned by a commuter rail service (SMART). There is no evidence of sufficient rail traffic to justify the substantial rehabilitation costs necessary to restore the line south of Willits. And even if the line could be physically restored, the number of operators with whom interchange must be made to reach the national rail system is non-trivial and would make for even higher operating costs and freight delivery costs.
3. **Longer Transport Time.** If the rail line is renovated to a condition that supports freight transport, transport time across the 40-mile distance from Fort Bragg to Willits would be approximately six hours as the train speed would be limited to eight miles/hour. Trucks take 45 minutes to an hour to traverse this same distance, making rail freight haul time inconvenient for all potential customers and uncompetitive. Train speed from Willits to Cloverdale would result in a 4-hour trip for that leg of the journey. The result is a ten-hour trip by rail from Cloverdale to Fort Bragg versus a 1 hour and fifty-minute trip by truck.
4. **More Transfers & Material Handling.** Commodities shipped via rail will have to be shipped via truck to the rail line, transferred to the rail line and upon arrival, transferred again to a truck for transportation to the final destination. While this is typical for most rail transport, the very short distance of this line (86 miles) makes the extra material handling especially prohibitive.
5. **Long-Term Reliability Concerns.**
  - a. The Skunk Train is a very old railroad, built between 1885 and 1911, with a track that is technically challenging. The track extends up the Noyo River headwall with a 3.3 percent grade and has five 33-degree horseshoe curves and climbs 932 feet (284 m) in its initial railway distance of 6.5 miles (which is only 1.5 miles as the crow flies). The very steep mountains coupled with significant track curves, means that the train must travel very slowly.

- b. The tracks cross 30 single bridges and trestles and pass through two deep tunnels (one of which is closed due to tunnel collapses in 2013 and 2016). Mendocino Railway has attempted to fix the tunnel with no success. Mendocino Railway has repeatedly sought and been denied government subsidies to fix the tunnel and the tracks.
6. **Scheduling Conflict.** The Skunk Train business model is currently entirely focused on short tourist excursions. Tourist excursions run daily from both Fort Bragg and Willits through the summer months and on the weekends in the off season. It is likely that the Skunk Train would need to run freight trips at night to avoid track conflicts with the tourist trains. However, night train trips are more likely to face difficulties and would further delay transport and result in night-time loading and unloading. All of these issues add to unreliability over the short term.
7. **Historic Freight Operations and Current Legal Limitations.** From 1921 into the late 1980s, the railroad's freight consisted almost entirely of raw and finished redwood lumber. By the 1980s Georgia-Pacific started to shift lumber shipments to the more flexible highway truck system. By the 1990s, Skunk Train lumber shipments numbered fewer than 500 railcars/year and tourist entertainment became the line's main source of revenue. All freight service was discontinued in 2001, and the Federal Railroad Administration's emergency order in 1998 effectively cut the rail line off from the national rail network.
8. **Charm.** The railroad offers historic charm; however, this historic charm is mostly a selling point for tourism operations and would not be important to freight operations.

## 8. Conclusion

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Due to the short haul distances and competition from trucks, there is insufficient actual demand for rail freight transport to fund the significant capital investment required to improve the rail line segments necessary for the rail freight, let alone maintain and operate them. The rail lines, if rehabilitated for freight, would not be able to recover their capitalization costs with earned income. They would presumably go bankrupt, as California Western did before its assets were acquired by Mendocino Railway in bankruptcy, and as Eureka Southern did before its assets were acquired by NCRA in bankruptcy. Mendocino Railway has three more likely economic rationales for filing trying to pass as a viable freight railway.

1. **Unregulated Land Development.** The Skunk Train (Mendocino Railway) is currently engaged in a lawsuit with the City of Fort Bragg to determine if the Skunk Train is exempt from local land use regulations due to the Interstate Commerce Act. The Skunk Train has recently acquired 300 acres of coastal property, located within the City of Fort Bragg, from the Georgia-Pacific corporation. This site is vacant and awaiting rezoning and redevelopment. The Skunk Train owners have asserted their exemption from local and State regulatory control based on federal preemption of local regulation of railroads. However, local and State authorities (California Coastal Commission) regard Mendocino Railway as a tourist excursion operation whose plans for residential and mixed-use development are regulated by local government. The Skunk Train may be making its freight claims to buttress its claim of exemption from local and State land use regulations. The eventual redevelopment of these 300 acres of prime coastal real estate has significant potential economic value, especially if the developer can evade the local regulatory process, the State regulatory process (the entire parcel is in the Coastal

Zone) and the significant environmental cleanup mandated for the Mill Site by the Department of Toxics and Substance Control (DTSC).

2. **Access to Federal Funding.** The Skunk Train has been seeking funds to repair its tourist train tunnel and tracks for many years. Mendocino Railway has repeatedly submitted grant and loan applications with highly inflated potential freight business to get funding to fix a line which is currently used only for tourist excursions and will continue to be used only for tourist excursions given the feasibility analysis in this report. There is no Federal funding source for rail line improvements for tourist trains. By inflating its potential freight business, the Skunk Train makes an economic argument for Federal funding to repair a tourist excursion line. Claims of the freight operations may bolster Mendocino Railways efforts to portray itself as a bona fide freight carrier rather than a rail bike and excursion train operation. Mendocino and an affiliated company are currently under consideration for a \$31.3 million low-interest loan from the U.S. Department of Transportation.
3. **Self-Dealing.** In past applications for government assistance, Skunk Train proposed using its own or affiliated equipment and work force to do work. This may allow Mendocino Railway to profit from managing and undertaking the construction itself.
4. **Eminent Domain Powers to Acquire Land.** The Skunk Train has used the threat of eminent domain to purchase, at a below market price of \$1 million, a 300+ acre ocean front property in the City of Fort Bragg and a 16 acre site in Willits.

In conclusion, the Skunk Train benefits from the fiction that they are a freight railroad on many fronts:

- 1) It may be viewed as support for their federal preemption of state and local regulation for their real estate development activities in Fort Bragg and Willits;
- 2) It may support their efforts to access Federal funding which would otherwise not be available to fix the collapsed tunnel and repair the old rail line for their tourism excursion train; and
- 3) It may provide opportunities to profit from the rail repair project itself.

## Appendix A: Demand For Rail Freight Between Fort Bragg and Willits

This section provides an overview of potential freight demand for the transport of raw materials and products which are currently produced or consumed on the Coast. It explores the following specific commodities: aggregates, hops, beer, latex, solid waste, and timber. All these commodities have been suggested by Mendocino Railway as viable freight customers in past grant applications to the Federal Government or in conversation with Fort Bragg City Staff. In a 2018 Build Application, Mendocino Railway identified demand for 514 rail car service/year for a \$16,893,231 project that included a BUILD grant request for \$8,510,222 (Table 8). This grant application was denied. Mendocino Railway prepared another grant application to BUILD in 2019 for a \$24,849,950 project which was also denied (Table 9). And Mendocino Railway prepared another grant application to Build in 2020 for \$18,779,790, which was also denied. In each of these applications Mendocino Railway makes various claims about the amount of potential freight business that would open up if the railroad could operate a freight line, for example: "Various industries are eagerly awaiting the reopening of MR's rail line for freight services, including Flowbeds, North Coast Brewing Company ("NCBC"), Willits Redwood Company, Geo Aggregates, Mendocino Land Trust, Lyme Redwood Forest Company, ER Energy (propane), the City for transportation of water and municipal solid waste ("MSW")." The specific tons of freight claimed in these BUILD applications is noted in Tables 8 and 9 below.

**Table 10: Mendocino Railway 2018 Build Application: Claimed Freight Amount**

Commodity	Truck Loads	Railcars	Tons
Hops	450	225	22,500
Beer	550	275	27,500
Latex	28	14	1,400
<b>Total</b>	<b>1,028</b>	<b>514</b>	<b>51,400</b>

Source: Mendocino Railway Build Grant 2018

**Table 11: Mendocino Railway 2020 Build Application: Claimed Freight Amount**

Commodity	Truck Loads	Railcars	Tons
Hops	450	225	22,500
Beer	550	275	27,500
Latex	28	14	1,400
Solid Waste	5,000	2,500	250,000
<b>Total</b>	<b>6,028</b>	<b>3,014</b>	<b>301,400</b>

Source: Mendocino Railway Build Grant 2020

The author of this feasibility study also submitted these grant applications by the City of Fort Bragg on behalf of Mendocino Railway in 2018 and 2019. At that time, as Community Development Director for the City of Fort Bragg, she also completed an economic impact analysis for the proposed project. However, the estimated freight demand, which formed the basis for that economic analysis was provided by the Harts (Skunk Train owners) and was not independently verified. In the sections that follow, MJC has tried to independently verify these numbers by speaking directly with the business owners and candidly have found the Harts' numbers to

be fabrications and certainly no longer valid. Actual potential rail demand, based on recent interviews with potential shippers is only 300 tons, or 3 railcars, per year as illustrated in Table 10 below.

**Table 12: Mendocino Railway Actual Annual Potential Freight Demand**

Commodity	Truck Loads	Railcars	Tons
Hops	-	-	-
Beer	-	-	-
Latex	12	3	300
Solid Waste	-	-	-
<b>Total</b>	<b>12</b>	<b>3</b>	<b>300</b>

Source: MJC, 2022: interviews with business owners

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*There is little market support for freight rail service from Willits to Fort Bragg, amounting to less than 300 tons or 3 railcars per year in Latex products.*

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## Beer & Hops

**This study finds no demand for rail freight for beer or hops.** Fort Bragg is home to the North Coast Brewing Company, which is located immediately adjacent to the Skunk Train’s parking lot.

- In 2018/19 the Mendocino Railway submitted Federal BUILD grant applications which indicated market support for rail transportation of 22,500 tons of hops (225 train cars) and 27,500 tons of beer (275 train cars). However, the North Coast Brewing Company has a maximum brewing capacity of 90,000 barrels of beer per year due to a use permit limitation. Ninety thousand barrels of beer weighs 5,895 tons (58 railcars), significantly less than the railcars submitted in the 2018/19 BUILD grant applications.
- MJC spoke with Brewery CEO, Jennifer Owen, who indicated that train freight is not a viable freight solution for the Brewery. The Brewery requires immediate and highly reliable service for delivery of hops to the brewery and the transportation of finished product to customers. Train freight service is not feasible because it is too expensive, unreliable, unavailable, takes too long and does not provide immediate service for the highly perishable products. The brewery CEO indicated that the Skunk Train would never be a viable option for freight services for these reasons.

## Latex

**There is very limited demand for Rail Freight for latex and no compatibility at this time.** Fort Bragg is home to a relatively small latex bed manufacturer called Flowbeds.

- In 2018/19/20 the Mendocino Railway submitted Federal BUILD grant applications which indicated market support for rail transportation of 1,400 tons of latex (14 train cars) per year. However, the owner of Flow Beds, Dave Turner, told MJC that they use only 6 truckloads of latex per year (3 railcars), again significantly less than the tonnage submitted in the 2018/19 BUILD grant applications.
- The owner is interested in a competitively priced railroad-based shipping for his latex raw materials, only if the Skunk Train becomes connected to the interstate system, as latex is a delicate product and

suffers from multiple handling. Currently he ships one truck load of latex to his manufacturing facility in Fort Bragg from Texas for \$4,000 per load every two months. Rail service would have to be comparably priced to be considered. Additionally, they order one truck load every two months, and would have to be able to similarly ship the equivalent amount (a half railcar) via rail every two months for rail service to be a viable solution.

### **Solid Waste**

- As the Mendocino community has a relatively small population it also produces a relatively small amount of Solid Waste. According to C&S Waste Solution, the franchise operator for all solid waste collection in Fort Bragg and the unincorporated areas of Mendocino County, the coast produces two to three truckloads of solid waste a day (about 1 railcar/day or 300 railcars/year). C & S Waste solution is prohibited by its State License from hauling more than 99 tons of solid waste and recyclables per day. This is much less than the amount identified in the Mendocino Railway's 2022 build application, which claimed 2,500 rail cars/year.<sup>8</sup>
- By State law, solid waste must be transferred to a solid waste processing facility within 24 hours of collection. The solid waste processing facility for C&S waste solution is in Ukiah, CA.
- Rail transportation is unrealistic for solid waste because it would require extra handling (two truck trips for each train trip), would take too long (8 hours by train plus handling time for transfers to truck in Ukiah), would not likely provide the State mandated required daily service (insufficient other freight business to justify a daily train trip for one railcar of solid waste) and would be too expensive at over \$809/ton.
- Finally, C&S Waste has an existing company fleet which provides this freight transportation.

### **Timber**

In the 2020 Build Application, Mendocino Railway made the claim that 3,000 annual truckloads of timber commodities could be diverted from freight trucking to rail freight. However, they provide no evidence for this assertion. More importantly, it is operationally infeasible to ship timber by rail. As noted in Figure 9, which maps all approved timber harvests between 1997 and 2022, the timber harvests covered 422,915 acres and are distributed over a wide geographical range throughout the County, many are very remote to the rail line.

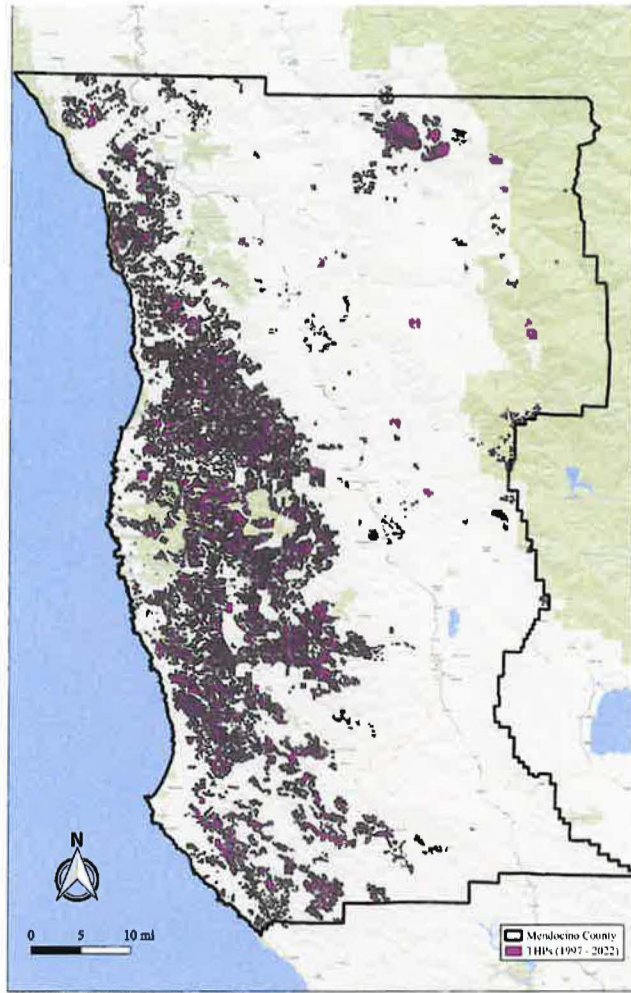
- Felled timber is currently loaded into short haul trucks at the timber harvest site and then brought to a mill where it is offloaded and sawn into trim, beams, decking and fencing. There are no active lumber mills on the Mendocino Coast. Lumber mills are located in Willits (east), Calpella (east), Ukiah (east), and Philo (southeast).
- The current process includes loading timber onto trucks and driving from 1 to 1.5 hours to one of the mills located in the inland part of the County.

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<sup>8</sup>2020 Build Application, footnote 7 on page 2; Michael Rodriguez, [City of Fort Bragg California's BUILD 2020 Grant Application to Rebuild Mendocino Railway's \("MR"\) Tunnel, Rehabilitate and Improve Safety Over Its Rural Rail Line, and Reinvigorate the Economy. Benefit Cost Analysis, Page 6.](#)

Figure 5: Timber Harvests, Mendocino County 1997-2022

- To ship by rail the process would include: 1) load timber into trucks and drive to the rail line; 2) unload the timber from the trucks onto the train; 3) transit on the train for 6-8 hours to a mill; 4) unload timber from the train onto trucks; 5) transit on trucks to a mill.
- Rail freight is impractical for the transport of timber on such short hauls to local mills. Mill Operators will continue to utilize trucks because the travel distance, time and cost are less than by rail.



### Aggregates

Aggregates are not a good freight component for Mendocino Railway, due to a variety of issues including: the high cost of rail transport, competitive pricing of truck delivery, and the diverse locations for more than sufficient aggregate supply. It should be noted that as recently as 2020, Mendocino Railway did not consider aggregates a likely freight customer as it was not listed in any BUILD grant applications.

Transportation is a major part of the cost of aggregate to the consumer. Aggregate is a low-unit-value, high-bulk-weight commodity, and it must be obtained from nearby sources to minimize both the dollar cost to the aggregate consumer and other environmental and economic costs associated with transportation. This makes the mining of aggregate much more competitive than most other mined commodities. The location, distance to market, and access to major transportation routes greatly influence the economic feasibility of an aggregate mine. Most aggregate in California moves to its final point of use by truck. Trucking is typically charged at an hourly rate and rates vary in different regions of the state. Transportation cost is the principal constraint defining the market area for an aggregate mining operation and the cost of transporting aggregate over long distances can equal or exceed the base cost of the aggregate. The cost of construction aggregate – a low-unit-value, high-bulk-weight commodity – is heavily dependent on the distance it must be hauled from its source.<sup>9</sup>

### Cost of Transport Truck Versus Train.

**Truck.** In Mendocino County the cost to transport aggregate via truck varies from \$145 to \$175/hour and averages \$154/hour (Table 11). Delivery costs include the time to load the truck, drive to the delivery location,

<sup>9</sup> John P. Clinkenbeard and Fred W. Gius, *Aggregate Sustainability In California: Fifty-Year Aggregate Demand Compared to Permitted Aggregate Reserves*, 2018



unload the truck and return the truck to the gravel supplier's yard. Table 11 illustrates delivery costs to the Coastal market in 2022.

**Table 13: Aggregate Price & Delivery Cost, Fort Bragg CA 2022**

<b>Mendocino County: Aggregate Suppliers, Price and Delivery Costs To Fort Bragg (2022)</b>										
Company	Products	Service Area	Price/ Ton Drain Rock	Price/ Ton Road Base	Truck Size (tons)	Delivery Cost/ Hour	Delivery Time (minutes)	Delivery Cost to Fort Bragg	Delivery Cost/Ton	Cost/Ton Delivered to Fort Bragg
GeoAggregates	Sand & Gravel, Concrete	Mendocino County	\$ 51.00	\$ 20.50	24	\$ 145.00	30	\$ 72.50	\$ 3.02	\$ 54.02
Kibesillah Rock Co	Sand & Gravel	Coast	\$ 25.00	\$ 19.50	24	\$ 145.00	64	\$ 154.67	\$ 6.44	\$ 31.44
Greenwood Aggregates Inc	Sand & Gravel, Concrete	Mendocino County	\$ 26.99	\$ 17.99	24	\$ 155.00	129	\$ 333.25	\$ 13.89	\$ 40.88
Nor-Cal Recycled Rock & Aggregates	Sand & Gravel, Ready Mixed Concrete	Inland	\$ 34.50	\$ 20.00				no delivery		
Grist Creek Wylotti	Sand & Gravel	Inland	\$ 30.00	\$ 20.00	24	\$ 155.00	164	\$ 423.67	\$ 17.65	\$ 47.65
Northern Aggregates Inc	Sand & Gravel Concrete Contractors General	Mendocino County	\$ 21.50	\$ 19.50	24	\$ 155.00	128	\$ 330.67	\$ 13.78	\$ 35.28
Granite Construction Co	Sand & Gravel Concrete	Mendocino County	\$ 30.00	\$ 15.00	24	\$ 170.00	180	\$ 510.00	\$ 21.25	\$ 51.25
<b>Average Cost all Sources to Fort Bragg</b>			<b>\$ 31.28</b>	<b>\$ 18.93</b>		<b>\$ 154.17</b>		<b>\$ 304.13</b>	<b>\$ 12.67</b>	<b>\$ 43.42</b>
<b>Average Cost from Inland Sources to Fort Bragg</b>			<b>\$ 29.00</b>	<b>\$ 18.63</b>	24	<b>\$ 160.00</b>	125	<b>\$ 333.33</b>	<b>\$ 13.89</b>	<b>\$ 42.89</b>
<b>Average cost from Fort Bragg Sources to Fort Bragg</b>			<b>\$ 38.00</b>	<b>\$ 20.00</b>	24	<b>\$ 145.00</b>	47	<b>\$ 113.58</b>	<b>\$ 4.73</b>	<b>\$ 42.73</b>

Source: MJC, 2022: data collected via phone interview with company sales people

- On average, truck transport costs are based on a 125-minute delivery from Willits to Fort Bragg including loading, delivery, unloading and return time. By comparison a local delivery is just 47 minutes from a Fort Bragg supplier, when it includes loading, delivery, unloading and return time.
- Total truck delivery costs for 24 tons of aggregate to Fort Bragg range from a low of \$72.50 for GeoAggregates (which is owned by Grist Creek/Wylotti) to a high of \$510 for Granite Construction, which is located the furthest from Fort Bragg. However, Northern Aggregates and Kibasillah Rock are the cheapest overall sources of gravel in Fort Bragg at \$34.73/ton and \$31.44/ton respectively, when the total cost of the gravel and delivery is considered together.
- All six aggregate suppliers provide competitive pricing for gravel delivery to Fort Bragg. The average cost amongst all suppliers for a delivered ton of drain rock is \$43.42.
- The average cost of delivery is \$12.67/ton although the cost of delivery for local suppliers is much lower at \$4.73/ton.
- Rock from Kibesillah Rock Co is quarried less than 15 miles from Fort Bragg, for an average delivery cost of \$6.44/ton to Fort Bragg, which is 6% of the cost of delivery via train at \$110/ton (\$8,090/railcar @ 80 tons/ railcar).

This is a very competitive market for aggregate pricing. There is no space in this market to support the extra handling and delivery costs that would be required for rail freight as detailed in the section below.

**Train.** Aggregate delivery by train would be significantly more expensive than delivery by truck to Fort Bragg as previously analyzed in table 6.

## **Conclusion**

There is a no market for rail-based freight transportation services between Fort Bragg and Willits. There is not sufficient market demand to support the operation cost or the capitalization costs of repairing the existing rail line. Through actual contact with potential rail freight customers, MJC identified exactly one potential customer with an annual demand for 3 rail cars and with the caveat that service would only be workable if the line was connected to the interstate railroad system. Mendocino Railway has no connection to the interstate rail system.

## Appendix B: Rail Vs Truck Freight Market Share and Trends in the US

This Appendix examines general transportation trends Nationwide, which indicate that rail service is generally not competitive with truck transport. This is especially true for short haul distances such as Longvale to Willits (15 miles) and Willits to Fort Bragg (40 miles).

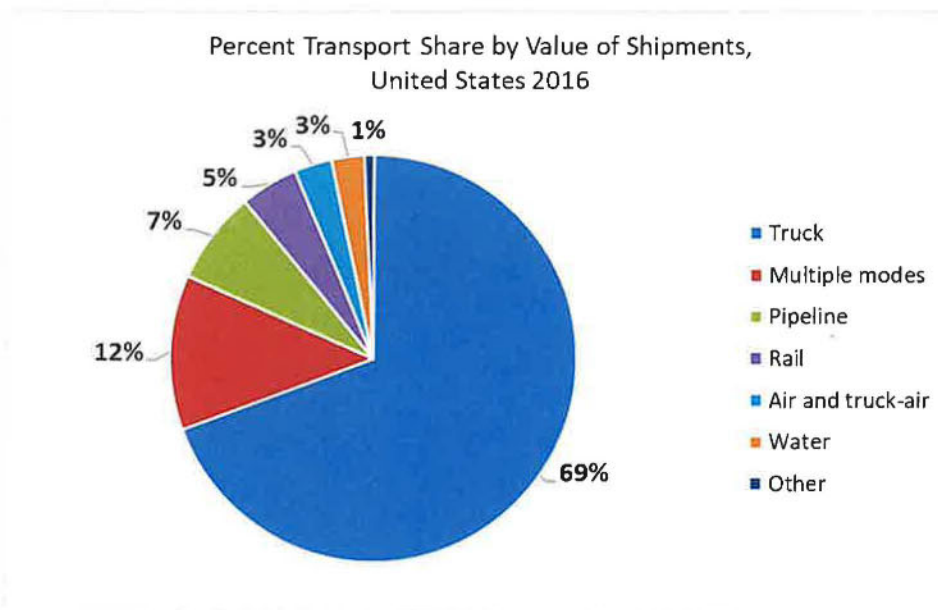
### Freight Modes Overview

Freight is moved by rail, waterways, pipeline, truck, and air throughout the United States.

According to the US Department of Transportation, more freight is shipped by Truck within the United States than any other mode. As noted in Table 1, truck shipments accounted for \$12,578 billion dollars of shipment value while rail shipped \$837 billion worth of goods in 2016.<sup>10</sup>

### Value of Shipments by Freight Mode (\$billions)

Mode	2012	2016	2045
Truck	12,216	12,579	24,001
Rail	721	837	1,629
Water	431	477	872
Air and truck-air	674	539	3,208
Pipeline	1,325	1,339	1,901
Multiple modes <sup>a</sup>	2,122	2,230	4,970
Other <sup>b</sup>	241	141	484
<b>Total</b>	<b>17,729</b>	<b>18,142</b>	<b>37,064</b>



Another way to think about these numbers is illustrated in Chart 1, which indicates that 69% of the value of all freight shipments is by truck, while 5% of the value of all shipments is by rail.

<sup>10</sup> U.S. Department of Transportation, [2019 Pocket Guide to Transportation](#), Page 19

Trucks also ship more by weight. In 2016 the total weight of truck shipments was 11,619 million tons, while all goods shipped by rail weighed in at 1,835 million tons. By weight Trucks ship 66% of all goods, while railroads ship 10% of all goods. Rail is twice as likely to ship heavy commodities than other items within the US. However, by weight trucks still ship significantly more than rail overall.

#### Weight of Shipments by Freight Mode (million tons)

Mode	2012	2016	2045
Truck	10,711	11,619	16,435
Rail	1,828	1,835	2,277
Water	658	740	945
Air and truck-air	7	5	26
Pipeline	3,031	2,904	4,766
Multiple modes <sup>a</sup>	418	486	800
Other <sup>b</sup>	342	97	273
<b>Total</b>	<b>16,996</b>	<b>17,686</b>	<b>25,521</b>

Rail is competitive with truck freight only in “ton miles traveled.” Trucks ship 40% of all ton miles traveled (2,023 billion) while trains ship 28% (1,527 Billion) of all ton miles. This illustrates that rail is slightly more competitive for long haul interstate travel of heavy bulk items. Heavy freight such as coal, lumber, ore that are going long distances are slightly more likely to travel by rail, or some combination of truck, rail, and water. Trucks with more flexible routes and scheduling are much more competitive for shorter-haul and medium-haul goods, although many interstate trucks also ship significant goods around the county.

#### Ton-miles of Shipments by Freight Mode

Mode	2012	2016	2045
Truck	1,891	2,023	3,282
Rail	1,481	1,427	1,776
Water	323	354	419
Air and truck-air	6	6	21
Pipeline	857	896	1,414
Multiple modes <sup>a</sup>	339	398	765
Other <sup>b</sup>	7	3	16
<b>Total</b>	<b>4,903</b>	<b>5,108</b>	<b>7,692</b>

<sup>a</sup>Includes mail. <sup>b</sup>Includes other, unknown, and imported crude oil with no domestic mode.

**Notes:** Details may not add to totals due to rounding. Includes domestic trade and the domestic portion of imports and exports.

**Source:** U.S. Department of Transportation, Bureau of Transportation Statistics and Federal Highway Administration, Freight Analysis Framework, Version 4.4.1, available at [www.bts.gov](http://www.bts.gov) as of November 2018.

Percent Transport Ton Miles of Shipments, United States 2016

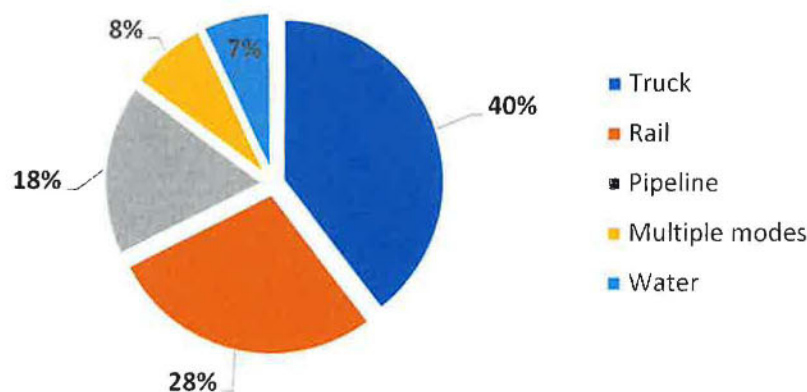


Table 14: Freight Tons Moved by Mode and Distance, United States, 2023

## Weight of freight by mode and distance

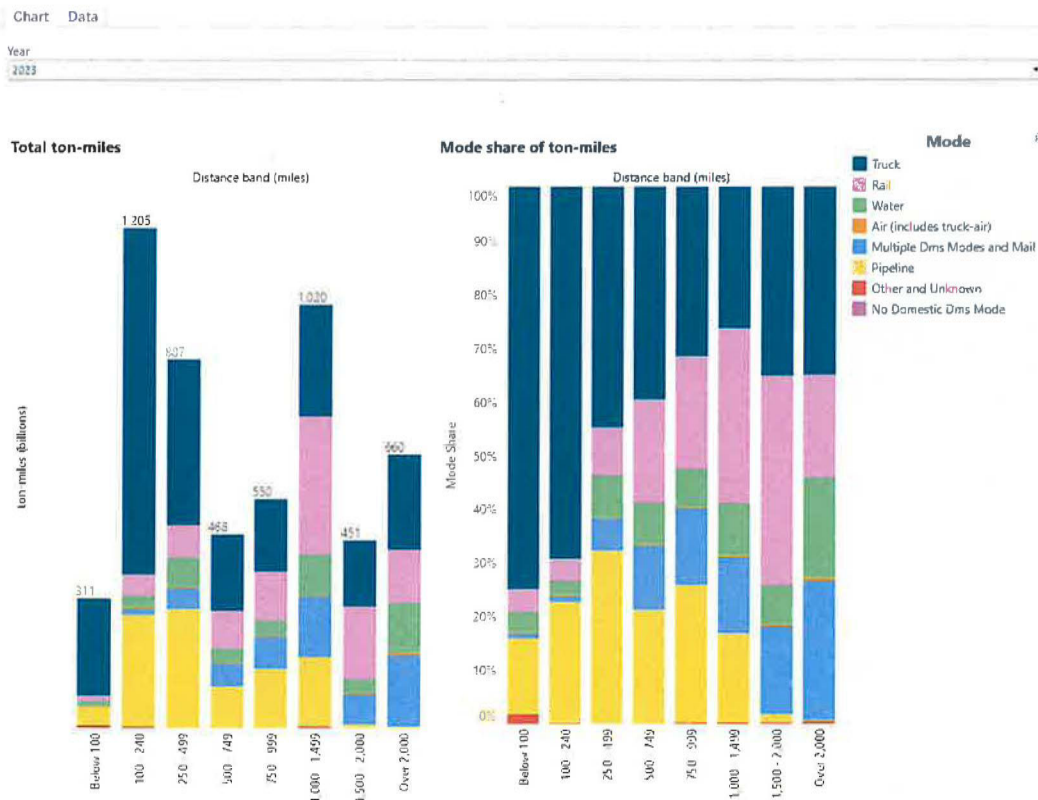
Chart Data

Weight of freight by mode and distance Year 2023

Year	Distance band (miles)	Tons (millions)						Air (includes truck-air)	Multiple Dms Modes and Mail
		Pipeline	Rail	Truck	Water				
2023	1,000 - 1,499	137	267	221	83			0.1%	14.6%
	1,500 - 2,000	4	104	92	19			0.2%	16.3%
	100 - 240	1,555	305	5,395	174			0.0%	1.3%
	250 - 499	842	222	1,178	195			0.1%	5.7%
	500 - 749	162	146	302	61			0.1%	11.9%
	750 - 999	166	133	201	44			0.1%	14.2%
	Below 100	942	262	5,652	298			0.0%	0.9%
	Over 2,000	0	51	96	39			0.6%	24.7%

Notes: Multiple modes and mail includes freight that is transferred between two or more modes on the journey between an origin and destination.  
 Source: U.S. Department of Transportation, Bureau of Transportation Statistics and Federal Highway Administration, Freight Analysis Framework, version 5.5, 2023. <https://www.bts.gov/faf>

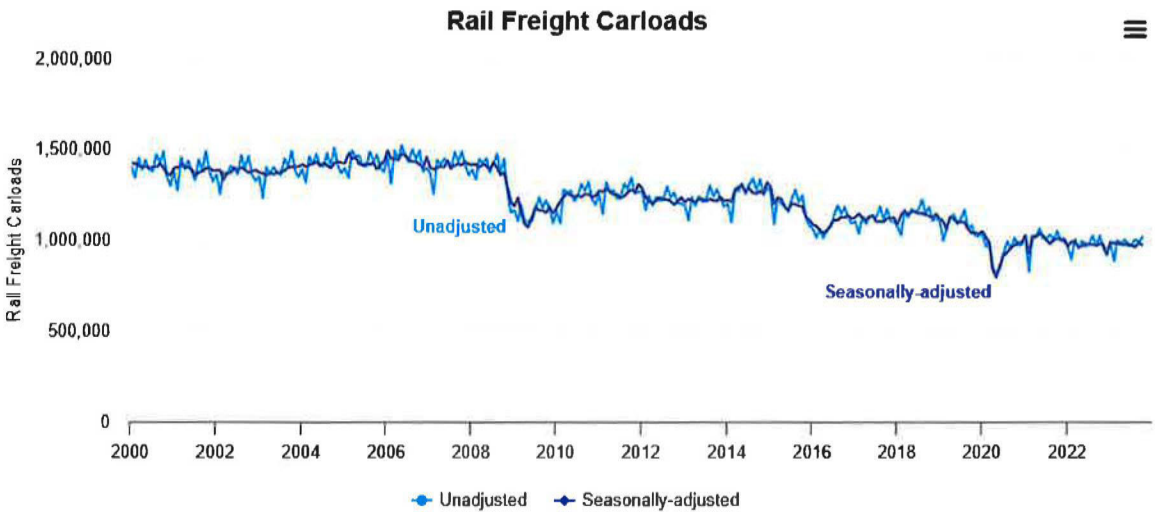
## Ton-miles of freight by mode and distance



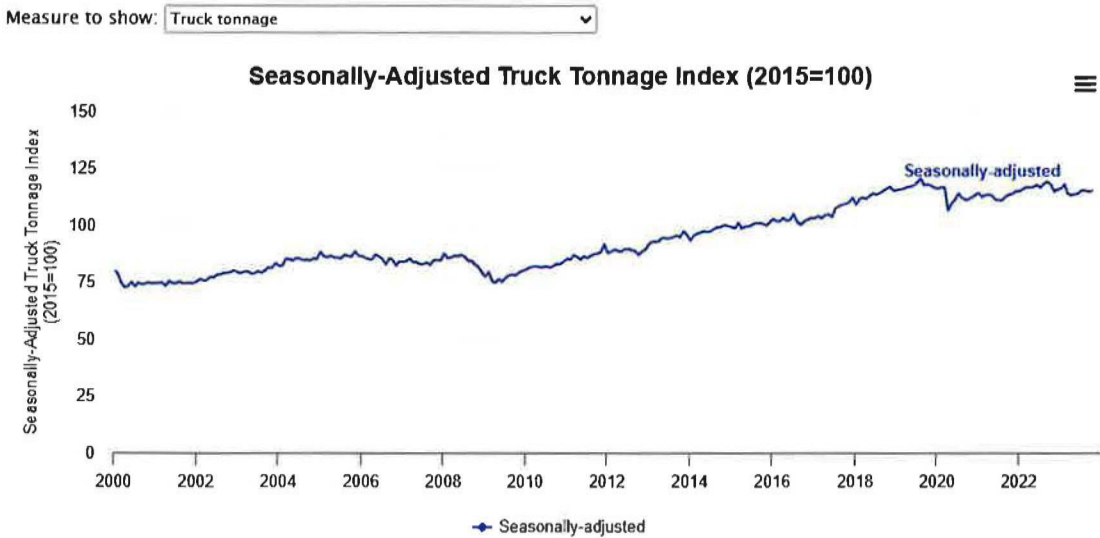
Notes: Multiple modes and mail includes freight that is transferred between two or more modes on the journey between an origin and destination.  
 Source: U.S. Department of Transportation, Bureau of Transportation Statistics and Federal Highway Administration, Freight Analysis Framework, version 5.5, 2023. <https://www.bts.gov/faf>

### Freight Trends

The charts below, excerpted from the U.S. Department of Transportation report *Transportation-as-an-Economic-Indicator*, illustrate a steady decline in the use of rail carloads for freight: overall carloads declined from 1.4 million in 2000 to 970,000 in 2022.

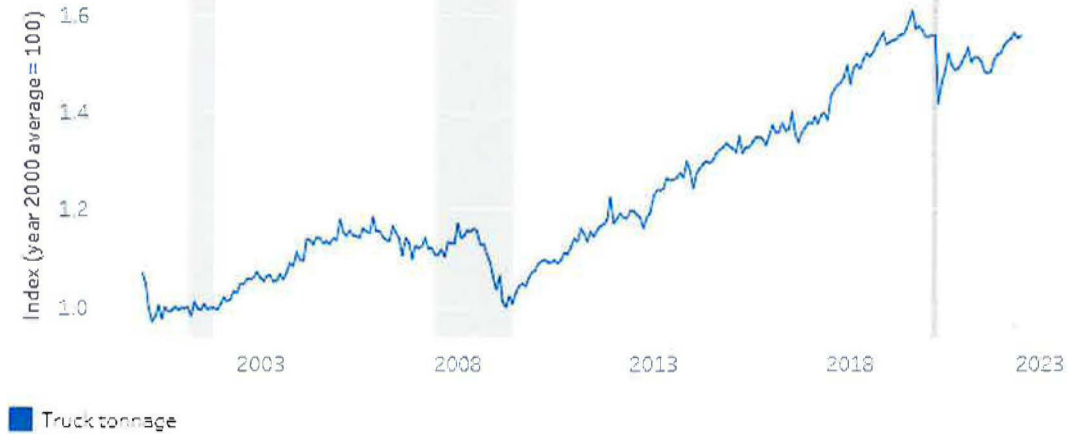


Conversely, there was a significant increase in the tonnage index for freight delivered by trucks: from 80 to 115 million during this same period for a total of 50% growth over the past 20 years.<sup>11</sup>



<sup>11</sup> <https://data.bts.gov/stories/s/Transportation-as-an-Economic-Indicator/9czv-tjte>

Modal Data (seasonally adjusted) Included in Freight Transportation Services Index



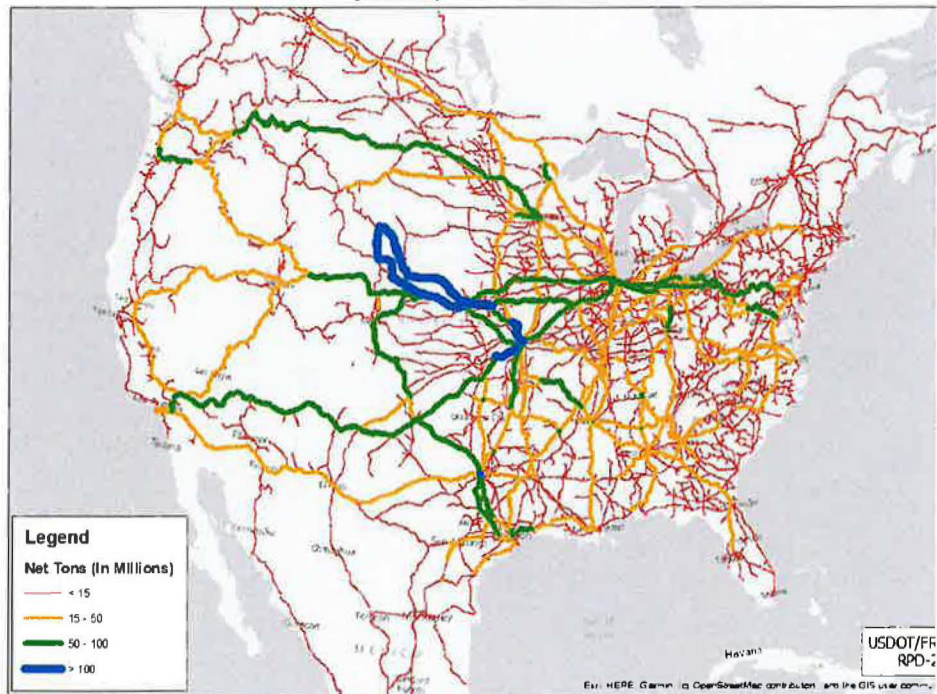
To conclude, overall rail transport continues to decline as a freight delivery method, while truck transport continues to increase.

**Rail Freight Activity by Area**

This Waybill Sample map shows U.S. rail routes by tonnage of the commodities they carry. As illustrated in the map, rail coverage and use are more common on the East coast and Midwest than it is in the Western United States. Rail coverage in California is relatively sparse, with most rail transport from the western United States, occurring between the major Ports of LA, Oakland and Seattle to the Midwest and east coast.

Other than some limited rail freight on SMART’s passenger rail system in southern Sonoma and Marin Counties, there is currently no rail freight service through the Highway 101 corridor of northern California.

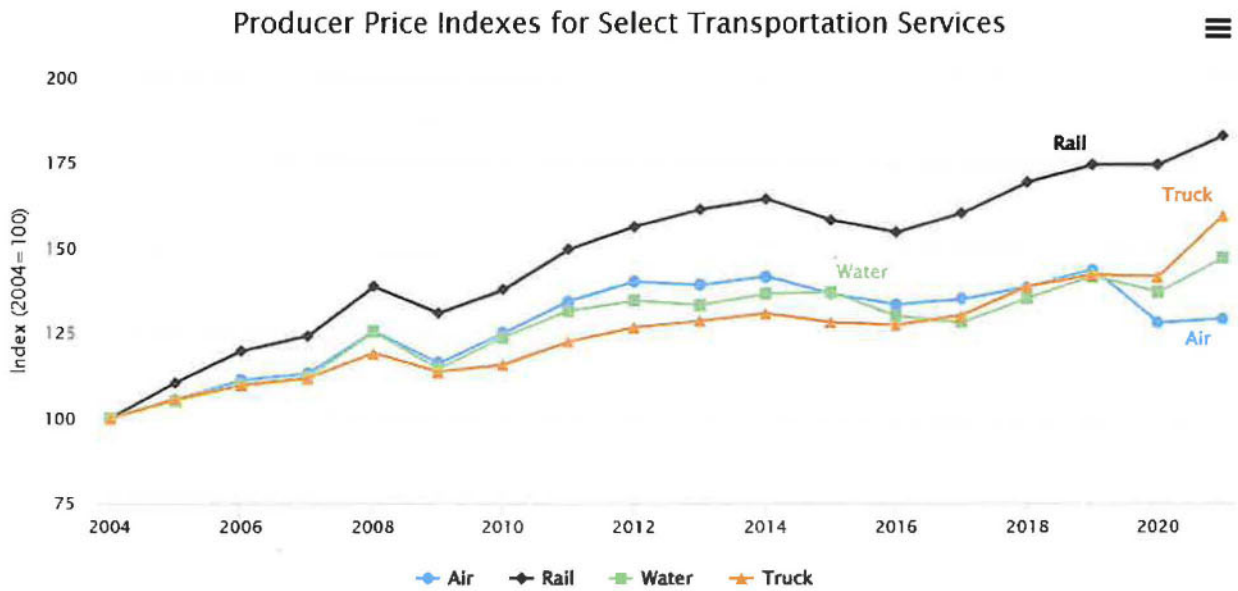
STB Waybill Sample 2018 – All Commodities



*The Waybill is a stratified sample of carload waybills for all U.S. rail traffic submitted by those rail carriers terminating 4,500 or more revenue carloads annually. Image created by Federal Railroad Administration, Office of Railroad Policy and Development (Office of Policy), based on Surface Transportation Board’s 2018 Carload Waybill Sample.*

## Truck Vs Rail Pricing

The chart illustrates price trends relative to the 2001 index for each mode of transport. The overall price of all transport options has increased between 2004 and 2020; however, it has increased fastest for rail.<sup>12</sup>



Click on item in legend to remove/add to graph.  
Mouse over to view value and percent change from preceding year.

Show notes and source

<sup>12</sup> Bureau of Transportation Statistics. *Cost of Transportation: Costs Faced by Businesses Purchasing Transportation Services*; <https://data.bts.gov/stories/s/2yqg-baad/>



# Appendix C: Mendocino County Demographic, Economic & Housing Trends

## Purpose & Findings

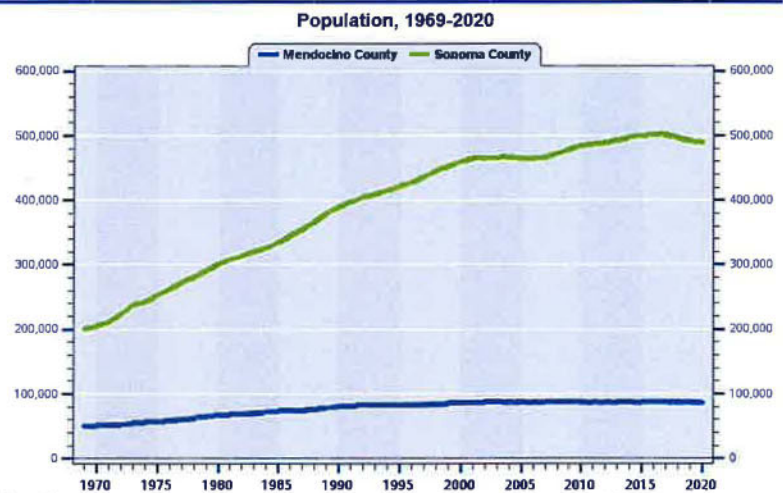
This appendix provides an overview of the Mendocino economy. It includes an overview of demographic, economic and housing trends which have the potential to shape freight business to and from the Mendocino coast.

## Demographic Trends

### Population

- Overall, Mendocino’s population growth is constrained by its remote location, low housing production numbers, and very slow job growth. In 2020, Mendocino’s population was 86,061, which is just 0.2% of the State population. Mendocino County’s population has remained relatively flat for the past 70 years (Figure 3, blue line).
- By contrast, Sonoma County, which has the closest economic ties to Mendocino County has a total population of 489,819, or 1.2% of the State’s population. Sonoma County’s population has doubled from 200,920 residents in 1969 to 489,819 in 2020.
- Both counties have large, low-density, unincorporated areas.
- The Mendocino Coast is relatively isolated from inland Mendocino due to the Coast Mountain Range. The Mendocino Coast has a population of around 18,000 residents.

Figure 6 Population Growth 1969-2020



## Economy Overview

Gross Regional Product for the two-county region was \$35 billion, with Sonoma contributing 87% and Mendocino County contributing just 12% of GDP.

- ✓ Overall Mendocino GDP ranks 38th from the top of California’s 58 counties, while Sonoma County’s Gross Domestic Product (GDP) ranks 17th.
- ✓ Since 2010, Gross Domestic Product has grown only 0.78%/year in Mendocino (ranked 38 out of 58 counties) while it has grown by 2.59%/year in Sonoma (ranked 17). See Figure 4.

Local Government, Education and Hospitals are the biggest economic sectors of the region in terms of GDP, which is not atypical, as these sectors serve the needs of existing communities. Other large regional economic sectors include Wineries, Crop Production, Instrument Manufacturing, Breweries, Tourism, Insurance, and Electric Power Distribution, while the state as a whole specializes in the tech sector, commercial banking, agriculture and tourism.

**Conclusion:** Mendocino’s economy is very small and has experienced minor growth in the past 20 years. It provides a small, localized, and somewhat stagnant market for freight services. Currently, all freight services are provided by trucks.

**Jobs Analysis**

This section explores Mendocino County’s job growth in a relative context. The bar chart below portrays all 57

**Figure 7 Gross Domestic Product, Sonoma & Mendocino County**

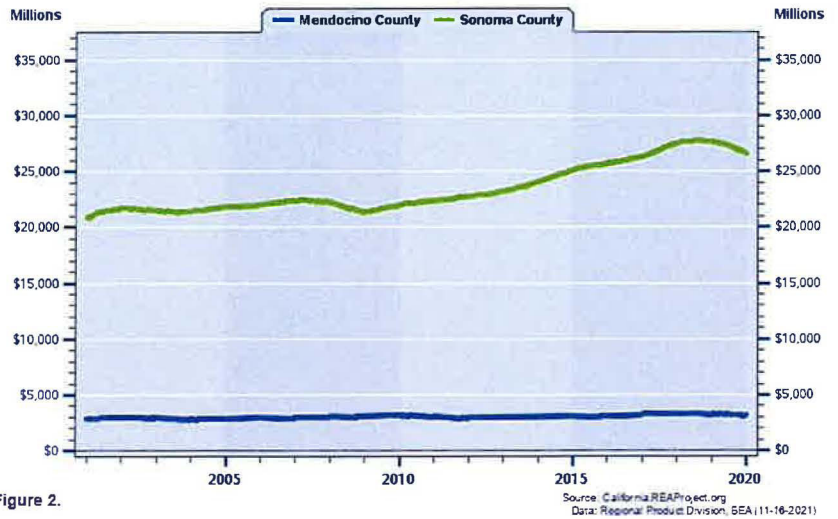
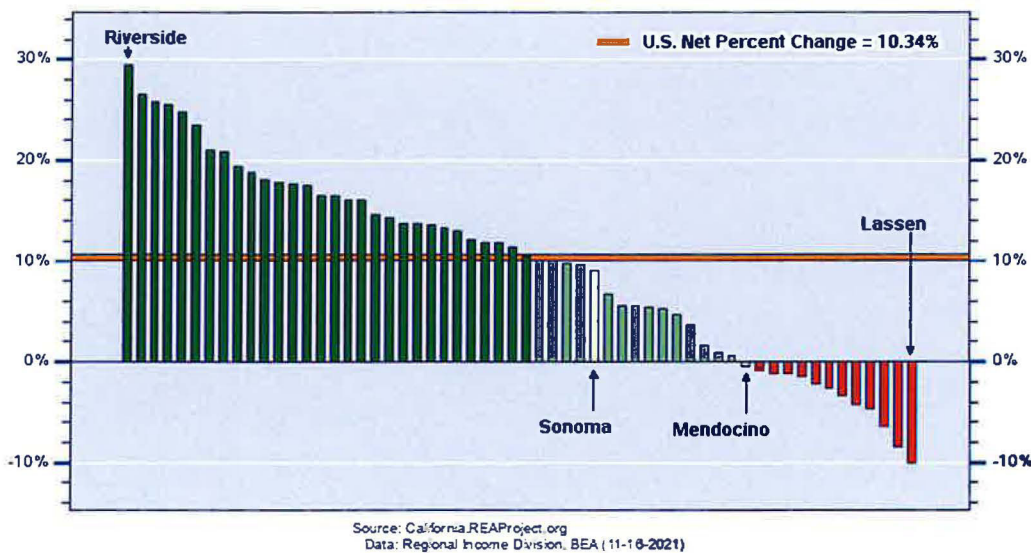


Figure 2.

California Counties’ job growth over the interval 2010-2020. Some of the most salient highlights include:

- Ranked #46, Mendocino's employment growth (-0.35%) surpassed that of 12 counties and trailed 45.
- Ranked #35, Sonoma's employment growth (9.00%) surpassed that of 23 counties and trailed 34.

**Figure 5: Employment Growth by County, 2010 vs 2020, Net Percent Change**



Mendocino County's employment change over 2010-2020 of **-0.35%** trailed the **10.34%** growth of employment nationally by **-10.68%**. Accounting for this difference was a local industry mix that included more industries that experienced slower growth (-1.8% or -814 jobs) nationwide, coupled with a large share (-8.89% or -4,026 jobs) of local industries that underperformed their counterparts nationally.

<b>Actual Growth</b>		<b>National Growth</b>		<b>Industry Mix</b>		<b>Regional Shift</b>
-0.35%*	=	10.34%	+	-1.80%	+	-8.89%
(-157)		(4,683)		(-814)		(-4,026)

\*Percent growth figures may not add due to rounding by a factor of ± 0.01%.

Table 5 contains the details of shift-share analysis for Mendocino County. It illustrates that Mendocino County underperformed the nation in almost all economic sectors, except for Forestry and Fishing, Utilities, Health Care and Social Assistance, and state government (blue). Declines in Mendocino County employment were particularly stark in Mining, Construction, Finance and Insurance, Professional Scientific and Technical services, Accommodations and Local Government (red). These data illustrate that Mendocino’s economy is in a period of stagnation with small economic shifts up and down. **The following sectors are particularly of interest for rail freight as they are likely the only sectors that would participate in rail freight from or to the Coast via the Skunk Train (Table 5).**

- **Mining is a very small component of the economy at 0.3% and experienced a significant contraction from 121 jobs in 2010 to 71 jobs in 2020, a decline of 41.32%. Mining in Mendocino County is almost exclusively related to aggregate extraction.**
- Forestry and Fishing experienced a slight increase of 170 jobs (+12.36%) in the ten-year timeframe. Fishing products are not a suitable product for rail transport due to perishability. Forestry is a difficult item to transport via rail because timber harvests are geographically dispersed and transport by rail would require a truck, rail and truck transfer scenario with very large logs. The average transport distance for logs is approximately 40 miles. It is more efficient and less expensive to truck the logs directly to a lumber mill, rather than to truck them to a railhead (Skunk), then load them on a freight car, and then unload them at the other end.
- Manufacturing is a relatively small sector of the Mendocino Coast economy. It represents just 6% of all jobs and experienced a nominal growth of 1.86% during this timeframe.

**Table 5: Mendocino County Employment Growth, 2010-2020**

Major Industry	Employment				Actual Growth		Standardized Growth <sup>2</sup>		Employment <sup>3</sup> 2020
	2010 Level	Share <sup>1</sup>	2020 Level	Share <sup>1</sup>	Percent	Net	Percent	Net	
<b>Farm Employment</b>	<b>1,967</b>	<b>4.3</b>	<b>1,581</b>	<b>3.5</b>	<b>-19.62</b>	<b>-386</b>	<b>-1.71</b>	<b>-34</b>	<b>1,933</b>
<b>Forestry, Fishing, and Related Activities</b>	<b>1,375</b>	<b>3.0</b>	<b>1,545</b>	<b>3.4</b>	<b>12.36</b>	<b>170</b>	<b>8.46</b>	<b>116</b>	<b>1,491</b>
<b>Mining</b>	<b>121</b>	<b>0.3</b>	<b>71</b>	<b>0.2</b>	<b>-41.32</b>	<b>-50</b>	<b>-25.76</b>	<b>-31</b>	<b>90</b>
Utilities	161	0.4	189	0.4	17.39	28	0.67	1	162
<b>Construction</b>	<b>2,948</b>	<b>6.5</b>	<b>2,894</b>	<b>6.4</b>	<b>-1.83</b>	<b>-54</b>	<b>23.71</b>	<b>699</b>	<b>3,647</b>
Manufacturing	2,736	6.0	2,787	6.2	1.86	51	5.91	162	2,898
Wholesale Trade	906	2.0	910	2.0	0.44	4	2.81	25	931
Retail Trade	5,641	12.5	5,429	12.0	-3.76	-212	2.15	121	5,762
Transportation and Warehousing	690	1.5	1,025	2.3	48.55	335	65.85	454	1,144
Information	488	1.1	280	0.6	-42.62	-208	0.68	3	491
<b>Finance and Insurance</b>	<b>1,369</b>	<b>3.0</b>	<b>989</b>	<b>2.2</b>	<b>-27.76</b>	<b>-380</b>	<b>14.39</b>	<b>197</b>	<b>1,566</b>
Real Estate and Rental and Leasing	1,872	4.1	1,842	4.1	-1.60	-30	16.01	300	2,172
<b>Professional, Scientific, and Technical Services</b>	<b>2,711</b>	<b>6.0</b>	<b>2,263</b>	<b>5.0</b>	<b>-16.53</b>	<b>-448</b>	<b>21.89</b>	<b>593</b>	<b>3,304</b>
Management of Companies and Enterprises	224	0.5	242	0.5	8.04	18	31.99	72	296
<b>Administrative and Waste Services</b>	<b>1,987</b>	<b>4.4</b>	<b>2,408</b>	<b>5.3</b>	<b>21.19</b>	<b>421</b>	<b>12.89</b>	<b>256</b>	<b>2,243</b>
Educational Services	490	1.1	447	1.0	-8.78	-43	12.45	61	551
<b>Health Care and Social Assistance</b>	<b>4,629</b>	<b>10.2</b>	<b>6,298</b>	<b>14.0</b>	<b>36.06</b>	<b>1,669</b>	<b>17.68</b>	<b>818</b>	<b>5,447</b>
Arts, Entertainment, and Recreation	1,108	2.4	967	2.1	-12.73	-141	-5.39	-60	1,048
<b>Accommodation and Food Services</b>	<b>4,009</b>	<b>8.9</b>	<b>3,665</b>	<b>8.1</b>	<b>-8.58</b>	<b>-344</b>	<b>1.62</b>	<b>65</b>	<b>4,074</b>
Other Services (except Public Administration)	2,714	6.0	2,769	6.1	2.03	55	7.85	213	2,927
Federal Civilian	333	0.7	290	0.6	-12.91	-43	-1.75	-6	327
Military	173	0.4	156	0.3	-9.83	-17	-9.00	-16	157
State Government	406	0.9	480	1.1	18.23	74	0.56	2	408
<b>Local Government</b>	<b>6,235</b>	<b>13.8</b>	<b>5,609</b>	<b>12.4</b>	<b>-10.04</b>	<b>-626</b>	<b>-2.33</b>	<b>-145</b>	<b>6,090</b>
<b>Total Employment</b>	<b>45,293</b>	<b>100.0</b>	<b>45,136</b>	<b>100.0</b>	<b>-0.35</b>	<b>-157</b>	<b>8.54</b>	<b>3,869</b>	<b>49,162</b>

<sup>1</sup>Share: The percentage share of total employment by industry.

<sup>2</sup>Standardized Growth: at the same rate as its counterpart at the national level had each industry grown.

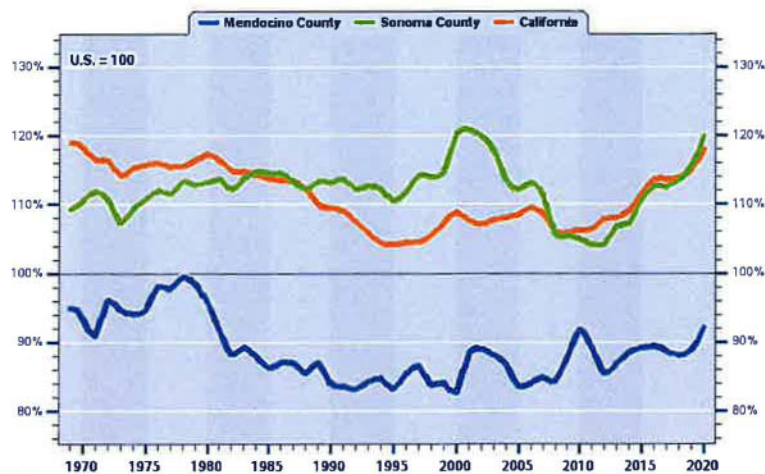
<sup>3</sup>Standardized Employment, 2020: The 2020 level of employment in each industry had it grown at the same rate as its counterparts at the national level since 2010. Note: Percent growth figures may not add due to rounding by a factor of ± 0.01%

## Employment, Income & Poverty

Employment growth in Sonoma County averaged 1.52% per year between 2010 and 2020, ranking 28th in California, while employment growth in Mendocino was just 0.51% per year earning Mendocino County a rank of 47th among 57 counties in California. Mendocino County also consistently has higher unemployment rates (6.3% in 2022) than Sonoma (3.5%).

- Mendocino County per capita income has ranged between 85 and 100% of the US average per capita income from 1970-2020, illustrating that the area has struggled economically for decades (blue Lines). By comparison Sonoma per capita income is consistently 110 to 120% of the US average per capita income (Figure 6).
- Median Household Income for Mendocino (\$46,528) ranks 13th from the bottom among California counties, while Sonoma Household Income (\$71,386) ranks 13th from the top, again illustrating the divergent nature of these two economies.
- In 2020, the Mendocino County poverty rate was 19.1% (or 1 of every 5 households), while Sonoma’s poverty rate was 7.8%.

**Figure 6: Per Capita Personal Income as a Percent of the US Average**



### Housing

Overall, housing production has not kept pace with demand. As illustrated in Table 6, Mendocino housing production averages 148 units/year or a 0.36% annual growth rate. Sonoma County by contrast averages 1,702 new units/year, or 0.83% annual growth.

**Implications:** New housing production is unlikely to be a significant source of demand for rail freight of products such as aggregates and finished lumber. The population of the Mendocino Coast offers a very small market for such products and grows at a slow pace.

**Table 6: Housing Permits and Production, Mendocino & Sonoma County 2014-2023**

	Mendocino County	Sonoma County
<b>Timeframe</b>	6/30/2014 - 6/30/2019	1/31/2015 - 1/31/2023
	<b>Permits</b>	<b>Permits</b>
Very Low Income	123	476
Low Income	49	628
Moderate Income	192	765
Above Moderate Income	377	4941
<b>Total Building Permits</b>	<b>741</b>	<b>6810</b>
Building Permits /year	148.2	1702.5
Total Housing Units	41,055	206,362
<b>% growth Units/year</b>	<b>0.36%</b>	<b>0.83%</b>

Source: California Housing and Community Development (HCD).