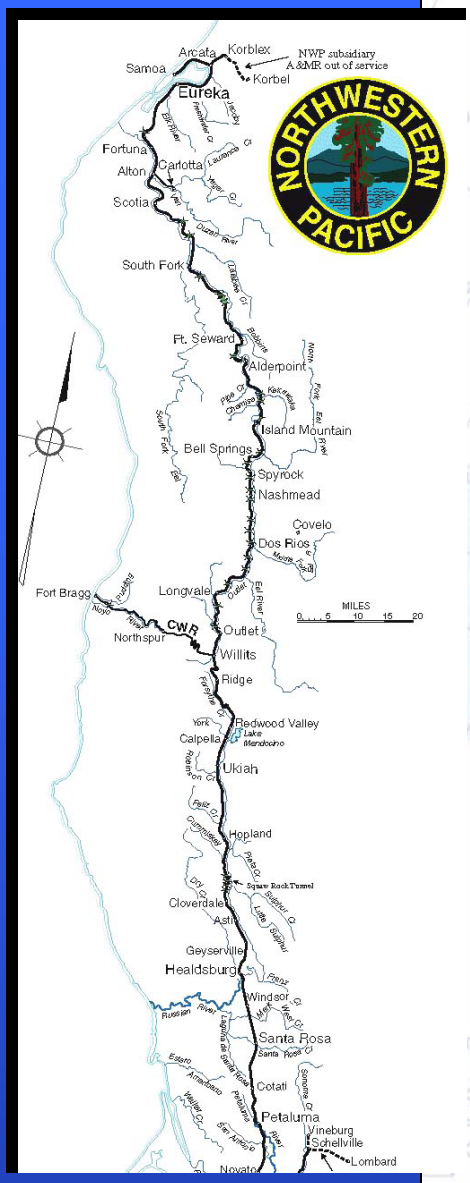

Technical Advisory Committee
DRAFT FINAL

The Long Term Financial Feasibility of the Northwestern Pacific Railroad

Humboldt Bay Harbor, Recreation
and Conservation District

PB Ports & Marine

Parsons Brinckerhoff Quade & Douglas, Inc.

In Association with
Winzler & Kelly
BST Associates

July 2002

PB 100 YEARS

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Appendices

1.0 INTRODUCTION AND BACKGROUND

1.1 Introduction

The North Coast Railroad Authority (NCRA) and the Humboldt Bay Harbor, Recreation and Conservation District (Port) operate in a unique, interdependent relationship on California's north coast, between the Bay Area and Eureka/Arcata. While the Port views the rail line as vital to its long-term success as a maritime center, the NCRA views the Port as a key potential market for its operation as well. With Port volumes in decline and the rail line currently out of service, both agencies are interested in identifying market and operating scenarios that will enable them to restore service for the benefit of the region.

As a result, two companion studies have been commissioned to evaluate feasible scenarios for revitalizing each operation: the *Port of Humboldt Bay Harbor Revitalization Plan*, which will be completed in December 2002, and this study, the *Long Term Financial Feasibility of the Northwestern Pacific Railroad*, which was undertaken first. The Humboldt Bay Harbor, Recreation and Conservation District is the contracting agency for the two studies; however, numerous other funding agencies and stakeholders are participating in the two study efforts.

The Port along with the City of Eureka, HCOAG, MCOAG and the County of Humboldt, with grant funding from Caltrans commissioned this analysis to determine the current and potential market demand for and revenue generating capacity of rail services on the Northwestern Pacific Railroad. . All serve on a Technical Advisory Committee (TAC) guiding the rail feasibility study, with the NCRA serving as TAC leader. A complete list of TAC members can be found in Appendix H.

This study serves as one element, in a broader business plan the NCRA is preparing. Other studies being conducted by the NCRA address the physical condition and capital improvement plan for the rail line, an environmental analysis, as well as a search for a new operator. In directing this financial feasibility analysis, the goal of the TAC has been to provide a realistic assessment of the rail line's financial feasibility, suitable for use in a business plan or investment-banking proposal.

The following report is a summary of the findings of this analysis and provides a 25-year financial horizon for the reestablishment of freight and passenger rail service to Humboldt, Mendocino and Sonoma Counties.

1.2 Background

The following information is taken from the North Coast Railroad Authority's Strategic Plan for Resumption of Viable Rail Service for California's North Coast (April, 2001):

> Rail service on the North Coast dates well back into the 19th century. Completion of the connection between Eureka and San Francisco was attained in 1914. Designated the Northwestern Pacific Railroad (NWP), it was jointly owned by

Santa Fe and Southern Pacific and operated independently until 1929 when it became exclusively part of Southern Pacific.

The NWP was the only means of transportation within the corridor prior to completion of Highway 101 and remained the sole means of substantial freight movement for decades. It is worthy of note that the railroad has survived many natural disasters and was restored much sooner than State Highway 101 after the devastating and record setting storm of Dec 1964.

Southern Pacific sold the portion of the railroad north of Willits in 1984. Named the Eureka Southern, it operated until December 1986 when it declared bankruptcy. A Federally appointed bankruptcy trustee managed the railroad until 1992. Southern Pacific continued to operate the NWP south of Willits through an operating agreement with the California Northern Railroad.

In 1989 the California Legislature created the North Coast Railroad Authority (NCRA). Utilizing State provided funding this new authority acquired the former Eureka Southern out of bankruptcy in 1992. The NCRA acquired that portion of the NWP between Willits and Healdsburg from Southern Pacific in 1996.

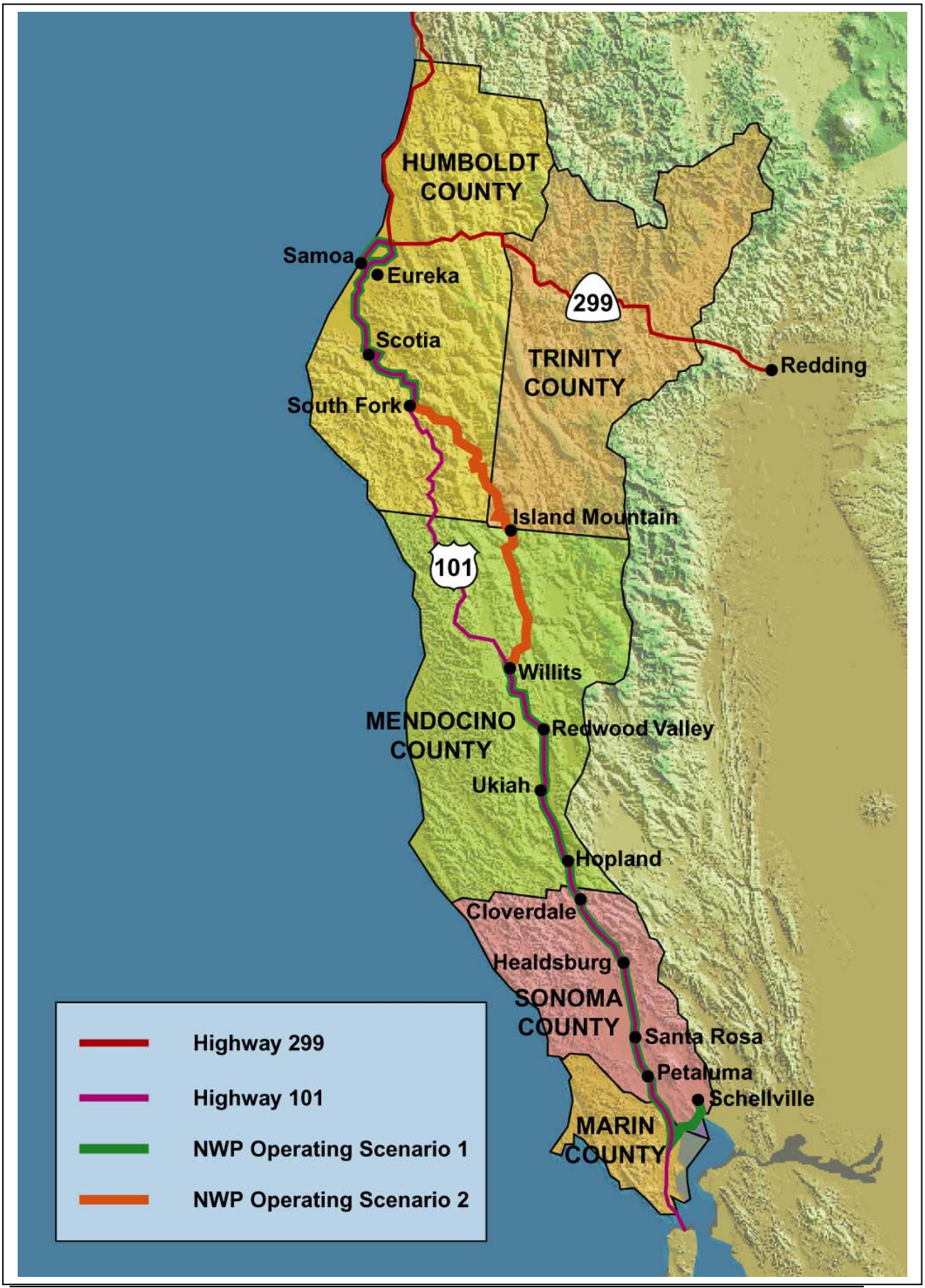
The remaining portion of the NWP south of Healdsburg is now owned by the Northwestern Pacific Railroad Authority (NWPRA), a joint powers agency comprised of NCRA, the Golden Gate Bridge, Highway, and Transportation District, and the County of Marin. Freight service and related maintenance of this portion of the railroad is the responsibility of NCRA under an agreement with NWPRA**.**

In 1997 the NCRA Board chose to seek a private sector agreement to provide the freight service operations and maintenance of the railroad. Proposals were received and Rail-Ways, Inc. of Elgin, IL was as for the operator. Within weeks of reaching an agreement the El Nino storms of 1998 closed the railroad north of Willits with a series of major landslides. Decades of deferred maintenance left the railroad in a serious state of disrepair. Rail-Ways operated freight service south of Willits until the Federal Railroad Administration (FRA) issued Emergency Order 21, which closed the entire railroad in November 1998 for their failure to meet federal standards.

With the exception of sporadic service provided through 2001 on the southern end of the railroad between Penngrove and Schellville, there has not been significant freight activity along the corridor since 1997.

Since operations ceased along the upper portion of the railroad in 1998 and the lower portion in 2001, the NCRA has been assessing the capital and operating feasibility of reopening segments of the railroad to freight service. Humboldt Bay's economy was historically based on natural resources and the port. Both of these economic elements were connected and dependent on rail service. Given this history, this railroad has been studied or evaluated almost every two years since the Southern Pacific attempted to abandon it in 1982.

Figure 1.2.1 – The Northwestern Pacific Railroad and Operating Scenarios



2.0 REVIEW OF PAST STUDIES

Approximately 15 previous studies relating to rail transportation and related economic condition on the North Coast were reviewed as a part of this study effort. The nine most salient reports for this feasibility analysis are reviewed below. Some of these reports provided important background information regarding past activity on the railroad and also provided valuable demographic and statistical information for market analysis. However, they were primarily used as background material. In fact, given the age of these reports, it is important to note that some of the following background information may be dated especially if related to financial or market information. If a report was used specifically in the market or financial analysis for this study, it has been footnoted accordingly.

Prosperity! The North Coast Strategy
Humboldt Economic Development Forum, 1999/2000

This plan was written in order to qualify for federal funds. It is Humboldt County's Comprehensive Economic Development Strategy (CEDS).

The plan contains the following elements: economic and demographic data, the identification of strategies for economic development, and a list of projects essential to accomplish these strategies.

The *Prosperity* strategy uses an industry cluster model of the economy as a framework for analysis, planning and implementation. Nine clusters have been identified: lumber and wood products; education and research; tourism; dairy and dairy processing; fisheries, processing and aquaculture; specialty agriculture horticulture; manufacturing, arts and culture; and information and technology. Key issues, future opportunities, industry needs and industry specific products were identified for each industry cluster. They were reviewed to determine if any of the information was transportation related.

The discussion on the Lumber and Wood Products notes that transportation availability and cost is a "key element for competitive positioning of local lumber products." The report specifically cites the tractor-trailer length restrictions and lack of dependable rail service as problems. The report predicts that transportation will become an even greater problem when the timber harvest reaches its peak in 10-15 years. The report does not identify specific opportunities or projects to alleviate these problems.

The discussion on the tourism industry cluster makes many references to transportation. It identifies as key issues that many foreign flag cruise ships are restricted from docking in Humboldt Bay (due to restrictions in consecutive port calls) and that much of Humboldt County is not pedestrian friendly. It does not specifically identify rail service as a future opportunity, industry need or industry specific project. However, many of the items listed in this section could possibly be extended to rail service, such as tours of manufacturing facilities and festivals.

The Small Manufacturing profile states that Humboldt County's distance from urban centers poses challenges for transportation. The discussion notes that entities with the greatest success include those that pass on the extra transportation cost in the high value of the manufactured goods. Key issues include challenges in getting employees to work due to lack of public transportation and the low concentration of workers throughout the County. It also notes that transportation is expensive and difficult to arrange.

The report notes that a system for maximizing truck transportation is needed.

The remaining profiles on education and research; dairy and dairy processing; fisheries, processing and aquaculture; specialty agriculture horticulture; arts and culture; and information and technology do not identify transportation as either a key issue or an opportunity.

2000-02 Regional Transportation Plan for Humboldt County
Humboldt Association of Governments, Adopted August 30, 2001

The Regional Transportation Plan (RTP) describes Humboldt County's existing transportation systems and future needs for short-term (0-10 years) and long-term (11-20 years) horizons. The horizon year for this RTP is 2025.

The RTP contains five elements: Needs Assessment (identifies existing operations and deficiencies), Policy (makes recommendations for implementing 10-year and 20-year objectives and includes program level performance measures), Action (recommends specific improvements for short-range and long-range capital programs, cost estimates and responsible agencies), Financial (gives an inventory of existing and potential transportation funding sources and shortfalls and lists financially constrained and unfunded projects), and Environmental (describes environmental impacts and compliance).

Rail transportation is addressed in each element. In the Needs Assessment section, the RTP describes rail service in the NWP corridor prior to the 1998 FRA Emergency Order. This section also notes that there are economic development opportunities associated with the rail line, and that operation of the rail line could keep truck volumes on Highway 101 and State Route 299 from producing undesirable congestion.

In terms of passenger rail, the RTP notes that the North Coast Logging Interpretive Association has plans to operate a steam-powered excursion train.

The RTP identifies the following sources of future funding to the NCRA:

- Rehabilitation: about $8.6 million (ISTEA);
- Grant funds: $120,000 (California Department of Fish and Game);
- Rehabilitation: $35 million (Governor's Transportation Congestion Relief Program); and

- Grade crossing improvements: (amounts not specified in RTP) (Humboldt and Mendocino Counties).

In the Policy Element, the RTP defines three policies associated with rail transport:
1. Support re-establishment of rail service (Policy 5.04)
2. Encourage modernized rail for improved freight and passenger service (Policy 5.05)
3. Support NCRA efforts to maintain safe rail crossings (Policy 5.06)

The RTP also identifies the development of recreational travel within the region as a goal and specifies development of excursion rail as a policy to support this goal (Policy 6.04).

The Action Element of the RTP identifies short-term and long-term improvements for addressing the existing deficiencies of the County's transportation system and to meet future demand. The report notes that damage repair for the NWP corridor in Humboldt County has been identified as a need for the transportation system but that the $52.5 million required for this project is unfunded. However, the RTP also acknowledges that $35 million has been allocated to NCRA for corridor rehabilitation.

Study of excursion rail service around the Bay is identified in the RTP as a recommended short-term action. An update of the NCRA Master Plan and completion of improvements to the NWP tracks between Willits and Eureka have also been defined as short-term actions.

Finally, the Financial Element of the RTP identifies potential funding sources for resumption of rail service in the NWP corridor. Public subsidy and operating revenue is expected to fund the railroad for the first five years, after which the subsidy will be phased out. The public subsidy is to be provided by California Assembly Bill 2782 (1998). It provided $2 million to the California Transportation Commission (CTC) for the NCRA. AB 2782 identifies some projects that would be eligible for this funding including an accounting system, payment to contractors and vendors and actions necessary to meet the requirements of the FRA compliance order. Other projects may also be eligible. The NCRA's Five-Year Plan and Strategic Plan notes other goals that would require funding such as:

- Assessment of entire line;
- Reopening South of Willits to FRA Class 1 Standards;
- Reopening Willits to Arcata to FRA Class 1 Standards;
- Upgrade to FRA Class 2 and 3 and stabilization South of Willits;
- Upgrade to FRA Class 2 and 3 and track structure stabilization North of Willits; and
- Future additional stabilization.

The RTP lists other potential funding sources but it is not likely that any of these could be used for rail service.

The Environmental Element of the RTP focuses on the environmental documentation required for the RTP and coordination with the North Coast Unified Air Quality Management District. It does not address specific projects.

Tourist Travel Triangle Feasibility Study
Prepared for the City of Fort Bragg, May 1995

This report was prepared to determine if it would be possible to expand tourism opportunities in the cities of Fort Bragg, Willits and Eureka (the "Tourist Travel Triangle") using a variety of transportation services including the California Western "Skunk Train," the revival of passenger rail service in the Northwestern Pacific Rail corridor, a sea link between Fort Bragg and Eureka, and the state highway system connecting the cities.

The preferred scenario consists of three phases using these elements:

Phase 1 has a short-term horizon of zero to three years. Passenger service would be reestablished originating in Eureka and terminating in Willits and would be coordinated with the Skunk Train service. The trip between Eureka and Willits is assumed to take eight hours (one-way). An optional one-way bus trip between Eureka and Willits is also part of this phase.

Phase 2 would occur in a four to six years timeframe. The Eureka to Willits service would be supplemented with a return rail trip. Sea link service between Fort Bragg and Eureka would commence.

Phase 3 would occur in the seven to ten year timeframe. Skunk Train service and two-way rail service between Eureka and Willits would continue and may be extended to the Bay Area. Sea link service would be expanded to include stops at San Francisco and along the Oregon coast.

A preliminary business plan for the new rail element (Eureka to Willits) is included in this study. The plan acknowledges that car renovations, track repair and maintenance are critical to initiating and sustaining passenger rail service in this corridor. Several potential state and federal funding sources were identified but none of these funds were committed to this project at the time of the report. The report states that $1,992,500 would be needed to start up service and about $16 million would be needed to maintain service ($14,500,000 was estimated to be needed to do long-term track work and overall general maintenance).

For this business plan, the first full year of operation was assumed to be 1996. Service would consist of one northbound train and one southbound train over the weekend. Riders would have the option of buying one-way tickets. For the 1996 season, total revenue from fares and other sources would be about $33,000. Total costs (operating and other) were estimated to be about $25,500. Therefore, the profit per weekend would be $7,500. The highest operating costs were identified as expendables ($1,500/day);

insurance ($675/day); and catering ($5,000/weekend). The locomotive operating cost was estimated at $100/day.

Over a maximum 15-weekend season, the service was estimated to result in a revenue of $495,000, total costs of $383,000 and profits of $112,000.

Northwestern Pacific Railroad Business Plan
North Coast Railroad Authority, August 1996

This report outlines the various capital expenses that are required to make the railroad operational. It identifies just over $10 million for the rehabilitation of the railroad.

It also outlines specific long-term goals for the operation of the railroad with a variety of freight options. Specifically, the report identifies the following potential markets:

Lumber
Railroad Crossties
Unit Trains
Sand, Gravel and Riprap
Scrap Metal and Paper
Coil and Plate Steel
Food Products (Wine and Beer)
Roofing Materials
Automotive Parts
Solid Waste – Garbage
Fertilizer
Heavy Equipment
Feed Grains

These markets would equate to approximately 104 cars a day along the railroad. However, the business plan states that three quarters of the cars have roughly a 55% probability of occurring (the remaining quarter being solid orders).

The Business Plan noted that freight tariff effective July 1, 1996 was implemented for lumber products. It also included an organizational chart for the Northwestern Pacific Railroad Company

The North Coast Railroad Authority and the New Northwestern Pacific Railroad – A Public-Private Partnership
North Coast Railroad Authority, October 1998

This business plan is focused on the separation of the operating entity and the capital element, which is considered more of a "public good." The plan introduces Rail-Ways, Inc., as the potential operator of the railroad, with the NCRA maintaining control of the right-of-way. It outlines many of the financial liabilities that the NCRA are still responsible for and it identifies possible sources to cover those capital needs.

The business plan also included various commitments (letters of commitment) from shippers that would use the rail line. Shippers with signed contracts or exempt quotations for local freight service include:

ECDC Environmental, L.C. (Humboldt County Waste Authority)
Shamrock Materials, Inc.
Parnum Paving, Inc.

Other shippers using exempt quotes, circulars and/or interline transportation contracts (presently held by Union Pacific Railroad), and using the NWP, include:

Blue Lake Forest Products
Dairyman's Milling
Eel River Saw Mills
Georgia Pacific Corp.
Hunt & Behrens
Louisiana Pacific Corp.
Masonite Corp.
Mead Clark Lumber
Dairyman's Feed & Supply Coop.
Pacific Lumber Co.
Schmidbauer Lumber Co.
Sierra Pacific Industries
Simpson Timber
Skip Gibbs Rail Bridges
Standard Structures, Inc.

Appendix F of the business plan is the business plan for Rail-Ways operation of the Northwestern Pacific. This plan has interesting information regarding the proposed service for the railroad, the forecasted revenues and expenses for "year-one" operation and a list of possible shippers that would use the service.

Appendix H of the business plan is an independent analysis of the Rail-Ways Business Plan, performed by Professor Gregory Bereskin of St. Ambrose University. He found that the assumptions used for the Rail-Ways business plan were reasonable and that overall, the "…plan is reasonably well developed." However, he did express some disappointment in the fact that the plan only addressed the year-one analysis and did not address the future year forecasts.

North Coast Rail Authority: The Five-Year Plan
North Coast Railroad Authority, July 1, 1999

This plan is an update of the 1998 plan. It addresses the critical condition of the railroad infrastructure and its inability to reinvent itself because of the accounting requirements for the disbursement of state and federal funds.

It outlines the continued efforts of Rail-Ways, Inc. and the NCRA staff to ready the line for use, however the over-riding issues regarding capital funding for the project are the biggest issue in this report.

The appendices of the report hold letters of support from government, business and convention and visitor bureaus.

Draft Route Concept Report: Route 101 Corridor
Caltrans District 1, February 2002

This report gives an overview of Highway 101 from Hopland to the Oregon border. What is of particular relevance to the rail study are the future projections of traffic on certain segments that parallel the NWP corridor. The Highway 101 corridor is severely constrained by the topography and the environmental conditions that the route traverses. There are very limited opportunities for expansion of the Highway throughout the corridor, and in locations where expansion is possible, it will be very costly. Over the 20-year horizon certain segments of the Highway will experience low (D and F) levels of service. The railroad is mentioned in the report, however there is little detail regarding the interaction between the highway and the railroad.

Evaluation of the North Coast Railroad: Contributions to the Regional Economy and to the Transportation Network
Transportation Planning Program of Caltrans, August 1, 1995

This study looked at the economic impact of NWP non-operation in the North Coast. It found that there would be a net increase in costs to travelers on the Highway 101 corridor

of approximately $345,000. At the time of writing the report, the NWP had 43 employees, which represented less that 1% of the regional work force. It notes that any loss of jobs in the railroad shipping of lumber would be made up in the trucking sector.

Additionally it notes that the net impact on the cost of lumber for the consumer is barely affected by the lack of rail access. It would have a net impact of one cent per board foot from that region.

The report concludes that the NWP has no substantial positive or negative economic impact on the North Coast region.

Overview of the Northwestern Pacific Railroad
California Public Utilities Commission, October 1, 1997

This document addresses the history of public expenditure on the line. It also describes the economic impacts of the closure of the NWP. The report states that 100 jobs directly related to the Railroad would be lost and that there would be other ramifications to other companies along the corridor as a result of the loss of inexpensive transportation. Specifically, it mentions Masonite Corp. in Ukiah that was "critically dependent on rail" as a primary victim (the Masonite factory closed in 2001).

3.0 CAPITAL OVERVIEW

The Northwestern Pacific Railroad is one of the most difficult railroads in the United States to maintain. When the Southern Pacific Railroad entered the abandonment proceedings in 1982, they estimated that the Northwestern Pacific cost them 2 to 3 times their normalized maintenance costs for all other Southern Pacific railroads across the country. Over the ensuing 20 years there was no evidence that the railroad became any less expensive to maintain. In fact, given the deferred maintenance on much of the line, the capital and maintenance costs that are currently being developed by the NCRA will reflect higher capital and maintenance costs. The high cost of capital and maintenance of this railroad can be attributed to the following characteristics:

- Remoteness of the railroad;
- The physical characteristics of the railroad;
- The number of tunnels (40) and structures (206); and
- The construction methods that will have to be employed in order to be compliant with environmental regulations.

The eighty miles of the Eel River Canyon present the most difficult section of the railroad to maintain. In December 1964, the NWP experienced the worst flooding of the Eel River in its history. This 1,000-year storm virtually wiped out one hundred miles of track and bridges requiring an almost complete rebuild from Dos Rios to Fortuna.

Most recently the "El Niño Storms" in 1998 caused the closing of the NWP from Dos Rios north due to extensive washouts, landslides and embankment erosion. As a result, the railroad today remains impassable to train traffic in this area.[1]

3.1 Recent History of Freight Service on the Northwestern Pacific Railroad

Given the recent state of disrepair, the Northwestern Pacific Railroad has had a very difficult time keeping the line open and providing consistent freight service. In the last few years of operation of the complete 300-mile line (Samoa to Shellville), the railroad handled approximately 6,800 cars[2]. The service was considered to be unreliable and slow. In fact, when the storms in 1998 hit, several customers' shipments were trapped on the railroad, never making it to market.

In addition to the operating difficulties, the railroad had difficulties with its accounting practices and there are very few audited accounting records for the railroad and those that do exist do not outline, in any detail, the expenses related to the operation of the railroad.

The poor condition of the physical plant had a direct impact on the operations of the railroad. The degraded track speeds and uncoordinated operations occasionally forced crews to go "outlaw", meaning that they exceeded the FRA work rules regulation governing hours per day that crews can operate. As a result, train operations would be stopped until new crews were available or existing crews got sufficient rest.

4.0 FREIGHT RAIL MARKET METHODOLOGY

The methodology for the freight rail demand assessment is presented in this section. The objective of the freight rail demand assessment is to develop estimates and forecasts of potential freight rail service on the NWP, and identify potential key users of the freight rail service.

The first step in analyzing the freight rail market is data analysis. The objective of this task was to develop a summary of the changing economic conditions within the corridor and to specify potential freight generating sectors. Data sources evaluated during the process of this study included:

- NCRA and NWP business plans, and other relevant documents;
- Reports provided by the Port of Humboldt Bay, Humboldt County, Humboldt Council of Governments and other local sources;
- California Department of Agriculture and California Forest Products Commission;

[1] NCRA Capital Assessment Report, Willdan/HNTP, 2002

[2] North Coast Railroad Authority, *The North Coast Railroad Authority and the New Northwestern Pacific Railroad: A Public Private Partnership*, October, 1998.

- U.S. Censuses of Agriculture, Manufacturing, and Retail & Wholesale Trade for all counties along the corridor;
- California State Rail Plan; and
- California Highway Statistics.

The second step was to identify and conduct interviews with existing shippers and likely future candidates along the corridor. A survey form was developed and refined after review with the TAC (see Appendix A for the interview questions). An interview list was developed and then screened to identify the most likely users of the system. A total of 34 shipper interviews were conducted to assess shipper needs with respect to:

- Commodity;
- Tonnage;
- Characteristics of service by handling type;
- Frequency of service;
- Origins/destinations;
- Rate expectations; and
- Volumes of cargo by type and system requirements would be documented.

As a third step, interviews were undertaken with truckers and rail carriers serving or connecting to the system to determine existing levels of service to the impacted area and the potential for additional service. Rail carriers connecting to the North Coast line (California Northern, Union Pacific and BNSF) were interviewed to assess their needs with respect to new service.

Low, Medium and High Demand

As a part of the interviews, shippers were asked to define how many rail cars they would be willing to move on the NCRA system if the service provided a consistent, reliable, and cost effective level of service. They were asked for a specific number of rail cars that they would ship, which then became their "medium" forecast, and then bounded that estimate with "low" and "high" numbers. Accordingly, the low, medium and high demands have an implicit probability assigned to them:

- **The low demand** probability is conservative,
- **The medium demand** probability is consistent with what could be expected from the shipper in the short term,
- **The high demand** probability is an optimistic forecast.

Products that had not previously moved by rail in significant volumes (i.e., solid waste, aggregates, port traffic) were only included in the high scenario. In addition, the high scenario assumed that mills that had been recently shut down (Blue Lake Forest Products and Eel River Sawmill) would be restarted.

Products that had not previously moved by rail in significant volumes (i.e., solid waste, aggregates, port traffic) were only included in the high scenario. In addition, the high scenario assumed that mills that had been recently shut down (Blue Lake Forest Products and Eel River Sawmill) would be restarted.

The scope of this study did not include an examination of the potential markets of national defense or nuclear waste. An additional economic study will address the impact of national defense on the railroad.

5.0 ECONOMIC SETTING

It is important to understand the changing economic and demographic dynamics of the communities along the corridor. The following section evaluates employment and population trends and forecasts.

5.1 Population

5.1.1 Incorporated/Unincorporated Areas

The population of the tri-county area bordering the corridor was estimated to be 683,675 persons in 2001. Slightly more than two-thirds of the population base was in Sonoma County, 19% in Humboldt County and 13% in Mendocino County. Approximately 41% of the population base lives in unincorporated areas (280,000 persons). The remainder lives in cities ranging from very small (Trinidad at 310 persons) to relatively large (Santa Rosa at 150,900 persons). See Table 5-1.

Table 5-1 – Population by County/City in 2001

Cities	Population	% Total	Cities	Population	% Total	Cities	Population	% Total
Sonoma	468,725	68.6%	**Mendocino**	87,230	12.8%	**Humboldt**	127,720	18.7%
Santa Rosa	150,900	22.1%	Ukiah	15,650	2.3%	Eureka	26,250	3.8%
Petaluma	55,900	8.2%	Fort Bragg	7,100	1.0%	Arcata	16,950	2.5%
Rohnert Park	42,650	6.2%	Willits	5,100	0.7%	Fortuna	10,600	1.6%
Windsor	23,700	3.5%	Point Arena	480	0.1%	Rio Dell	3,190	0.5%
Healdsburg	11,300	1.7%	Unincorporated	58,900	8.6%	Ferndale	1,370	0.2%
Sonoma	9,400	1.4%				Blue Lake	1,150	0.2%
Sebastopol	7,850	1.1%				Trinidad	310	0.0%
Cloverdale	7,150	1.0%				Unincorporated	67,900	9.9%
Cotati	6,675	1.0%						
Unincorporated	153,200	22.4%						

Source: California State Department of Finance, BST Associates

5.1.2 Forecast

In 1998, the California State Department of Finance prepared long-range population forecasts for counties. These forecasts, projected that the tri-county area would grow

from 590,633 in 1990 to 678,119 in 2000. The forecast was reasonably accurate, missing the actual growth that occurred by only 5,556 persons or less than 1%.

The region's population base is expected to reach 962,850 persons in 2030, which amounts to annual growth of 1.0% to 1.5%, depending on the decade being evaluated. Humboldt County is expected to grow much more slowly than the other two counties (i.e., 0.3% to 0.5% versus 1.1% to 1.7% per year).

The median age in Humboldt County is expect to increase from 33 in 1990 to 42 in 2030, in Mendocino County from 35 to 37 and in Sonoma County from 37 to 40.

Table 5-2 – Population Forecasts

Summary	1990	2000	2010	2020	2030
Humboldt	119,500	128,419	135,602	141,092	145,099
Mendocino	80,908	90,442	105,225	118,804	133,440
Sonoma	390,225	459,258	544,513	614,173	684,311
Summary	590,633	678,119	785,340	874,069	962,850
Compound Growth Rates		**90-00**	**00-10**	**10-20**	**20-30**
Humboldt		0.7%	0.5%	0.4%	0.3%
Mendocino		1.1%	1.5%	1.2%	1.2%
Sonoma		1.6%	1.7%	1.2%	1.1%
Summary		1.4%	1.5%	1.1%	1.0%
	1990	**2000**	**2010**	**2020**	**2030**
Humboldt	33	36	39	40	42
Mendocino	35	37	35	36	37
Sonoma	34	37	39	39	40

Source: California State Department of Finance, BST Associates

5.2 Employment

The following section reviews employment trends and forecasts with a focus on resource and industrial sectors (i.e., agriculture, manufacturing, transportation and utilities, wholesale trade) since they generally represent the largest generators of rail freight.

5.2.1 Humboldt County

In Humboldt County, employment in the manufacturing sector increased from 5,700 jobs in 1983 to a peak of 7,000 in 1996 before falling significantly to 5,300 in 2001. Most (64%) of the manufacturing base is composed of forest products manufacturing. However, the manufacturing sector is diversifying into other miscellaneous durable (9% of manufacturing employment) and non-durable (26% of manufacturing employment) goods production.

Wholesale trade has grown modestly, from 1,400 jobs in 1983 to 1,500 jobs in 2001 (0.4% per year). Most of the wholesale trade activity is oriented toward outbound construction materials and to a lesser extent inbound retail products.

Transportation and utilities employment declined from 2,200 jobs in 1983 to 1,900 jobs in 2001.

Employment in agriculture increased at an annual rate of 2.0% between 1983 and 2001, from 700 jobs to 1,100 jobs.

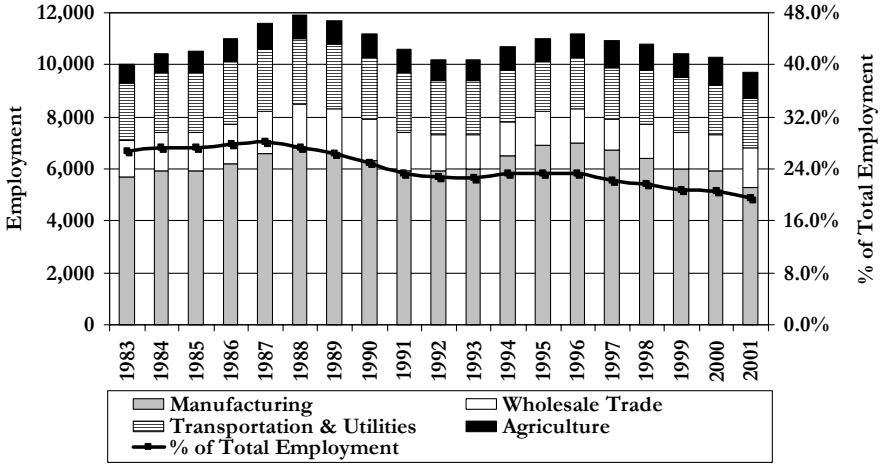
In total, the resource and industrial sectors declined slightly from 10,000 jobs in 1983 to 9,700 in 2001, or at –0.2% per year. More importantly, these sectors are continuing to lose share to non-resource and industrial jobs. Between 1983 and 2001, the share of resource/industrial jobs to total employment declined from 27% in the early 1980s to less than 20% in 2001. In particular, the growth in retail trade and services has been relatively rapid.

The State of California projects that non-farm employment in these sectors will continue to decline, with a loss of 120 jobs between 1997 and 2004 (the most recent data available). With the recent closures in lumber mills, this estimate is considered conservative.

Figure 5-1

Resource/Industrial Base of Humboldt County

Source: State of California Employment Development Department



5.2.2 Mendocino County

In Mendocino County, employment in the manufacturing sector increased slightly from 4,700 jobs in 1983 to 4,820 in 2001. A substantial portion (42%) of the manufacturing base is also composed of forest products manufacturing. However, the manufacturing sector is more diversified in Mendocino County than in Humboldt County. Approximately 22% of manufacturing employment is in other durable manufacturing and 36% in non-durable (including 1,700 jobs in food processing).

Employment in wholesale trade grew rapidly from 1983 (720 jobs) through the late 1980s (reaching nearly 1,200 jobs in 1989) and then fell steadily to 820 jobs in 2001.

Transportation and utilities employment increased from 920 jobs in 1983 to 1,130 jobs in 2001, or at 1.1% per year.

Employment in agriculture increased substantially from 1,460 jobs in 1983 to 2,570 jobs in 2001, or at 3.2% per year. Most of this increase occurred in the 1990s.

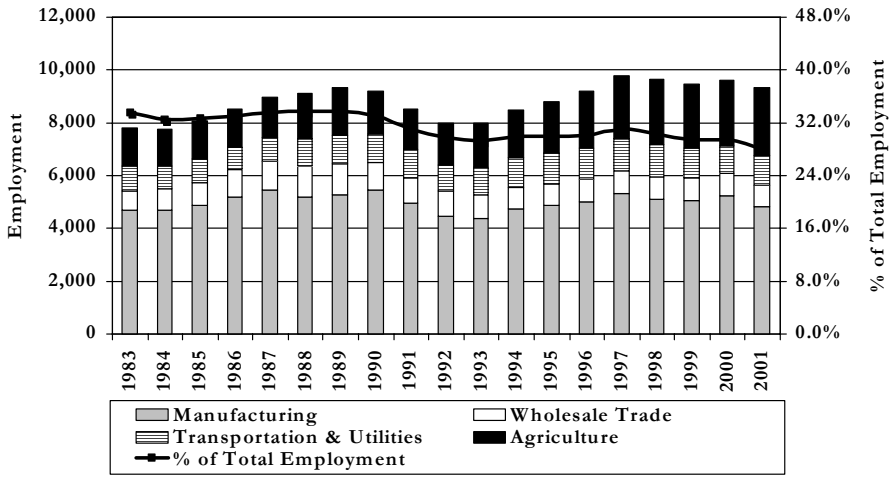
In total, the resource and industrial sectors increased employment at 1% per year, from 7,800 jobs in 1983 to 9,340 jobs in 2001. However, other sectors (notably retail trade and services) grew more rapidly (at 2.5% per year). As a result, resource/industrial jobs declined from 33% of total employment in the early 1980s to 28% in 2001.

The State of California projects that non-farm employment in the resource and industrial sectors will increase marginally (by 240 jobs) between 1999 and 2006. Total employment is expected to increase 1.4% annually during this time period (from 29,640 non farm jobs in 1999 to 32,720 non farm jobs in 2006).

Figure 5-2

Resource/Industrial Base of Mendocino County

Source: State of California Employment Development Department



5.2.3 Sonoma County

Sonoma County's proximity to San Francisco Bay has resulted in a different, more diverse employment base. Employment in the manufacturing sector increased substantially from 15,600 jobs in 1983 to 32,300 in 2001 or at a rate of 4.1% per year. Lumber and wood products only represented 1,000 jobs in 2001, down from a peak of

2,200 in the late 1980s/early 1990s. Most of the manufacturing base is in high-tech (10,600 jobs in scientific instruments and 2,900 in electronics) and food processing (8,700).

Employment in wholesale trade grew rapidly from 4,100 jobs in 1983 to 6,700 in 2001, or at 2.8% per year.

Transportation and utilities employment increased from 4,900 jobs in 1983 to 6,400 jobs in 2001, or at 1.5% per year.

Employment in agriculture increased substantially from 4,500 jobs in 1983 to 7,000 jobs in 2001, or at 2.5% per year.

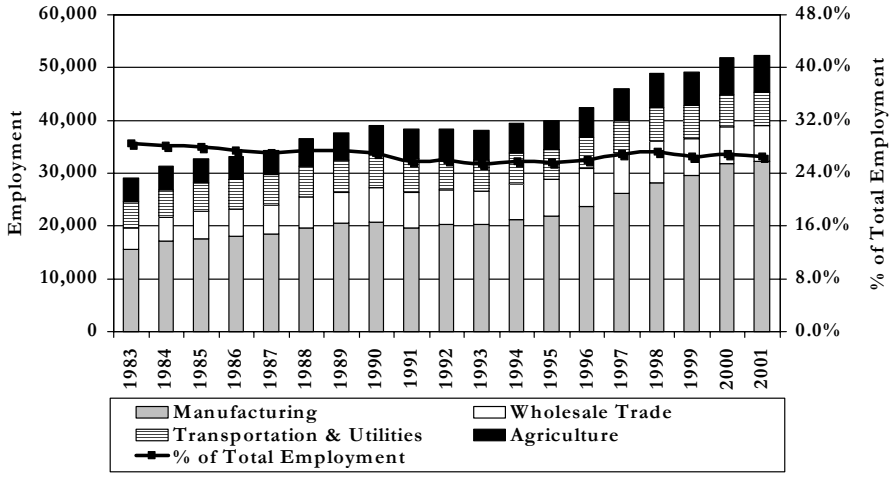
In total, the resource and industrial sectors increased at 3.3% per year, from 29,100 jobs in 1983 to 52,400 jobs in 2001. Other sectors (notably retail trade and services grew slightly more rapidly (at 3.9% per year). As a result, resource/industrial jobs declined from 29% of total employment in the early 1980s to 27% in 2001.

The State of California projects that non-farm employment in the resource and industrial sectors will increase by 6,700 jobs between 1999 and 2006, or at 2.1% per year, which is in line with the expected growth in total employment.

Figure 5-3

Resource/Industrial Base of Sonoma County

Source: State of California Employment Development Department



5.2.4 Relevance to NWP Freight Rail Market

In the past, most of the freight rail carried on the system has consisted of forest products, with much lesser volumes in aggregates, agricultural products and fabricated metal

products. These commodities are likely to continue to represent the majority of rail freight on the corridor, given that their potential volumes and physical characteristics lend themselves best to rail freight. The financial feasibility of the railroad continues to depend heavily on these freight commodities.

5.3 Agricultural Trends

The number of farms and land in farms is declining slightly throughout the corridor. As shown in Table 5-3, the number of farms has declined from 4,996 in 1987 to 4,629 in 1997 (the last year of the 5 year census of agriculture). The average farm size has remained at between 1,500 and 1,600 acres.

Table 5-3 – Agricultural Trends in Humboldt, Mendocino and Sonoma Counties

Item	1997	1992	1987
Farms (number)	4,629	4,699	4,996
Land in farms (acres)	1,793,908	1,839,998	1,943,070
Land in farms - average size of farm (acres)	1,531	1,539	1,601
Total cropland (acres)	262,088	267,275	281,074
Total cropland, harvested cropland (farms)	3,084	2,817	2,791
Total cropland, harvested cropland (acres)	126,429	123,567	126,506

Source: US Census of Agriculture

Much of the agricultural activity in counties bordering the NWP corridor is in fruit and livestock production. Sonoma County produced $585 million of agricultural products, including wine grapes, milk, livestock and poultry, cattle and calves, and grapevines. Mendocino County produced $129 million of agricultural products, including wine grapes, Bartlett pears, cattle and calves, and milk. Humboldt County produced $97 million of agricultural products, including nursery products, milk, cattle and calves and vegetable crops.

In 2000, the tri-county area produced nearly $500 million of fruits and nuts. Most of this activity focused on grape and pear production and was centered in Sonoma County and to a lesser extent in Mendocino County.

This area also produced $211 million of livestock and related products. Again, most of this activity was centered in Sonoma County as well as Humboldt County.

Table 5-4 – Value of Agricultural Production ($millions in 2000)

Category (in 2000)	Humboldt	Mendocino	Sonoma	Summary
Value of production, 2000 ($ mill.)	96.7	128.6	585.0	810.3
Percent of California	*0.3*	*0.4*	*2.0*	*2.7*
County Rank	36	33	16	N/A
Field crops	8.0	10.8	7.2	26.0
Seed crops	0.0	0.0	0.0	0.0
Vegetables	0.8	1.0	6.6	8.4
Fruits and nuts	0.4	102.5	392.8	495.7
Nursery, flowers, and foliage	32.9	2.6	33.3	68.7
Apiary products	0.0	0.0	0.1	0.1
Livestock and livestock products	54.7	11.8	145.0	211.5
Poultry and poultry products	0.0	0.0	0.0	0.0

Source: California Department of Agriculture

5.4 Forest Product Trends

According to the California State Board of Equalization, the timber harvest in Humboldt, Mendocino and Del Norte Counties has declined from over 800,000 million board feet (mbf) in the period of the early to mid 1990s to less than 500,000 mbf in 2001. As shown in Figure 5-4, harvests in all three counties dropped by more than 100,000 mbf during this period. However, harvest levels also dropped in other counties of California, and as a result, this area maintained a market share of approximately 30% of the state's timber harvest in 2000/2001.

At the present time, nearly all timber harvest comes from private lands. Smaller mills that do not have their own timberlands are at a significant disadvantage to the private owners. According to the North Coast Journal:

> "Approximately fifty-one percent of Forest Service timber was set aside for small mills to protect them from competition from timber giants like Louisiana Pacific or Simpson Timber. The volume was huge -- around 150 million board feet were sold out of Six Rivers every year into the 1980s. No cash was required up front, meaning that the small mills without capital reserves didn't have to incur large debt to secure a log supply.[3]"

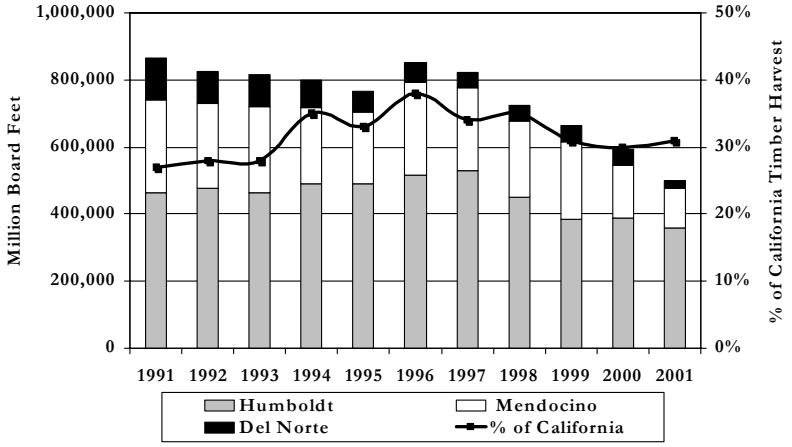
As land was set aside for spotted owl protection, the timber available from the US Forests dwindled. This forced mills without timberlands to acquire logs from nearby private landowners as well as from sources in the Pacific Northwest (Washington and Oregon), Canada and as far away as New Zealand.

[3] Eel River Sawmills, Going, Going, Gone dated October 18, 2001.

Figure 5-4

Timber Harvest Trends

Source: California State Board of Equalization



Humboldt and Mendocino counties account for approximately 80% to 90% of the California Redwood Area[4] timber harvest and lumber production. As shown in Figure 5-5, lumber production in this region peaked in the late 1980s at 2,214 mbf, and then fell to 1,300 mbf during most of the 1990s. Douglas Fir now accounts for 51% of production, which is the first time that it has surpassed Redwood. There is more competition for Douglas Fir lumber than for Redwood lumber, because Douglas Fir lumber is also produced in other areas of California and in Oregon and Washington.

Most of the lumber sold in the NCRA corridor is sold FOB mill, which means that the transportation costs are the responsibility of the buyer. However, if transportation costs increase, it can put the area at a disadvantage with respect to other producing areas. This problem is exacerbated by the shift to Douglas Fir lumber production. Even in the face of the economic boom of the past ten years in California and the Southwest, lumber prices remained flat and/or declined.

As shown in Figure 5-6, the Eureka price for Douglas Fir two by fours peaked at around $400 in 1999 and then declined to $312 in 2001. Similar drops in price were recorded for other forest products. Lumber producers have experienced increased costs, lack of timber availability and declining prices and this has caused some firms to curtail production or cease operations. Some of the curtailments/ closures have included the PALCO Scotia

[4] California Redwood Area is defined as: Alameda, Contra Costa, Del Norte, Humboldt, Marin, Mendocino, Monterey, Napa, San Benito, San Mateo, Santa Clara, Santa Cruz, Solano, and Sonoma counties

mill, Eel River Sawmill, Blue Lake Forest Products, and Georgia-Pacific's Fort Bragg sawmill, among others.

Figure 5-5

California Redwood Area Lumber Production Trends

Source: Western Wood Products Association

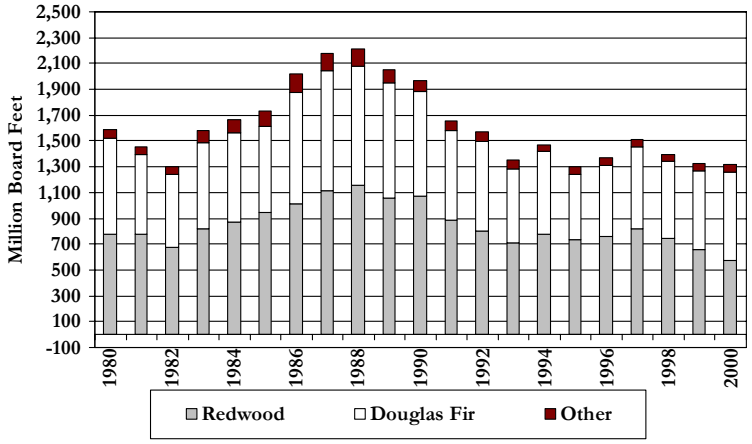
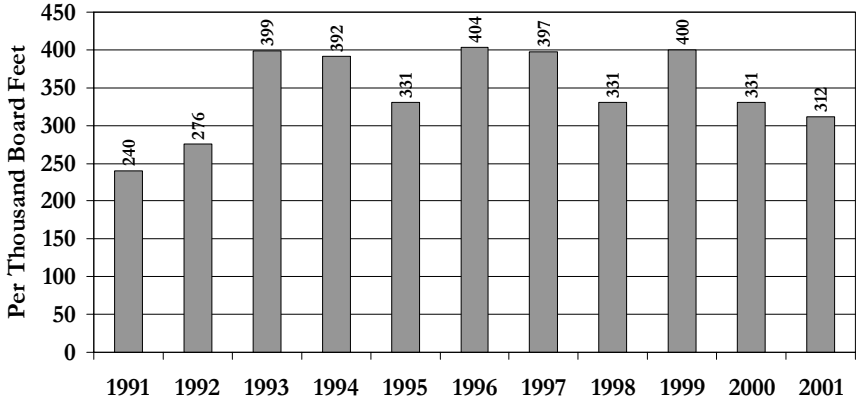


Figure 5-6

Lumber Price Trends (Doug Fir 2x4)

Source: Random Lengths



Prices Net FOB Mill, Eureka Rate

Table 5-5 summarizes some of the key changes in production and distribution of lumber produced in California, based upon surveys by the Western Wood Products Association.

Data is not available at the County level in order to protect the anonymity of individual mills.

The key trends are:

- Lumber production declined from nearly 5,000,000 mbf in 1990 to 3,100,000 mbf in 1995 and then remained at this level through 2000;
- There has been a change in mode of transportation of lumber. Rail shipments from all California producers have declined from 19% to 10%, while truck shipments increased from 80% to 90%. There has also been a decline in the volume moved by water (barge and vessel). While the declining share of lumber shipments by rail applies to the entire state, some of the decline likely reflects the loss of rail service to Humboldt and Mendocino Counties;
- Two-thirds of the product stays in the California Market (primarily the San Francisco and Los Angeles markets); and
- Most of the production is shipped to wholesalers but an increasing share goes directly to retailers and company owned distribution yards.

These trends are similar for mills located in the NCRA corridor.

The forest product industry in the study area has declined as a result of market forces (low prices and competition) and increased costs (due to environmental and other requirements), which has in turn reduced shipments from the area. The local survivors of the industry have taken steps to secure a supply of raw materials either by entering into forest management plans or accessing logs from other areas (Washington, Oregon, Canada and elsewhere). The supply of logs could increase in the future as "land that was logged 30 – 50 years ago and replanted will be ready to harvest in the next 15 years increasing standing timber available for harvest[5]".

The demand for forest products in the housing sector in the primary markets is expected to continue to be strong. According to the Center for Continuing Study of the California Economy[6], household formation in markets served by the North Coast increase:

- San Francisco Bay area household formation is projected to increase at 1.4% per year between 2000 and 2010 as opposed to actual growth of 1.0% between 1990 and 2000.
- Sacramento region household formation is projected to increase at 1.9% per year between 2000 and 2010 as opposed to actual growth of 1.8% between 1990 and 2000.
- Los Angeles Basin household formation is projected to increase at 1.6% per year between 2000 and 2010 as opposed to actual growth of 0.9% between 1990 and 2000.

[5] Source: Prosperity: The North Coast Strategy, Volume I, page 16.

[6] Source: California County Projections, year 2001, latest edition available, Table 2, page 4-14.

Due to these considerations, the report assumes that the existing levels of forest product production will be stable in the future.

Table 5-5 – California State Lumber Production Trends

Item	1990	1995	2000	Change 2000-1990
Lumber Production (mbf)	4,981,000	3,169,000	3,173,000	-1,808,000
Est Wholesale Value	$1,564,000,000	$1,415,300,000	$1,362,000,000	-$202,000,000
Mode of Transportation				
Rail	18.5%	16.5%	9.8%	-8.7%
Truck	79.7%	81.8%	90.0%	10.3%
Water	1.8%	1.7%	0.2%	-1.6%
Principal Markets				
California	67.7%	67.1%	66.2%	-1.5%
Other West	11.3%	17.4%	20.3%	9.0%
Midwest	8.8%	6.7%	7.2%	-1.6%
Northeast	3.5%	2.0%	1.3%	-2.2%
South Central	3.0%	3.0%	2.9%	-0.1%
Southeast	2.8%	2.5%	1.1%	-1.7%
Export	2.9%	1.3%	1.0%	-1.9%
Distribution Channels				
Direct to user	7.2%	8.8%	1.3%	-5.9%
Direct to retailer	7.1%	6.1%	10.4%	3.3%
Wholesaler	64.1%	58.5%	59.7%	-4.4%
Company owned distribution yards	5.0%	5.4%	9.1%	4.1%
To factory for further manufacturing	16.6%	17.1%	13.5%	-3.1%
To other companies	0.0%	4.1%	6.0%	6.0%

Source: Western Wood Products Association

5.5 Truck Traffic Trends

Truck traffic on major highways within the corridor is presented in Tables 5-6 (Highway 299) and 5-7 (Highway 101).

5.5.1 Highway 299

As shown in Table 5-6, heavy truck traffic on Highway 299, which connects Eureka/Arcata to Redding and Trinity County, increased at 2.7% per year between 1992 and 2000 at the junction with Route 200. Average truck volumes at this location decreased from 613 trips per day in 1992 to 483 trips per day in 1997 and then increased to 761 trips per day in 2000. Likewise, the truck trips at the Humboldt/Trinity County border to the east increased from 206 trucks per day in the early 1990s to 364 trips per day in 2000, or at 7.4% annually during this time period. These increases in truck traffic correspond with the closure of the railroad in Humboldt County. According to interviews conducted for this study, mills began to truck lumber and other forest products to the

Redding area reload facilities to gain access to the UP Railroad for those products that needed to be moved by rail.

Table 5-6 – Average Daily 5+ Axle Truck Traffic on Highway 299

Route	County		Description	2000	1998	1997	1996	1995	1994	1993	1992	92-00*
299	HUM	1.802	JCT. RTE. 200 WEST	508	483	754	740	740	740	718	718	-4.2%
299	HUM	1.802	JCT. RTE. 200 WEST	761	754	483	512	512	512	613	613	2.7%
299	HUM	5.451	BLUE LAKE ROAD	362	393	393	393	393	393	377	372	-0.3%
299	HUM	38.833	WILLOW CREEK, JCT. RTE. 96 NORTH	170	207	174	128	128	133	348	353	-8.7%
299	HUM	38.833	WILLOW CREEK, JCT. RTE. 96 NORTH	223	174	207	232	232	238	241	243	-1.1%
299	HUM	43.035	HUMBOLT/TRINITY COUNTY LINE	364	280	280	276	280	204	204	206	7.4%
299	TRI	25.772	PRAIRIE CREEK ROAD	239	222	223	205	205	205	257	252	-0.7%

*Average yearly change in traffic volume
Source: Caltrans Traffic Reports, BST Associates

5.5.2 Highway 101

As shown in Table 5-7, heavy truck traffic on Highway 101 changed in a variety of places. The following trends are evident, starting from the north and traveling south:

Humboldt County

- In the Arcata area, truck traffic increased marginally (at 0.2% to 0.3% per year);
- From Eureka south to Scotia Road, truck traffic decreased in all locations; and
- At Scotia Road south to Route 254, truck traffic generally increased between 1% and 2.4% per year between 1992 and 2000.

Mendocino County

- From Garberville to Route 162 (Laytonville), truck traffic decreased;
- Truck traffic eastbound on Route 20 near Willits increased at 3.5%. This route connects mills in this area to reload facilities to the east in Woodland; and
- At Route 253 (Ukiah), truck traffic increased 2.7% from the west and 0.8% from the east.

Sonoma County

- Truck traffic increased steadily in the northern portion of the County, particularly at the junction with Route 128 (around Geyserville) but traffic fell in South Geyserville;
- Near Healdsburg, truck traffic increased at 2.5% per year;
- In Santa Rosa, truck traffic increased at 7.3% at College Avenue;
- Truck traffic declined near Cotati at Route 116;
- In Petaluma, on the Old Redwood Highway, truck traffic increased 4.1% per year; and
- At South Petaluma, heavy truck traffic increased at 3.5% to 8.8% per year.

Table 5-7 – Average Daily Truck Traffic on Highway 101

Route	County		Description	2000	1998	1997	1996	1995	1994	1993	1992	92-00
101	SON	2.925	SOUTH PETALUMA	1919	1919	2007	1857	1857	1455	1455	1455	3.5%
101	SON	2.925	SOUTH PETALUMA	4427	4426	3516	2007	2007	2248	2248	2248	8.8%
101	SON	3.664	PETALUMA, SOUTH JCT. RTE. 116 EAST	3643	3645	3144	3516	3516	3101	3101	3101	2.0%
101	SON	7.651	PETALUMA, OLD REDWOOD HIGHWAY	4215	4215	2984	3144	3144	3059	3059	3059	4.1%
101	SON	7.651	PETALUMA, OLD REDWOOD HIGHWAY	3546	3545	2705	2984	2984	3661	3661	3661	-0.4%
101	SON	12.682	COTATI, NORTH JCT. RTE. 116	2967	2965	2374	2705	2705	3359	3359	3359	-1.5%
101	SON	12.682	COTATI, NORTH JCT. RTE. 116	2820	2820	1772	2374	2374	3677	3677	3677	-3.3%
101	SON	19.646	SANTA ROSA, JCT. RTE. 12	2243	2242	1633	1772	1772	3378	3378	3312	-4.8%
101	SON	19.646	SANTA ROSA, JCT. RTE. 12	2044	2044	1591	1633	1633	2258	2214	2139	-0.6%
101	SON	20.74	SANTA ROSA, COLLEGE AVENUE	2117	2117	2069	1591	1591	2368	2328	2261	-0.8%
101	SON	20.74	SANTA ROSA, COLLEGE AVENUE	3280	3279	1364	2069	2069	1972	1935	1871	7.3%
101	SON	27.618	SHILOH ROAD	1520	1520	1276	1364	1364	2651	2597	2553	-6.3%
101	SON	34.551	SOUTH HEALDSBURG	2924	2924	1210	1276	1276	2459	2423	2395	2.5%
101	SON	38.558	LYTTON SPRINGS ROAD	1548	1445	1122	1210	1160	2079	2031	2010	-3.2%
101	SON	41.43	SOUTH GEYSERVILLE	1239	1239	1377	1122	1125	1647	1613	1599	-3.1%
101	SON	43.373	JCT. RTE. 128 EAST	1527	1527	1010	1377	1377	1118	10925	1077	4.5%
101	SON	52.061	CLOVERDALE, FIRST STREET	1112	1577	920	1010	1010	995	995	984	1.5%
101	SON	53.545	JCT. RTE. 128 WEST	1011	1011	728	920	920	870	870	862	2.0%
101	SON	54.201	JCT. RTE. 128 WEST	570	854	0	728	728	835	835	823	-4.5%
101	MEN	10.89	HOPLAND, JCT. RTE. 175 EAST	605	579	580	314	314	314	757	751	-2.7%
101	MEN	21.59	JCT. RTE. 253 WEST	933	869	898	869	811	811	759	753	2.7%
101	MEN	23.45	UKIAH JCT 222 EAST	770	162	162	190	190	190	726	722	0.8%
101	MEN	30.833	JCT. RTE. 20 EAST	832	628	628	729	729	729	634	631	3.5%
101	MEN	30.833	JCT. RTE. 20 EAST	380	493	525	304	287	287	836	825	-9.2%
101	MEN	46.363	WILLITS, JCT. RTE. 20 WEST	941	941	1113	1051	1051	1051	836	860	1.1%
101	MEN	46.363	WILLITS, JCT. RTE. 20 WEST	505	505	452	934	934	934	1008	1008	-8.3%
101	MEN	59.31	JCT. RTE. 162 EAST	588	597	600	600	600	600	591	582	0.1%
101	MEN	59.31	JCT. RTE. 162 EAST	538	594	597	597	597	597	569	550	-0.3%
101	MEN	69.49	LAYTONVILLE, BRANSCOMB ROAD	485	460	463	506	506	506	567	560	-1.8%
101	MEN	69.49	LAYTONVILLE, BRANSCOMB ROAD	440	417	417	269	269	269	463	452	-0.3%
101	MEN	91.245	LEGGETT, JCT. RTE. 1	474	458	504	450	450	450	459	453	0.6%
101	MEN	101.16	JCT. RTE. 271	455	439	442	420	459	459	459	616	-3.7%
101	HUM	11.125	GARBERVILLE, SPROWEL CREEK ROAD	475	550	550	550	562	659	783	659	-4.0%
101	HUM	11.125	GARBERVILLE, SPROWEL CREEK ROAD	461	437	437	437	536	601	533	615	-3.5%
101	HUM	17.907	JCT. RTE. 254 NORTHEAST	638	621	620	620	595	595	612	578	1.2%
101	HUM	17.907	JCT. RTE. 254 NORTHEAST	689	636	636	636	583	583	625	572	2.4%
101	HUM	27.936	JCT. RTE. 254	667	591	591	591	582	582	625	559	2.2%
101	HUM	27.936	JCT. RTE. 254	674	610	610	610	599	599	599	567	2.2%
101	HUM	35.108	JCT. RTE. 254 SOUTH	601	622	622	622	633	633	611	580	0.4%
101	HUM	35.698	SOUTH FORK ROAD	634	613	613	613	624	624	603	583	1.1%

101	HUM	50.585	SOUTH SCOTIA ROAD	689	689	689	689	630	630	656	621	1.3%
101	HUM	57.69	JCT. RTE. 36 EAST	657	719	720	720	644	644	644	943	-4.4%

Table 5-7 (Continued) – Average Daily Truck Traffic on Highways 101

Route	County		Description	2000	1998	1997	1996	1995	1994	1993	1992	92-00
101	HUM	57.69	JCT. RTE. 36 EAST	790	790	796	796	705	705	705	826	-0.6%
101	HUM	64.29	JCT. RTE. 211, SINGELY ROAD	726	704	698	698	676	676	657	778	-0.9%
101	HUM	64.29	JCT. RTE. 211, SINGELY ROAD	720	835	818	766	773	766	646	803	-1.4%
101	HUM	65.947	LOLETA DRIVE	693	664	660	660	657	657	635	761	-1.2%
101	HUM	81.14	EUREKA N CTY LIM	613	613	613	613	622	622	622	1006	-6.0%
101	HUM	85.83	ARCATA, JCT. RTE. 255 SOUTH	521	521	521	521	521	521	521	514	0.2%
101	HUM	85.83	ARCATA, JCT. RTE. 255 SOUTH	965	965	965	965	965	965	965	950	0.2%
101	HUM	88.272	ARCATA, JCT. RTE. 299 EAST	1035	1035	1035	1035	1035	1021	1021	1007	0.3%
101	HUM	88.272	ARCATA, JCT. RTE. 299 EAST	1112	1112	1122	1122	1122	1083	1083	1083	0.3%
101	HUM	90.134	JCT. RTE. 200 EAST	1113	1113	1113	1113	1113	1057	1057	1057	0.6%
101	HUM	90.134	JCT. RTE. 200 EAST	253	253	257	455	455	415	415	412	-5.9%
101	HUM	97.5	CRANNELL ROAD	200	392	392	392	392	377	377	377	-7.6%
101	HUM	97.5	CRANNELL ROAD	200	371	371	371	371	346	346	349	-6.7%
101	HUM	122.25	BALD HILLS ROAD	239	239	168	168	168	204	204	240	-0.1%
101	HUM	122.25	BALD HILLS ROAD	200	215	239	239	203	203	203	292	-4.6%

Source: Caltrans Website: http://www.dot.ca.gov/hq/traffops/saferesr/trafdata/), BST Associates

6.0 SUMMARY OF FREIGHT SURVEY RESULTS

The following section presents a summary of the freight shipper interviews that are described in Section 4.0, "Freight Rail Market" Methodology of this report and an estimate of the expected range of rail freight market potential by commodity type. The potential freight volumes are also broken down by location, using the seven zones along the rail line as defined in the Northwestern Pacific Railways Tariff (NWPY) from January 2000.

6.1 Forest Products Mills

Forest products mills are expected to continue to be the mainstay of the railroad for the foreseeable future because of the volumes, commodity characteristics and distances involved. As shown in Table 6-1, forest products generated 4,482 outbound and 756 inbound rail cars in 1996/97 or more than 75% of all traffic.

These firms are expected to generate the following freight rail demand by scenario:

- Low scenario: 3,842 outbound and 2,184 inbound rail cars;
- Medium scenario: 5,682 outbound and 3,017 inbound rail cars; and
- High scenario[7]: 7,953 outbound and 3,450 inbound rail cars.

[7] The reactivation of the Eel River and Blue Lake sawmills is included only in the high growth forecast.

By zone, nearly two-thirds of the products are generated at the north-end of the corridor in Zone 7 (Eureka, Arcata, Fortuna etc.). Other centers are located in the Ukiah, Willits and Windsor areas.

Table 6-1 – Estimated Rail Traffic from Forest Products Mills by Zone (Full rail cars)

		Outbound				Inbound			
Zone	Area	Actual 96/97	Low	Medium	High	Actual 96/97	Low	Medium	High
1	Petaluma/Novato etc	38	-	19	38	-	-	-	-
2	Santa Rosa/Windsor etc	793	600	752	903	273	890	1,050	1,210
3	Healdsburg etc	65	50	89	127	-	-	-	-
4	Ukiah, Redwood Valley etc	253	472	725	978	483	794	1,017	1,240
5	Willits etc	70	150	232	313	-	-	-	-
6	Dos Rios etc	-	24	30	36	-	-	-	-
7	Arcata, Eureka etc	3,263	2,546	3,837	5,558	-	500	950	1,000
	Subtotal	4,482	3,842	5,682	7,953	756	2,184	3,017	3,450

Source: Interviews, BST Associates

Most of these firms require service 2, 3, or 5 times per week, depending on their volumes and the size of their rail spurs. However, the key factors they cited for choosing rail were price and reliability of service.

Direct rail access could provide a significant cost savings for these producers. It takes approximately 3.5 trucks to load a railcar. The cost to dray from Eureka/Arcata to Redding is $300 per truck (or $1,050 per railcar) plus a $400 reload charge per railcar, which equals $1,450 per rail car. The UP provides rebates or rate adjustments of approximately $600 per rail car so the net cost differential is $850 per rail car. The savings by direct service depend upon the negotiated rates between the NCRA and the UP but could be as much as $850 per rail car based on previous tariff rates. In addition, mills can use their own personnel to load cars when the timing is optimal. This increased flexibility was mentioned as an additional benefit by several interviewees.

6.2 Feed Mills

The feed mills are located in Zone 1 of the NWPY in the south end of the corridor at Petaluma and Novato. These mills obtain grain from the Midwest (mostly corn, but also soy, barley, etc.) and Canada (canola) in bulk hopper cars. Most of the product comes via the UP Railroad to Napa Junction with transit to Petaluma by Cal Northern and the NWP. One mill (Bar Ale Feed) ceased mill operations in Petaluma (although the Petaluma facility still functions as a retail outlet) and developed a new state-of-the-art facility in Williams (Colusa County).

The operators suggested that the size of rail market could be approximately 1,300 to 1,400 cars per year. However, these operators only used rail for 435 cars in 1996/1997

(359 without Bar Ale). The market was estimated at between 304 cars (low) to 540 cars (high).

Service needs were expressed as 5 times per week (Monday through Friday) by large firms and 2-3 times per week by a smaller firm. One large firm wanted 1 time (evening switches), and another wanted 2 times per day (with switches in the evening or early morning at 5am, and at 2pm).

The mills expressed no interest in directly serving Humboldt County dairies with rail since it only represents around 20% of the feed grain market and dairies are not directly served by rail. They feel that truck service to Humboldt County adequately meets their needs. In addition, there are industry concerns about the increasing costs of staying in business for the dairy industry and the changes from small to large producers.

Table 6-2 – Estimated Rail Traffic from Feed Mills by Zone (full rail cars)

		Outbound				Inbound			
Zone	Area	**Actual 96/97**	**Low**	**Medium**	**High**	**Actual 96/97**	**Low**	**Medium**	**High**
1	Petaluma/Novato etc	-	-	-	-	435	304	422	540
2	Santa Rosa/Windsor etc	-	-	-	-	-	-	-	-
3	Healdsburg etc	-	-	-	-	-	-	-	-
4	Ukiah, Redwood Valley etc	-	-	-	-	-	-	-	-
5	Willits etc	-	-	-	-	-	-	-	-
6	Dos Rios etc	-	-	-	-	-	-	-	-
7	Arcata, Eureka etc	-	-	-	-	-	-	-	-
	Subtotal	-	-	-	-	435	304	422	540

Source: Interviews, BST Associates

Concern was also expressed about previous rail service, particularly:

- Lack of coordination between the NWPY and Cal Northern in providing switching;
- Disputes over rates; and
- Issues with the proper spotting of railcars.

The original surcharge by the NWPY was around $215 to $225 per car ($2.15 to $2.25 per ton) to serve Petaluma. Without rail, the product must be transported to mills from Napa Junction at a freight charge of $9 to $10 per ton, which puts mills at a competitive disadvantage with other mills that have direct rail access. Rail offers substantial savings ($6+ to $7+ per ton) over truck from Napa Junction. However, mills have entered into other contracts to cut down on costs such as buying corn and barley from California producers, which require long-term contract alliances. This could reduce the amount of grain required from locations served by rail. Approximately 60% of corn at one mill is now obtained from local sources. This reduces the cost differential to approximately $5 to $6 per ton.

6.3 Aggregates

Aggregate production along the NWP corridor in Humboldt and Mendocino Counties has typically been used to serve local community demand in the past. Small volumes of aggregate moved on the railroad in 1996/97, mainly serving the local communities and industries.

In Sonoma County, aggregates are trucked from the Russian River and quarries to job sites and ready mix producers in the North Bay area. According to one major producer, trucks provide easy access from the quarry to the job site and ready mix plants have limited storage capacity or are not located on rail. However, other producers/users at the south end of the line are seeking rail service.

There is a growing shortage of materials in the San Francisco Bay area, which is initiating a wider search for aggregates. The North Bay area is not currently experiencing a shortage but likely will within a few years as permits expire in the Russian River. The California Department of Conservation estimates that there is a historical demand of 9 tons of aggregates per person per year in the North Bay as opposed to 7.5 in the rest of the Bay Area (based upon the average use between 1960 to 2000). Approximately 95% of these products are currently trucked in to the San Francisco Bay area.

Interest has been expressed in moving aggregate from Humboldt County to the San Francisco Bay Area (probably North Bay). There remain questions about the ability to expand production beyond existing extraction rates and about whether the delivered product price (with transportation cost) would be competitive to the North Bay and beyond.

There are several issues related to expansion of the resource base in Humboldt County. The product comes largely from three rivers:

- Mad River has been studied extensively and is at sustained yield;
- Van Dusen River has also been studied rather extensively and is at sustained yield; and
- Eel River has not been studied to the level of detail required to fully understand sustained yield (i.e., a yield that can be maintained over a long period of time) and biological implications. Humboldt County tried to secure a grant to study the resource base but was not successful. There is currently not enough information to know if the resource can be expanded, especially with ESA regulations. The preliminary estimate of sustained yield may be 1.2 million cubic yards per year (or maybe more) of product based on discussions with Humboldt County. This is about 400,000 cubic yards (or 600,000 tons) above current harvest levels.

The transportation costs to deliver the product are unknown. There is a combination of truck and rail costs that would be required to move the product from the mine site to the final customer. This is a critical factor in determining the feasibility of these movements.

Substantial quantities of aggregates are also located at Marysville (i.e., approximately 2 billion tons north of Sacramento at Yuba River) but shippers have not been able to deliver product at market rates to the North Bay. This area is located at approximately the same distance from Petaluma as the product generated in Humboldt County.

In summary, there is uncertainty regarding the potential shipments of aggregates for the following reasons:

- The resource base is not known with certainty at the present time;
- There is concern about being able to deliver the product at market prices; and
- Prices and service needs are unknown at this time.

For these reasons, the Bay Area market is only considered under the high growth scenario forecast. As shown in Table 6-3, aggregates serving this market could reach 6,000 carloads per year. These loads have been placed in the Willits area, which assumes a centralized site for processing located south of the Eel River Canyon. Alternatively, this product could be dispersed from Willits north past Arcata.

Table 6-3 – Estimated Rail Traffic from Aggregates by Zone (full rail cars)

		Outbound				Inbound			
Zone	Area	Actual 96/97	Low	Medium	High	Actual 96/97	Low	Medium	High
1	Petaluma/Novato etc	-	-	-	-	-	-	-	-
2	Santa Rosa/Windsor etc	-	-	-	-	-	-	-	-
3	Healdsburg etc	-	-	-	-	-	-	-	-
4	Ukiah, Redwood Valley etc	270	-	135	270	-	-	-	-
5	Willits etc	-	-	-	6,000	-	-	-	-
6	Dos Rios etc	-	-	-	-	-	-	-	-
7	Arcata, Eureka etc	-	-	-	-	-	-	-	-
	Subtotal	270	-	135	6,270	-	-	-	-

Source: Interviews, BST Associates

6.4 Solid Waste

6.4.1 Humboldt County

Humboldt County generates 80,000 tons per year (approximately 200 tons per day Monday through Friday), which is growing at the same rate as population growth. The County was interested in having all of this product move by rail. However, the existing facility is not served by rail and there is no way to bring rail to the existing facility without relocating other businesses or crossing a wetland. There was a study of 5 to 6 potential rail-served sites but the community preferred the current site, which lacks rail access. To use rail would require shuttling waste from the existing transfer facility to a reload facility. This could require additional costs for trucking and potentially additional storage. Neither of these expenses is in the current budget/rate and would require a rate adjustment.

Humboldt County's operator, Waste Solutions Group, is also interested in rail but this depends upon cost and reliability of service. The operator still has 14 years left on a 15-year contract with Potrero Hills and was only considering this location for Humboldt County. Previously negotiated rail rates to Potrero Hills are confidential but any new rates offered would presumably need to meet or beat the rates contracted for with the previous rail operator. Waste Solutions is currently trucking the waste to a site in Medford and is able to defray costs to some extent by backhauling wood chips for export at Humboldt Bay.

The solid waste authority and its vendor indicate that they could use rail if it were available and cost effective (including all costs such as drayage to rail served locations). Due to these uncertainties, the potential for solid waste was only placed in the high scenario. However, the shift to rail would be expensive and would require a long-term commitment (approximately $6 million capital outlay). The County would put waste in 12-foot high containers (64 cubic yards per container) and could get 4 containers on flatcars. They would need service 5 or 7 days per week. It is uncertain whether rail is still viable but, if it were, it would require direct access to Eureka, not a reload facility at Willits.

6.4.2 Mendocino County

Mendocino County has two vendors:

- Solid Waste of Willits – located in close proximity to rail, but is presently not utilizing rail; and
- Solid Waste Systems (Ukiah) – A rail spur could be built.

Both vendors take waste to Potrero Hills, located 119 miles from Ukiah and 141 miles from Willits. It costs approximately $400 per truckload ($20 per ton) to take the waste from Willits to Potrero Hills.

Rail service was considered by Mendocino County Solid Waste, but was found not to be economically viable. Rail service could only take the waste to Suisun City or Fairfield; from there it would need to be trucked to the landfill. If rail were to be used in Mendocino County, it would need to be serviced 6 days per week.

6.4.3 Summary

Table 6-4 summarizes the solid waste freight rail demand estimates. Due to the uncertainties indicated above, the Humboldt County solid waste load is only included in the high growth scenario. Mendocino County volumes were not included in the analysis.

Table 6-4 – Estimated Rail Traffic from Solid Waste by Zone (full rail cars)

		Outbound				Inbound			
Zone	Area	Actual 96/97	Low	Medium	High	Actual 96/97	Low	Medium	High
1	Petaluma/Novato etc	-	-	-	-	-	-	-	-
2	Santa Rosa/Windsor etc	-	-	-	-	-	-	-	-
3	Healdsburg etc	-	-	-	-	-	-	-	-
4	Ukiah, Redwood Valley etc	-	-	-	-	-	-	-	-
5	Willits etc	-	-	-	-	-	-	-	-
6	Dos Rios etc	-	-	-	-	-	-	-	-
7	Arcata, Eureka etc	-	-	-	1,000	-	-	-	-
	Subtotal	-	-	-	1,000	-	-	-	-

Source: Interviews, BST Associates

6.5 Miscellaneous Products

There are also a few shippers located along the corridor moving products not included in the previous categories. These include fabricated metals producers, wine distributors and other firms. They are primarily located in Zone 1 (primarily wine distributors), Zone 4 (primarily structural fabricators) and Zone 7 (fish products and inbound lime for the pulp mill).

Demand from these users is presented in Table 6-5. As shown, these shippers generated 104 outbound and 4 inbound railcar moves in 1996/1997. They are expected to generate the following levels of traffic in the future:

- Low scenario: 64 outbound and 50 inbound rail cars/per year;
- Medium scenario: 102 outbound and 57 inbound rail cars/per year; and
- High scenario: 143 outbound and 64 inbound rail cars/per year.

Table 6-5 – Estimated Rail Traffic from Miscellaneous Shippers by Zone (full rail cars)

		Outbound				Inbound			
Zone	Area	Actual 96/97	Low	Medium	High	Actual 96/97	Low	Medium	High
1	Petaluma/Novato etc	52	-	26	52	-	-	-	-
2	Santa Rosa/Windsor etc	-	-	-	-	4	-	2	4
3	Healdsburg etc	3	-	2	3	-	-	-	-
4	Ukiah, Redwood Valley etc	46	64	75	85	-	-	-	-
5	Willits etc	-	-	-	-	-	-	-	-
6	Dos Rios etc	-	-	-	-	-	-	-	-
7	Arcata, Eureka etc	3	-	-	3	-	50	55	60
	Subtotal	104	64	102	143	4	50	57	64

Source: Interviews, BST Associates

6.6 Rail Competition Issues

6.6.1 Truck Competition

Since the NWP stopped operation to the north end of the railroad in Eureka in 1997, the trucking companies of the region have taken up the business that exists along the corridor. This truck competition can be characterized in two ways:

- Direct Service: former NWP customers are currently using trucking services to import and export raw and finished goods to the region. These customers would include feed mills, forest products and aggregates.
- Dray Service (trucking to the UP or Port): both on the north and south ends, customers are using trucks to dray both their inputs and outputs to railroads. On the north end the Union Pacific is currently subsidizing the dray from Eureka to Redding along state route 299 and there are also drays between the California Northern and several feed mills on the south end.

Overall given the inactivity of the NWP over the last few years, many of the current shippers have come to rely on trucking as their primary mode of transportation. This has been accounted for in the revenue estimates for the NWP in that there is a "ramp-up" period for the transfer of shipments from truck to rail. The overriding assumption for this financial analysis is that the tariff is competitive with the trucking industry.

Regional trucking companies do not see the overall transportation market growing and would see the reintroduction of the NWP as direct competition. Details of interviews with regional trucking companies are included in appendix A.

6.6.2 Relationship with UP Railroad

The success of the NWP depends significantly upon its relationship with the UP Railroad. In discussions with the UP Shortline coordinator, it was indicated that the UP supports re-establishing rail on NWP. UP is, however, concerned about outstanding expenses on the railcars that have been trapped on the north end of the rail line since the Eel River Canyon section was washed out. UP wants to negotiate a solution for this problem in the near-term future.

In the long run, the UP will support the NCRA to the degree that it effectively uses railcars. Frequently, rail cars are lost or delayed on shortline operations. The UP can react to poor railcar turnover performance by increasing demurrage rates and/or not providing cars. The performance of the NCRA and its shippers will be critical in re-establishing a good working relationship with UP.

6.6.3 Willits Reload Facility

According to shippers in Zone 1 (Eureka/Arcata area), there is little value of a truck-to-rail reload facility in Willits or Redwood Valley. The distance from Eureka to Willits is about the same as the distance to Redding, which allows one truck turn per day. However, at Redding, shippers can directly access the UP system, while at Willits/Redwood Valley, shippers would still be 150 miles from the UP mainline, operating over two shortline railroads.

UP's Redding reload facility serves much of Northern California in addition to the Humboldt area, including lumber shippers north and east of Redding. Consequently, the operation likely enjoys substantial economies of scale, both in the reload operation itself and in terms of UP's train operations. A Willits reload operation could likely expect significant competition from Redding, based on that operation exercising and protecting its economies of scale. The only way to attract shippers from Zone 1 to a reload facility at Willits/Redwood Valley would likely be with major price incentives.

A reload facility located in Willits/Redwood Valley would, however, be useful for shippers in Zones 4 through 6. There are existing reload operators that are providing this service, including Diablo Timber in Windsor, Capital Lumber in Healdsburg and Piedmont Lumber in Calpella, among others. Enhancing these existing facilities and, perhaps, developing new ones could improve the efficiency of the railroad by limiting the number of pickup spots. For the purposes of this study a reload facility and its associated costs are included in the analysis for operating scenario I.

7.0 POTENTIAL PORT-RELATED RAIL TRAFFIC

This section addresses the potential for port-related rail traffic on the NWP. At this point, a detailed analysis of the market for port-related rail traffic has not been conducted—this will be performed as a part of the Port of Humboldt Bay Harbor Revitalization Plan, which will be prepared following this study effort. The Harbor Revitalization Plan will include a complete evaluation of port market opportunities, addressing both the "with rail" and "without rail" conditions.

Based on the known dynamics in the West Coast port and rail markets, this section addresses:

- The relationship of rail systems to ports in general, and to the Port of Humboldt Bay specifically;
- The trade and logistical dynamics driving the movement of containers, breakbulk cargo, automobiles, bulk cargo and marine industrial cargoes at West Coast ports;
- Shipper and carrier requirements for rail-related port traffic in these categories; and
- A discussion of the likely opportunity areas and potential volumes of port-related rail traffic at Humboldt Bay.

7.1 The Role of Rail Service at Ports

The movement of freight in waterborne trade requires that the landside rail and/or roadway transportation systems connect with navigable deep water at a location that minimizes total transportation cost. In this sense, a port is simply a location where deep water efficiently meets the railways and/or roadways. Without this efficient inland

connection, a harbor may have excellent navigation access but limited functionality as a port.

7.1.1 Rail Market Share at West Coast Ports

Table 7-1 illustrates the approximate percentage of port traffic moving by rail, depending on the commodity and the port area. The statistics indicate that rail service is highly important at West Coast ports, accounting for up to 90% of port related traffic in some sectors.

Table 7-1 - Approximate Percentage of West Coast Public Port Traffic by Rail

	Pacific Northwest Ports	Bay Area Ports	Southern California Ports
Containers	65%	10%	50%
Breakbulk	10%	10%	10%
Bulk grain	65%	Nil	Nil
Bulk minerals	90%	Nil	90%
Automobiles	85%	25%	50%
Marine industrial	Varies up to 100%	Varies up to 100%	Varies up to 100%

Source: PB Ports & Marine and BST Associates, 2002

Rail service is also important to ports in another respect that is not reflected in the statistics. While all shippers and carriers using a port will not necessarily use rail service, most want the *flexibility to use rail.* Having the rail option available ensures shippers they can reach additional markets or supply sources in the future, if needed, or negotiate inland transportation arrangements from a position of strength, leveraging truck against rail.

7.1.2 Rail Service Types

Rail access is particularly important because of its ability to haul large volumes of heavy freight more efficiently than truck, and its ability to haul large volumes of freight over longer distances more efficiently than truck. Two types of rail service occur at ports:

- Unit train service – Involves trainload volumes of a single commodity between the port and a single location, with no intermediate switching or classification of the railcars; and
- General manifest service – Involves smaller volumes of mixed commodities to make up a trainload between the port and multiple locations, with intermediate switching or classification of the railcars.

The efficiencies of rail relative to ports are dependent on large volumes moving on a regular basis between the port and a single inland location (or cluster of locations) such as a mill, mine, manufacturing plant or major distribution center. The greatest efficiencies occur when unit train volumes are achievable over long distances. In most instances, in the case of containers, this involves 15-30 double stack railcars at a time (300-600 TEUs) over at least 150 miles in the case of shuttle services or 1,000-2,000 miles in the case of land bridge services. For bulk products, this involves 50-110 hopper

cars at a time over distances of 500-1,500 miles. Maintaining unit train service at ports is solely dependent on sufficient volumes of the import or export traffic involved.

Breakbulk products such as lumber or steel usually operate in general manifest service due to the smaller railcar volumes and the mix of origins/destinations involved. Depending on the circumstances, this could range from a single railcar moving 1,000-2,000 miles or 30 railcars moving 30 miles between mills and plants in a key-supplier relationship. Maintaining general manifest service at ports requires a sufficient volume and mix of the port-related import/export traffic and domestic traffic to warrant service several days per week.

7.1.3 Rail at Resource-Based Ports

The role of rail service varies depending on the nature of the port. Some ports are mainly resource based; that is, the port's traffic base is tied to extractive or resource-based industries located close to the harbor. In this case, sufficient serviceability of the rail system is needed to move traffic between local industries and the harbor, and to enable local shippers to reach more distant domestic markets. This has historically been the case at the Port of Humboldt Bay and other coastal ports in the North Pacific range, such as Coos Bay, OR and Grays Harbor, WA. While relatively isolated from domestic markets, these port cities grew up relying on local industries, moving their products into waterborne trade and domestic markets over local rail and highway connections. Continued serviceability in the rail and highway systems is critical to maintaining opportunities for these ports.

7.1.4 Rail at Logistics-Based Ports

At the other extreme, some ports are mainly logistics based. In this case the port's traffic base comes from well beyond the local area and the port's main reason for existence is based purely on superior rail-water logistics and the lowest cost transportation economics relative to alternative locations. With logistical superiority, the rail and navigation systems taken together can act as a magnet for certain types of port traffic.

Prince Rupert, situated in a relatively isolated location in northern British Columbia, is a port built purely on the basis of its rail-water logistics for bulk grain and coal. Served by Canadian National Railway and located a day closer to Asia by water than Vancouver, BC, the grain elevator and coal terminal at Prince Rupert handle unit trainloads of freight from the Canadian prairie provinces in a highly efficient rail-water operation.

Likewise, the Columbia River ports are largely logistics based, due to the efficiency of the direct, water-grade east-west rail (and barge) routes through the Cascade Mountains of BNSF and Union Pacific. As a result of these efficient logistics, the ports of Portland, OR and Vancouver and Kalama, WA have attracted large quantities of bulk grains and minerals by rail from the mountain and plains states for vessel loading to Asia.

7.1.5 Rail at Population-Based Ports

The largest ports are population based. Ports like Los Angeles, Long Beach and New York serve high population regions whose consumption of imports and production of

exports attracts a high level of port traffic served by truck. It is no coincidence that these ports have excellent rail connections as well, originally built to support the movement of domestic goods to the population or domestic production to other regions. Consequently, the population-based ports also tend to have excellent rail logistics for handling import and export waterborne trade to/from points well beyond their immediate regions, benefiting from enormous rail economies of scale.

Los Angeles and Long Beach actually have the shortest and most-efficient rail connections to Chicago and the Sunbelt via BNSF and Union Pacific for import/export trade. In addition, the economies of scale resulting from the high-volume mix of domestic and import/export intermodal traffic results in round trip rail costs for containers that are several hundred dollars per box lower than at other West Coast ports.

7.2 Container and Intermodal Traffic

7.2.1 Direct container steamship service

Since the introduction of double stack trains and the rise of intermodalism in the late 1980s, the transpacific container trade has been controlled by the steamship carriers. Decisions on port calls, intermodal traffic routing, rail carrier selection and other logistical details are virtually all made by the steamship lines. In making these decisions, the steamship carriers seek to balance vessel operating efficiency, service to local cargo markets and intermodal connections to inland markets.

The container steamship industry continues to go through a period of extensive consolidation, including acquisitions, mergers and the formation of operating alliances in which carrier groups share slots on each other's vessels. The selection of vessel itineraries, port calls and intermodal gateways is complicated by the alliances because several steamship lines must now agree on all decisions.

Vessel sizes continue to increase with the introduction of the large and wider post-Panamax container ships—those too wide to transit the Panama Canal. Ships in the transpacific trade range in size from 3,000 to 6,000 TEU, the most typical being about 4,000 TEU with maximum sailing drafts of over 45 feet. While much is written about the increasing ship sizes and the likelihood of 8,000 to 10,000 TEU ships, carriers will most likely operate a variety of ship sizes to serve various markets.

Container service has concentrated at five West Coast port areas, where population centers, railroad mainlines and the interstate highways converge. These include: Los Angeles/Long Beach, Oakland, Seattle/Tacoma, Vancouver, BC, and Portland. Southern California has emerged as the dominant load center (see discussion of population based ports above), with Oakland and Seattle/Tacoma also serving as container load centers. Each carrier group now operates multiple weekly services, generally calling two to four ports and absorbing the cost of trucking cargo from other port areas.

Vancouver, British Columbia has emerged as a significant West Coast competitor for intermodal traffic for two reasons: rail mergers have given Canadian Pacific and

Canadian National direct access into Chicago and the U.S. northeast market; and the low value of the Canadian dollar has made Canadian marine terminal and rail services very cost competitive. In addition, Vancouver has experienced a significant shift of breakbulk products to containerization in the past several years. Service at San Francisco has been virtually eliminated, in favor of Oakland, due to poor east-west main line rail service and interstate highway access. Portland—with 290,000 TEUs per year, a 2-3 percent share of West Coast container volume—struggles to maintain its niche role in the trade due to its relatively small market size, 40-foot channel depth, and close proximity to load centers in Tacoma and Seattle.

In addition to adequate marine terminal facilities and terminal operators, the typical requirements a container carrier will have in considering a port call are the following:

- Channel/harbor depth of 50 feet at load centers and 40-45 feet at middle port calls;
- Local market volumes providing at least 1,000 TEUs per weekly vessel call;
- Mainline rail access by both Class 1 rail carriers (BNSF and UP), or at least the steamship line's favored rail carrier, with up to 65-hour rail service to Chicago for:

  -Handling eastbound and/or westbound intermodal cargo; and
  -Repositioning empty containers from east to west to serve the local market;
- Interstate highway access to regional hinterland markets; and
- Support services such as container and chassis repair, drayage companies, etc.

Ironically, a container carrier group will not likely consider a port call unless other competing carriers are also active in the market on a direct calling basis. Lacking competition by other direct calling carriers, a steamship line has no incentive to make direct ship calls itself; rather it can opt to call at the nearest load center port, requiring shippers to truck their cargo to the ship. Container carriers notoriously "follow the leader" in port selection, rather than seek out niche markets.

In addition to the transpacific container trade, container services to Australia, South America, North Europe and the Mediterranean operate on the West Coast. While carriers in these trades tend to be somewhat more opportunistic relative to smaller port markets, many of the dynamics described above apply, although to a lesser degree than in the transpacific.

7.2.2 Inland Intermodal Shuttle Service

A new phenomenon in the container trade is the emergence of inland container depots—or "ports"—served by intermodal rail shuttle or barge feeder. These services create the opportunity for ports and inland cities to generate economic activity in the container trade without direct container vessel calls. Table 7-2 identifies many of the rail shuttles and barge feeders currently in operation or under study in the U.S.

Table 7-2 - Container Rail Shuttles and Barge Feeders in Service or Under Study

Rail Shuttles In Operation	Rail Shuttles Under Study	Barge Feeders In Operation	Barge Feeders Under Study
Portland/Seattle	Oakland/Stockton	Portland/Pasco, WA	New York/Bridgeport, CT
Pasco, WA/Seattle	Oakland/Sacramento	Portland/Lewiston, ID	New York/Quonset Pt., RI
Portland/Oakland	New York/various points		
Norfolk/northern VA			
Atlanta/Savannah			
Atlanta/Jacksonville			
Atlanta/Charleston			

The feasibility of these services in competition with trucks depends on volume, distance, transit time and logistical fit with the container carriers' operations. Based on the rail shuttles currently in service, the conditions for feasible operations appear to include:

- Distance of 180 miles or more between the hub and feeder locations;
- Transit time of 24 hours or less; and
- Volume of at least 100 TEUs several days per week (round trip), or about 15,000 TEUs per year in order to achieve shuttle train transit time and switching efficiencies.

The Oakland/Stockton and Oakland/Sacramento shuttles under study involve a market of about 150,000 TEUs per year of agricultural exports in the Fresno-to-Sacramento area and 24-hour rail service over the BNSF or UP. The key question is whether rail operations over a distance of only about 60 miles can compete with truck where drayage rates are $250-$275 per container (round trip). Based on the potential to take trucks off of I-80 and I-580—and the resulting air quality and congestion mitigation benefits—Caltrans, the ports and the air quality authorities will likely consider the potential to subsidize the operation.

According to container statistics provided by the Port of Oakland, just over 21,000 TEUs of container traffic were identified along the NCRA corridor (Humboldt, Mendocino and Sonoma counties) in 1999. Of the total, 20,900 TEUs were identified in Sonoma County where competition with truck service would not be feasible, 71 TEUs were identified in Mendocino County and 285 TEUs were identified in Humboldt County. These data (from the Journal of Commerce PIERS service) probably understate the true volume due anomalies in reporting the place of business of the shippers, but even if Humboldt and Mendocino County volumes were several times larger, it appears the market size (two railcars per week in Humboldt and Mendocino counties) is insufficient to support rail shuttle service.

7.3 Breakbulk and forest products

Control over port decisions and logistics in the breakbulk trade involves a complex relationship between the import/export shippers and the ocean carriers, with the ocean carriers exercising increasing control.

Traditionally, breakbulk carriers made multiple port calls on the West Coast at coastal ports, mill docks and major population centers. Shippers could dictate to the ocean carrier which port or dock they should call if they expected to handle their cargo. Today, with the introduction of larger, more expensive and more sophisticated box-hold vessels, the ocean carriers are calling fewer ports, seeking to draw the cargo to the ship. Like the container lines, breakbulk carriers are using key ports as load centers, absorbing the inland truck or rail costs needed to draw cargo from other port areas to the ship.

Despite load centering, ocean carriers will call additional ports or mill docks under the right circumstances. Local cargoes that are available in sufficient quantity on a somewhat regular (e.g., monthly) basis and that would otherwise involve extraordinary inland transportation costs to a load center may be able to induce direct calls by the carrier. Under these circumstances, the cargo involved is typically local to the port, most likely using truck transportation.

The typical port and logistical requirements for a breakbulk ocean carrier include:

Load Center Ship Calls

- Channel/harbor depth of 35-40 feet;
- Close proximity to a local metropolitan market with regional cargo volumes of at least 10-20,000 tons per month;
- Interstate highway access to regional markets; and
- Mainline rail access by both Class 1 rail carriers (BNSF and UP), or at least the key shippers' favored rail carrier, for handling of cargoes such as:

  -Import steel and rail products;
  -Export forest products and metals from more distant mills; and
  -Export Midwest machinery and rolling stock.

Local Ship Calls

- Channel/harbor depth of 35-40 feet;
- Local volumes of providing at least 500 to 2,000 tons per month;
- Direct highway access, not necessarily by interstate highway; and
- Direct rail access, not necessarily by the Class 1 carriers.

7.4 Automobiles

Logistical decisions and port selection in the automobile import/export trade are controlled by automobile import companies with some input from the ocean carriers (particularly in those cases where the auto company has a sister steamship company). Key auto ports on the West Coast include Portland, Tacoma, San Diego, Los Angeles, Long Beach and Port Hueneme. Vancouver, Washington handles Subaru imports and Benicia handles automobiles mainly for the Northern California market. Richmond

previously handled Honda, but is no longer in the business and Seattle no longer handles automobiles since Nissan consolidated its West Coast operations at Los Angeles earlier this year.

The Northwest ports are mainly intermodal automobile gateways, handling 85 percent of their vehicles by rail to states as far east as New York and as far south as Texas. San Diego, LA, Long Beach and Port Hueneme handle vehicles for the large Southern California market by truck and the Sunbelt states by rail. Most of the Asian automakers use two West Coast ports—one in Southern California and one in the Northwest while most European automakers focus their entire West Coast distribution out of Southern California.

A key issue for the automakers is the management and coordination of retail market demand, Asian production, and inventories. The more sophisticated auto companies have developed tightly coordinated systems to scale production to demand resulting in minimal inventories and fast throughput at their West Coast ports. Toyota and Honda have even developed liner-type weekly ship deliveries tied to a weekly processing and delivery cycle at the port. Throughout the strong auto market from the 1990s to date, many cars are actually sold to dealers while they are still on the water en route to port. Consequently fast throughput and quick dispatch by rail is critical to achieving their logistical goals.

Less sophisticated automakers have poor coordination of production with demand (and some poor selling car models), resulting in high inventories and long storage times at their ports. To address these inventory requirements, some car companies and the railroads are developing inland storage and processing depots to position their inventories closer to the ultimate market and utilize less expensive non-waterfront property. Hyundai, for instance, has opened a Dallas/Fort Worth depot and is considering a Chicago depot.

In addition to adequate marine terminal facilities and terminal operators, the typical requirements an auto importer will have in considering a port call are:

- Channel/harbor depth of 35 feet;
- Close proximity to a local metropolitan market;
- Interstate highway access to local and regional markets;
- Mainline rail access by both Class 1 rail carriers (BNSF and UP), or at least the auto maker's favored rail carrier, with 85-hour service to Chicago; and
- Automobile processor services and support services such as specialized truck carriers.

7.5 Bulk Cargoes

Logistics and port decisions in the bulk cargo trades are controlled entirely by the import and export shippers on a charter ship basis. The shippers, who are often producers of the

bulk materials, contract for rail or truck service, contract for marine terminal services and charter the vessels involved in the cargo movement.
Most bulk shipments are agricultural or mining outputs or raw material inputs for manufacturing, which are less time sensitive than other cargoes, but highly cost sensitive. Inland and ocean transportation costs for bulk products can account for as much as half of the delivered cost of the product. Consequently, logistical decisions for bulk shipments are made purely in the basis of the point-to-point transportation economics of one routing and port alternative versus others.

Bulk cargo movements tend to fall into two different categories based on volume: small lot shipments (e.g., 5,000 tons) that may utilize only a single hold in a vessel; and large lot shipments (20-60,000 tons) that move by the shipload. Large lot bulk cargoes include grain and minerals ores produced in locations beyond the North Coast area and shipped in volumes of 500,000 tons per year or more. In either case, the key variables that drive the logistics decisions are volume, distance to/from the port, and the storage, loading and unloading capabilities at the inland location.

Assuming adequate marine terminal facilities are provided at the port, the key requirements of bulk cargo shippers in selecting ports and logistical options are:

Large Lot Cargoes

- Channel/harbor depth of up to 45 feet for minerals and grain in Panamax vessels (up to 70,000 dwt) or up to 65 feet for coal and crude petroleum in Cape-size vessels (over 80,000 dwt);
- Mainline rail access by both Class 1 rail carriers (BNSF and UP), or at least the shipper's favored rail carrier;
- Lowest cost rail routing (e.g., non-circuitous and non-mountainous); and
- Direct highway access, not necessarily by interstate highway.

Small Lot Cargoes

- Channel/harbor depth of up to 38 feet for smaller lot bulk products in Handy-size vessels (35,000 dwt);
- Direct rail access, not necessarily by the Class 1 carriers;
- Lowest cost rail routing, avoiding more costly circuitous or mountainous routes; and
- Direct highway access, not necessarily by interstate highway.

7.6 Marine Industrial Cargoes

Port and logistical decisions regarding marine industrial cargoes are typically made entirely by the shipper. The shipper, in this case, is a manufacturer with production facilities located on waterfront property and a dock for handling raw material imports or finished export shipments.

Recent examples of this type of marine industrial facility include the Steelscape (formerly BHP) steel mill in Kalama, Washington, the United States Gypsum plant in Rainier, Oregon and the American Bridge Company fabrication plant planned for Reedsport, Oregon. Nucor Steel conducted an extensive site search on the Pacific Coast for a new mini-mill in the 1990's, ultimately opting to purchase Birmingham Steel Corporation and their Seattle mini-mill. Other site searches in the last several years have included fiber optic manufacturers, energy companies, and pipeline manufacturers. Volume at these plants varies; the Steelscape mini-mill produces about 350,000 tons per year of steel coil products with railcar volumes of between 1,400 and 3,100 between 1998 and 2000.

Many of the basic decisions about logistics are made as a part of the company's site selection process. Due to the manufacturing considerations in siting these projects, factors such as site attributes, utilities, labor, and taxes often outweigh port and logistical requirements in the ultimate decision process. Close proximity to key markets and suppliers can also be an important siting factor, so as to minimize transportation costs, but this can create a trade-off with site availability and labor issues in urban markets.

The port and logistical requirements for marine industrial cargo will vary from project to project. These operations generally handle bulk inputs or breakbulk outputs, so their requirements are very similar to those described for those categories above. Typical requirements for marine industrial plants include:

- Channel/harbor depth of up to 40 feet;
- Waterfront site size of up to 200 acres;
- Mainline rail access by both Class 1 rail carriers (BNSF and UP), the company's favored Class 1 carrier or short line, depending on the circumstances;
- Daily rail service; and
- Highway access by interstate or US/state highway, depending on the circumstances.

7.7 Opportunities for Humboldt Bay and the NCRA

As indicated earlier, a detailed analysis of the market for port-related rail traffic will be performed as a part of the Port of Humboldt Bay Harbor Revitalization Plan, which will be prepared following this study effort. The Harbor Revitalization Plan will include a complete evaluation of port market opportunities, addressing both the "with rail" and "without rail" conditions.

Based on the trade and competitive conditions in West Coast marine cargo markets and the rail shipper surveys, the most likely areas of opportunity for rail-related port traffic are marine industrial cargoes, inbound forest products, and outbound aggregates.

7.7.1 Marine Industrial Cargo

Given the availability of the 38-foot channel access, waterfront sites, relatively low-cost land, utilities, labor, a highly livable environment, and serviceable highway and rail access, the Port of Humboldt Bay should be competitive for certain marine industrial project opportunities. While rail and highway access may be more limited than at some other locations, it should be sufficiently serviceable for industries attracted to Humboldt Bay's other positive attributes for manufacturing. Success in attracting a new marine industrial tenant will not necessarily come quickly, requiring three to five years or more for site preparation, marketing and the right opportunity to materialize. Rail volumes from a marine industrial plant could range up to about 400,000 tons, or 3,000 to 4,000 railcars per year.

7.7.2 Inbound Forest Products

A few forest product companies in the NWP corridor expressed interest in rail shipment of inbound forest products from the Port of Humboldt Bay, which could result in freight opportunities for the NWP.

Humboldt Bay Forest Products receives approximately 60,000 mbf (thousand board feet) of inbound logs by water from Canada and the Pacific Northwest for delivery to local mills in the Ukiah/Ft. Bragg area. This cargo is currently handled over their dock at Fields Landing and moves by truck to its final destination. Humboldt Bay Forest Products has expressed interest in delivery by rail to reduce their costs. Current volumes equate to about 1,200 railcars per year.

Several mills in Aberdeen and Longview, Washington and elsewhere are delivering lumber to Humboldt/Mendocino mills for wood treatment, use in remanufacturing or wholesale distribution. Currently, this freight moves by a rail-truck combination. It may be possible to receive these products by water at the Port of Humboldt Bay with final delivery by rail. In 1996/1997, two mills in the Ukiah/Ft. Bragg area (LP Treating and Georgia Pacific Tanks) received a total of about 400 railcars.

7.7.3 Outbound Aggregates

As aggregate supplies in San Francisco Bay become scarcer, it may be possible to ship gravel from riverbeds in the Eel River, the Mad River and other locations around Humboldt Bay via barge. Rail shipment, or possibly truck-rail shipment, to the Port would be needed to facilitate this movement. This potential should be evaluated in conjunction with local operators.

7.7.4 Other Commodities

Conditions are not favorable at Humboldt Bay for container/intermodal traffic or automobiles, because the Port is not located on the Class 1 railroad mainlines and interstate highways and is not in a major population center. Some opportunities may exist for breakbulk cargo, although they would likely be local truck-oriented freight. Rail-oriented breakbulk cargo will likely be handled at load center ports with more direct Class 1 mainline rail access. Rail-oriented bulk cargo opportunities will be confined to

North Coast origin/destination cargoes such as the woodchips, with bulk cargoes to and from more distant locations moving through ports with more direct rail connections.

8.0 PASSENGER/EXCURSION RAIL ANALYSIS

The purpose of this section is to show the process for determining if passenger rail service is feasible in the Northwestern Pacific corridor. For this study, passenger rail includes intercity and commuter service as well as excursion (i.e. tourist-oriented) service.

8.1 Passenger/Excursion Market Methodology

In general, the process for evaluating the feasibility of each type of service was based upon characteristics of the NWP corridor and the comparison of these characteristics to similar service that operates elsewhere in California or previously within the NWP corridor.

For intercity rail, this report examines three Amtrak routes: the Pacific Surfliner, the San Joaquins and the Capitol Corridor. Each of these routes operates exclusively in California. As a benchmark, they were evaluated based on population served, frequency, travel time and length of corridor. This discussion also addresses other modes that currently offer intercity service in the corridor.

The discussion on commuter rail addresses the Sonoma-Marin Area Rail Transit (SMART) proposed service as well as the potential for commuter service in the remainder of the corridor. Like intercity rail, travel patterns, population and travel times influence the market for commuter rail. This evaluation utilizes the work previously completed for the SMART Commission in March 2002.[8]

The viability of excursion rail was also considered. The market for excursion rail is different than the market for intercity and commuter. Excursion rail focuses on trips that are made for the experience itself, not for travel between one point and another. An excursion trip should be considered "entertainment" instead of "transportation." These trips are less time and cost-sensitive. Also, the equipment used as well as entertainment/attractions on-board and off-train are important.

The scope and timeframe for this study did not permit the collection of extensive market research, such as stated preference surveys. Instead, this evaluation relies on the assessment of service previously operated in the corridor as well as characteristics of other, successful excursion rail operations in other parts of Northern California. To this end, operators of these services were interviewed and asked to describe factors for successful excursion rail in general and the NWP corridor in particular. They were also asked to describe characteristics of their operations. The list of interview questions is included in Appendix B. Tourism professionals, such as staff from convention and

[8] Sonoma Marin Area Rail Transit Commission (SMART), *Cloverdale to San Rafael Commuter Rail Ridership and Revenue Forecasting*, March 29, 2002.

visitor bureaus, were also interviewed to characterize visitor travel in the corridor as well as their opinion of interest/viability for excursion rail.

8.2 Findings

8.2.1 Previous Passenger Service

Intercity passenger service has operated in this corridor since the early 1900's. However, the service began to wane in the 1920's as the roadway system expanded and automobile usage increased. In 1941, most of the train service was replaced by buses that could cross the Golden Gate Bridge into San Francisco. Any remaining intercity passenger train service was eliminated in 1971. Since then, the only passenger service in the corridor has been the operation of excursion trains.

In 1984, the north end of the railroad between Eureka and Willits was sold and reborn as the Eureka Southern railroad. Under their auspices, excursion service was operated between Willits and Eureka (northbound on Saturday and southbound on Sunday). Almost 3,600 passengers were carried on 15 round trips. In 1990, service was discontinued by the Federal Railroad Administration (FRA) due to deteriorated track conditions in the Eel River Canyon.[9]

Between 1992 and 1997, approximately two excursion trains a year operated out of Eureka (both northbound and southbound). These were special event trains for holidays (Christmas and Fourth of July) and local events (such as the Shively Harvest Festival). These trains were well patronized.

In 1996, interest was renewed in operating trains south of Willits. In October and November 1996, six pilot excursion trains were operated between Healdsburg and Willits. These trips were operated by the California Redwood Coast Company (CRCC) and were well publicized. Over 500 people rode some of the trains.

In early 1997, the CRCC signed an exclusive agreement to be allowed to operate excursion trains in the NWP corridor south of Willits. As a result, the CRCC began operating service between Healdsburg and Willits every weekend, starting in March 1997. They operated about 20 trains until June 1997 when the NCRA curtailed operation due to track conditions. On average, 200 people rode each train.

The regular weekend service was also highly publicized. It utilized Vista Dome cars as well as coach cars. The Vista Dome passengers were considered "first class" and had access to meals in a sit-down dining car. The coach passengers had access to snack service. In addition, this service was coordinated with the Skunk Train in Willits. Passengers could ride one leg of the CRCC train to Willits, transfer to the Skunk Train and arrive in Fort Bragg for an overnight stay. The return trip back to Willits and Healdsburg would be made the next day.

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[9] California Department of Transportation, District 1, *Feasibility of Intercity Rail Passenger Service on San Francisco Bay Area – Eureka Corridor, No. 01D290, Phase I Final Report,* August 3, 1992.

Since then, excursion train activity has been limited. A few years ago, a train was used to transport passengers from a cruise ship docking in the Port of Humboldt to Old Town Eureka. However, since there are operational and market limitations at Humboldt, demand for this type of service is limited.[10]

8.2.2 Intercity Rail

Intercity rail connects different geographic regions and typically uses tracks that are owned by a freight railroad. "Intercity rail" is formally and broadly defined at the federal level as all other passenger rail service that is not defined as commuter rail.[11]

Intercity trips are moderately time dependent but are flexible in terms of scheduling. Intercity trips are made to visit friends and family, shopping, doctor's appointments and other personal business and to travel to and from school. Business travel that is not daily or 'routine' would also be included in this category. Intercity trips differ from commuter trips in that they are made throughout the day instead of just during commute hours.[12]

In California, Amtrak operates three routes that are funded in part by the State of California. These routes are the Pacific Surfliner (San Luis Obispo-Santa Barbara-Los Angeles-San Diego); the San Joaquins (Bay Area/Sacramento-Fresno-Bakersfield); and the Capitol Corridor (Auburn-Sacramento-Oakland-San Jose). Each of these routes operates exclusively in California.

The following information describes attributes of each service:[13]

Pacific Surfliner Route

- Major stations: San Luis Obispo, Santa Barbara, Los Angeles, Orange County, San Diego;
- 351 route miles;
- Overall average speed is 38 to 46 mph;
- Running time for the entire corridor ranges from 7 hours 41 minutes to 9 hours 17 minutes;
- This route is served by four Amtrak feeder bus routes;
- 2000-2001 ridership: 1.66 million riders;
- There are plans to increase service to 16 round trips by 2009; and

[10] Phone conversation with Angelo Figone, California Redwood Coast Co., June 25, 2002.

[11] California Department of Transportation, *California State Rail Plan 2001-02-2010-11*, October, 2001

[12] California Department of Transportation, District 1, *Feasibility of Intercity Rail Passenger Service on San Francisco Bay Area – Eureka Corridor, No. 01D290, Phase I Final Report,* August 3, 1992.

[13] California Department of Transportation, *California State Rail Plan (2001-02 to 2010-11)*, October 2001.

- The farebox ratio (percentage of operating costs covered by operating revenue) is currently 53.5 percent.

San Joaquins Route

- Major stations: Oakland, Sacramento, Stockton, Fresno, Bakersfield;
- 314 route miles;
- Running time Bakersfield to Oakland is 5 hours 33 minutes to 5 hours 35 minutes; running time Bakersfield to Sacramento is 6 hours 10 minutes to 6 hours 25 minutes;
- Average speed 49 to 51 mph (Bakersfield to Oakland) and 51 mph (Bakersfield to Sacramento);
- This route is served by 19 Amtrak feeder bus routes;
- 2000-2001 ridership: 711,000 riders;
- There are plans to increase service to 8 round trips by 2007; and
- The farebox ratio is currently 45.3 percent.

Capitol Corridor

- Major stations: Auburn, Sacramento, Oakland, San Jose;
- 169 route miles;
- Running time for the entire corridor ranges from 4 hours 5 minutes to 4 hours 47 minutes;
- Average speed 35 mph to 41 mph;
- This route is served by 8 Amtrak feeder bus routes;
- 2000-2001 ridership: 1.03 million riders;
- There are plans to increase service to 16 round trips by 2011; and
- The farebox ratio is currently 40.1 percent.

The fare for full corridor travel between Sacramento and San Jose is about $34; between San Luis Obispo and San Diego is about $107; between Oakland and Bakersfield is about $90.

From this study, intercity rail can be characterized as serving significant population and employment centers, averaging 60 to 70 mph, and total corridor travel times of no more than about nine hours. It has been found that extensive network of feeder bus service is also important component of California's intercity rail program.

Communities in the NWP corridor are connected to these trains by Amtrak's feeder bus service. Table 8-1 shows ridership for each bus serving these communities. These buses take passengers to stations on the Capitol Corridor and San Joaquins routes at Martinez. It is clear from the data that intercity passenger demand in the NWP corridor is low, as demonstrated by each station's rank compared to all of Amtrak's 110 feeder bus stations. Whereas the top ten stations serve between 260,000 and 1.1 million passengers, Arcata and Eureka rank 81st and 86th, respectively, and provide only about 6,000 passengers per year (20 per day) via the current Amtrak bus shuttle.

Table 8-1 – Amtrak Train and Bus Ridership by Station – NWP Corridor Stations

Station	County	1999-00 Ridership	1998-99 Ridership	State of California Rank
Santa Rosa	Sonoma	12,272	11,917	53
Arcata	Humboldt	3,059	3,152	81
Eureka	Humboldt	2,615	2,795	86
Petaluma	Sonoma	2,138	1,850	90
Rohnert Park	Sonoma	1,970	1,818	91
McKinleyville	Humboldt	1,948	2,039	92
Ukiah	Mendocino	1,455	1,355	93
Willits	Mendocino	777	770	105
Garberville	Humboldt	653	525	110

Source: *California State Rail Plan, 2001-02 to 2010-11*, October 2001.

The State Rail Plan identifies five new routes that are included in their 10-year plan, as well as two other routes that Amtrak is evaluating for inclusion in a later plan. The Schellville to Eureka corridor was not included as one of these corridors, and Caltrans is not currently considering if it should be included in its plan.

The NWP corridor is also served by Greyhound intercity bus service. Greyhound operates two to three trips daily in each direction between Eureka and San Rafael. Ridership volumes could not be obtained from Greyhound. The total one-way travel time between Eureka and San Rafael is between 5 hours, 50 minutes and 6 hours, 45 minutes. The round trip fare is about $60.

If intercity rail service were operated in the NWP corridor, the entire corridor trip would take about 12 hours under the current operating speeds. Removal of these restrictions and upgrading the maximum speed to 40 mph would result in a travel time of about nine hours. If costs were comparable to Amtrak intercity service, the fare would be about $100. However, because the population density is much lower in this corridor than the Amtrak corridor, it is unlikely that the farebox return would be similar, thus making the fares higher. For comparison, the trip between San Rafael and Eureka takes about 5½ hours by private automobile (without stops). The distance is about 240 miles by traveling on Highway 101.

The train ride between Eureka and San Rafael would take almost 65 percent longer (3½ hours more) by train than by car, even with upgraded speeds. The train would take at least one-third longer than the Greyhound bus (2¼ hours more). Given the significant differences in travel time, the potential out-of-pocket costs to travelers and the low

population density of much of the corridor, it is unlikely that rail could be a viable option for intercity travel in the NWP corridor. Therefore, it is not analyzed further in this study.

8.2.3 Commuter Rail

Commuter rail primarily serves local and regional areas. The Interstate Commerce Commission (ICC) states that commuter rail includes some or all of the following features:[14]

- The passenger service is primarily being used by patrons traveling on a regular basis either within a metropolitan area or between a metropolitan area and its suburbs;
- The service is usually characterized by operations performed at morning and evening peak periods of travel;
- The service usually honors commutation or multiple-ride tickets at a fare reduced below the ordinary coach fare and carries the majority of its patrons on such a reduced fare basis;
- The service makes several stops at short intervals either within a zone or along the entire route;
- The equipment used may consist of little more than ordinary coaches; and
- The service should not extend more than 100 miles at the most, except in rare instances; although service over shorter distances may not be commuter or short haul within the meaning of the exclusion.

A segment of the NWP corridor has been identified for commuter rail in previous planning efforts. The Sonoma-Marin Area Rail Transit (SMART) corridor is located in the Northwestern Pacific right-of-way and extends from downtown San Rafael to Cloverdale. It is 68 miles long. Commuter rail service has been proposed in this corridor to alleviate congestion in the US 101 corridor and to accommodate future travel demand. In 20 years, the population of Marin and Sonoma Counties is expected to increase 26 percent, from 714,900 people to 902,200 people.[15]

Twelve stations have been assumed for this corridor in recent planning efforts. They would be located at San Rafael, San Rafael Civic Center, South Novato, North Novato, Petaluma, Cotati, Rohnert Park, Santa Rosa, Windsor, Healdsburg, Geyserville, and Cloverdale. There would be a minimum of three trains during each peak period at each station, as well as limited midday service. It was estimated that there would be about 5,100 daily boardings in 2007, and about 6,000 daily boardings in 2020.[16] Outside of the San Rafael and Cloverdale corridor, there is not sufficient density to support regular commuter operations.

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[14] ibid.

[15] California Department of Finance, *Interim County Population Projections*, June 2001.

[16] Sonoma Marin Area Rail Transit Commission (SMART), *Cloverdale to San Rafael Commuter Rail Ridership and Revenue Forecasting*, March 29, 2002.

8.2.4 Excursion Rail

The purpose of a trip made on excursion rail is to enjoy the trip itself. It is generally not thought of as 'transportation' but as 'entertainment'. Attractions on-board as well as off-train may be big draws for passenger and may appeal to both tourists and local residents. Because tourism is a primary industry of the four counties in the NWP corridor and could provide a base of ridership, the feasibility of excursion rail was considered. The corridor also lends itself well to excursion rail because of the following features:

- Dramatic and unique scenery, particularly in the Eel River Canyon, much of which is not accessible by car;
- Places of historical significance within the corridor;
- Parks and forests that feature redwood trees; and
- Permanent attractions that could be linked with the train service, such as wineries, restaurants and sites of historical significance.

Table 8-2 shows the number of leisure visitors to the four counties in the NWP for a seven-year period. This information comes from extensive surveys that are completed for California Tourism, the state agency for tourism. Staff at California Tourism indicated the data is not reliable enough to get year-by-year growth rates; however, it is sufficient to understand overall trends. Tourism in these counties is expected to grow, particularly after the events of September 11, 2001 because people are expected to take trips close to home.[17]

Table 8-2 - Total Leisure Visitor Volumes by County

	Millions of Person Trips			
Year	Marin	Sonoma	Mendocino	Humboldt
1994	0.9	3.3	1.6	1.1
1995	1.6	3.1	1.5	1.2
1996	1.3	2.2	1.3	1.3
1997	1.0	3.7	1.0	1.5
1998	1.1	3.0	1.5	1.0
1999	1.6	3.1	0.8	1.1
2000	1.4	4.4	2.2	1.6
6-year change	56%	33%	38%	45%

Source: *County Visitor Volumes*, California Tourism

It is difficult to ascertain exactly how many of these people would be interested in excursion railroad rides. This is because this service does not currently exist in the NWP corridor and excursion rail has many variables that influence ridership and differentiate it from other attractions (rail and otherwise), such as the scenery and natural features, equipment used, and attractions on-board and off-train, Therefore, data was collected on other excursion rail operations to get an idea of the factors that make an excursion rail operation successful as well as actual statistics on operations (such as number of riders and total visitorship to the area).

Staff at the following railroads were interviewed:

[17] Phone conversation with Eileen Hook, California Tourism, June 20, 2002.

- California Western/"The Skunk Train," Fort Bragg & Willits (Mendocino County), California;
- Roaring Camp Railroads, Felton (Santa Cruz County), California;
- The Napa Valley Wine Train, Napa (Napa County), California;
- The Shasta Sunset Dinner Train, McCloud (Siskiyou County), California; and
- Yreka Western, Yreka (Siskiyou County), California.

These rides were selected for investigation because they are located in Northern California and have developed an established place in the marketplace. Characteristics of each of these railroads are summarized in the following sections.

8.2.4.1 California Western

The California Western, or "Skunk Train," operates between Fort Bragg and Willits in Mendocino County. The Skunk Train operates throughout the year and offers full-day, half-day and one-way trips. The trips offered vary by the time of year. All of the trips have a layover at Northspur where passengers can purchase food and beverages. The trip features a scenic ride through redwood groves, coastal mountains, and along the Noyo River. Most of the ride is not accessible by car.

Power is provided by steam locomotive, diesel-electric locomotive or gasoline-powered motorcars. The steam locomotive operates on a limited schedule between April and October for the Half-Day trips; the diesel locomotive operates only on certain days. The motorcars are used most of the time.

The full-day trip lasts 8½ hours, connects Fort Bragg and Willits and makes two stops at Northspur. The adult fare is $45. The Half-Day and One-Way trips take 3½ hours. It costs $29-$39 depending on the type of equipment used.

The level of service by time of year is described below:

- Winter and Spring: The Half-Day trip operates daily and departs from Fort Bragg only;
- Spring Break: The Half-Day and One-Way trips operate daily from Fort Bragg only;
- Summer and Late Summer: All trips operate daily;
- Fall: Half-Day and One-Way trips are offered daily and depart from Fort Bragg and Willits; and
- Winter: Half-Day trips depart from Fort Bragg daily.

The railroad also offers Special Events on the train throughout the year and a Sunset Dinner BBQ once a week in the summer.

The Skunk Train serves about 65,000 visitors a year. The railroad has reached its current capacity and is considering adding additional cars to its trains to increase capacity. Their

motorcars accommodate 40 people per car; their other cars accommodate 80 people per car. Typically, the largest train they operate is nine to ten cars.[18]

The California Western would like to add a trip between Willits and Longvale in the Northwestern Pacific corridor. This trip would use a steam engine and would take about two hours, round-trip. The attraction of this trip would be the scenery. This service could be coordinated with current Skunk Train service, possibly one morning and one afternoon train. Three to four cars would be needed to initiate this service.

The California Western also operates freight service at nighttime. The NWP closure has affected the amount of revenue they have been earning. According to John Mayfield, the California Western is losing about $300,000 per year due to the closure.[19]

8.2.4.2 Roaring Camp & Big Trees Narrow Gauge Railroad and Santa Cruz, Big Trees and Pacific Railway Company

The Roaring Camp Railroad operates two trains in Roaring Camp, near Santa Cruz--the Roaring Camp & Big Trees Narrow Gauge Railroad (RC&BTNGRR) and the Santa Cruz, Big Trees and Pacific Railway (SCBT&PRY), a standard gauge operation. The RC&BTNGRR and SCBT&P RY are separate corporations owned by the same, publicly held corporation. The SCBT&P RY owns all track and supply crews and power. RC&BTNGRR leases track on a long-term lease. Its pays a set fee to the owners instead of a percentage of profit.[20]

The Narrow Gauge trip is a 1¼-hour trip, traveling at 3 mph. It includes a 15-minute layover at Bear Mountain where passengers can enjoy a talk about the redwoods. The railroad is powered by a steam train. The adult fare is $15.50. This train operates daily year-round. In December, it operates on weekends and holidays only. At peak times, there are 100 people per train. Annually, there are 200,000 riders. Roaring Camp Railroad's government relations manager described this trip as "very profitable". The factors contributing to its success include its short travel time, the scenery and proximity of the trees, its large parking lot and its proximity to the Bay Area. Also, on-board narration is offered for the length of the trip. However, the trip may have reached capacity, as there is track congestion. They currently operate two train sets; a passing track would have to be added if they want to add a third set. Trains cannot be made longer because of the switchbacks.

The Santa Cruz, Big Trees and Pacific Railway Company (SCBT&P RY) operates a standard gauge railroad. It operates between Roaring Camp and the Santa Cruz Beach and Boardwalk. En-route attractions include Henry Cowell Redwoods State Park, the San Lorenzo Scenic Gorge, a steel truss bridge and a tunnel. The Santa Cruz Beach and

[18] Phone conversation with John Mayfield, Owner, California Western, June 5, 2002.

[19] Phone conversation with John Mayfield, Owner, California Western, May 24, 2002.

[20] Phone conversation with Cliff Waters, Government Relations Manager, Roaring Camp Railroads, May 22, 2002.

Boardwalk is a destination itself, separate from the train ride. Total round trip travel time is three hours.

The passenger coaches and open-air cars are pulled by a diesel locomotive. The railroad has plans to eventually operate a steam locomotive.

This service has been described as "marginally profitable." The length of the trip (three hours round trip) is felt to detract from its appeal, and the railroad is evaluating ways to shorten it. Holiday Christmas trains are operated on this route in December weekends. They were started two years ago and have been very successful. Four trains operated per evening with about 350 people per train. The ride costs $10. Their goal is to increase ridership to 500 people per train.

An agreement was recently signed to have the SCBT&P RY haul sand for silicon wafers to Santa Cruz. The sand is mined on the SCBT&P RY line.

8.2.4.3 Napa Valley Wine Train

The Napa Valley Wine Train (NVWT) operates between Napa and St. Helena. It is a three hour trip and travels at an average speed of 36 mph. It offers a variety of regular and special packages that feature a fine, gourmet dining experience and wine tasting. The regular packages range from $59.50 to $110 per person. The service operates year-round, usually four to six days per week. There are up to two trains per day.

The NVWT owns, operates and maintains its entire track and restores its equipment.

Unlike the other railroads profiled here, the NVWT does not target families. Instead, they target people who are 55 or older, semi-retired, affluent and Monday through Friday travelers.

Their visitor profile:

- Median age is 51;
- 67 percent of riders come from within a 200 mile radius; 23 percent come from within a 30 mile radius; 11 percent come from within a 500 mile radius or more; and
- 20 percent of the riders come as part of a group.

The NVWT offers 180 special events each year and 15 different programs. Their annual ridership is about 120,000 passengers. In 2001, they operated a total of 627 trains with, on average, almost 200 people per train.

Erica Ercolano, NVWT Marketing Director, characterized NVWT's success to the following factors:[21]

- Consistency of service;

[21] Phone conversation with Erica Ercolano, Marketing Director, Napa Valley Wine Train, June 4, 2002.

- Quality of dining experience and food;
- Proximity to population centers (the Bay Area and Sacramento);
- Historical features (railroad operations on this line predates the transcontinental railroad);
- Scenery; and
- Accessibility to San Francisco.

Ms. Ercolano described the challenges the NVWT faced as follows:

- Maintaining level of frequency of service;
- Dealing with 15 different government agencies;
- Equipment maintenance; and
- Maintaining stable labor force.

Some moderate level of freight service is operated on this line.

In June 2002, the Napa Valley Wine Train inaugurated new "shuttle" service between Napa and Yountville, an eight-mile trip. This service is considered basic transportation to help visitors avoid the congestion on Highway 29. Five round trips are operated daily using former Rio Grande cars and former VIA cars. The fare is $12. The trains have a capacity of 250 passengers.[22]

8.2.4.4 Yreka Western Railroad

The Yreka Western (YWRR) operates steam excursions in Yreka, featuring a 1915 steam locomotive and dramatic views of Mount Shasta. The total trip time for the excursion is one hour that includes a layover in the historical town of Montague. The route cannot be driven by car. The train usually travels at about 5mph although the limit is 10mph.

The train operates regularly between Memorial Day and the end of October. Between mime-June and Labor Day, it operates one trip Wednesdays through Sundays. In the shoulder season, it operates only on weekends. The adult fare is $12.50. A limited number of special events are added during the season.

Factors for success for this service have been cited as use of the steam engine, educational features, provides family entertainment and provides a sense of history.

The steam engine was non-operative last year, which decreased ridership. When the steam engine is in service, there are about 60 passengers on Wednesdays and Thursdays, 80 passengers on Fridays and 100 passengers on weekends. The capacity of the train is 300 passengers. Its current owners bought the railroad in 2000. Under the previous owners, the excursion service regularly hauled 300 people per train.

[22] Phone conversation with Erica Ercolano, Marketing Director, Napa Valley Wine Train, June 4, 2002.

The YWRR is considering improving the tracks parallel to Interstate 5 for narrow gauge steam engines. These trains would run every hour to the county fairgrounds when there were events there.

The Yreka Western owns the track as well as the freight and passenger operations. There is one freight customer, a mill, which operates freight traffic six days per week, year-round. This operation "pays the bills" for the railroad.[23]

8.2.4.5 Leisure Visitor Volumes

To understand the volume of visitors that these attractions draw from, Table 8-3 shows total leisure visitor volumes for the counties in which these rides are located.

Table 8-3 - Total Leisure Visitor Volumes by County for Established Excursion Rail

	Millions of Person Trips		
Year	Napa	Santa Cruz	Siskiyou
1994	2.1	2.5	1.1
1995	1.6	3.0	0.6
1996	1.4	3.0	0.6
1997	1.5	2.5	0.7
1998	1.2	1.9	0.8
1999	1.8	0.4	0.7
2000	2.5	3.8	0.7

Source: *County Visitor Volumes,* California Tourism.

8.2.4.6 Excursion Rail Themes

In addition to staff at existing excursion railroad operations, tourism professionals were also interviewed (a complete list of persons interviewed is contained in Appendix B). The following 'themes' for operating the service and making it profitable emerged from these interviews, regarding excursion rail in general and the NWP corridor specifically:

- The operation should be marketed to families and the general public, not just rail fans;
- There must a significant population and/or tourist base to draw from;
- Keep it short. About an hour in length, round trip (including layovers), was recommended. This relates to the attention span of children. A half-day train ride is a huge investment for a potential passenger;
- Keep it cheap. Around $10 for adults was identified as an attractive price;
- If you can see the route from the roadway (from the car), it probably won't be successful because there is no "mystery";
- Historical features and attractiveness of the equipment and scenery should be significant;
- Train operations must stick to a schedule. Occasional "special event" trains are a different type of service;

[23] Phone conversation, Karla Bennett, Office Manager/Hostess, Yreka Western RR, May 20, 2002.

- Equipment can be important: steam engines can be a big draw but are expensive to operate and maintain;
- Old-fashioned atmosphere on-board is OK as long as the equipment works and is comfortable;
- The ride must be "rock solid" and smooth;
- The most successful excursion railroads are six miles in length; if longer than that, track maintenance results in declining revenues;
- If the ride is marketed to upscale visitors, there must be a reason to be on the train other than looking at the scenery, such as a European-style dining experience;
- Plan for two years and farther beyond start up. Rail fans will make the train successful the first year but need to attract the general public through extensive advertising for subsequent years;
- To maintain market share beyond the initial years, the ride will have to include more extensive and varied entertainment, like "Mystery Trains" and "shootouts"; and
- A stable work force is important. Volunteers can help the operation save money but typically they are not interested in operating the ride as a "business" or "entertainment." They are more interested in the ride as a "railroad."

Advice for Excursion Rail in the Northwestern Pacific Corridor:

- Easy access from the Bay Area is key, perhaps provided by a bus connection linked directly to the train ride;
- Start small and slow. Operate on a limited but regular schedule in the beginning;
- Have to have track up to at least Class II speeds;
- Steam engines would be too expensive to operate for initial service. Also, they are very polluting, and local residents are sensitive to adverse environmental effects;
- Amtrak compatible equipment is not necessary;
- If a locomotive is used, it should be diesel; otherwise, motorcars or self-propelled units are a good choice in terms of vehicle and operating costs;
- If an overnight stay is required (for example, if there was service between Eureka and Willits), then the provision of transportation between the train station and hotels would be very important;
- Tie-ins with wineries, restaurants, historical tours, museums, etc. will be very important to make the ride unique and special and thus a better draw; and

- If half-day trips or longer are operated (e.g. into the Eel River Canyon), it should be noted that passengers would not be in town spending money during that time.

8.3 Excursion Market Potential

8.3.1 Ridership

The estimation of ridership levels for each operating scenarios was based on the ridership levels experienced by the other excursion railroads profiled in this report. An average volume of passengers per train was calculated for each railroad. See Table 8-4.

Table 8-4 – Average Number of Passengers Per Train for Established Excursion Rail

Railroad	Approx. Number of Trains Annually	Number of Passengers Annually	Average Number of Passengers Per Train
California Western	700*	65,000	93
Roaring Camp Narrow Gauge	630	200,000	317
Napa Valley Wine Train	625	120,000	192
Shasta Sunset Dinner Train	200*	20,000	100
Shasta Sunset Excursion Train	60*	7,000	117
Yreka Western	80*	7,000	88

* Does not include "special event" trains.
Source: Parsons Brinckerhoff, June 2002.

These volumes were used to define a low, medium and high level of demand for each operating scenario:

Low: 90 passengers per train
Medium: 195 passengers per train
High: 300 passengers per train

Table 8-5 shows the levels of demand for each operating scenario.

Table 8-5 – Number of Annual Passengers by Operating Scenario

	Operating Scenarios		
Level of Demand	I	II	III
Low	5,760	25,200	32,400
Medium	12,480	54,600	70,200
High	19,200	84,000	108,000

Source: Parsons Brinckerhoff, June 2002.

Upon being input into the financial model, these volumes were adjusted for annual population and tourist growth (1 percent per year) and inflation (3 percent per year). The rates were also prorated depending on the level of service assumed for each year between 2003 and 2028.

8.3.2 Fares

To determine potential revenue for each of these scenarios, it was assumed that the Eureka to Samoa fare would be $15 for adults and $10 for children. The Eureka to South Fork fare was assumed to be $30 for adults and $16 for children. A 50/50 split in adult versus children fares was assumed.

9.0 OPERATING SCENARIOS TO SERVE FREIGHT AND PASSENGER MARKETS

Given the above demand analysis, PB in consultation with the NCRA, created operating scenarios that would not only meet the needs of the majority of freight shippers, but also minimize operating costs for the service provided. Another key consideration was the process and prioritization of the capital improvements to meet the market demand. The three operating scenarios, described below, would be phased into service between 2003 and 2013.

9.1 Rail Operations Analysis Methodology

For a full description of the rail operations analysis methodology please see appendix I.

9.2 Freight Operating Scenarios

In conjunction with the NCRA, three operating scenarios were developed and applied to the market forecasts. Throughout the document there are references to "FRA Class 1, 2 and 3" conditions, these classes are dictated by the federal law CFR 213.9. These classes are a reference to the condition of the track, its geometry and its associated maximum allowable speed. The following table summarizes the FRA classes and their associated speeds.

FRA (CFR 213.9) Class's of Track and Associated Maximum Speeds

FRA Class of Track	Max. Freight Train Speed	Max. Passenger Train Speed
Class 1	10 mph	15 mph
Class 2	25 mph	30 mph
Class 3	40 mph	60 mph
Class 4*	60 mph	80 mph
Class 5	80 mph	90 mph

*Under federal regulation signalization is required if freight trains operating at speeds greater than fifty miles per hour and passenger trains greater than 60 miles per hour. Since the NWP currently does not have signalization, it would have to comply with these speed restrictions, regardless of the class of track.

The three proposed operating scenarios are described in detail below. Figures 9-1 to 9-3 graphically represent the scenarios. The specific operating requirements of each of the freight and passenger scenarios are outlined in Table 9-1.

9.2.1 Operating Scenario I: Willits Area South to Schellville, South Fork North to Samoa

Scenario I involves a split operation, with rail service from Willits south and South Fork north, leaving the Eel River canyon out of service. Under this operating scenario, there would be direct train service to all shippers between Willits and Schellville. Customers north of Willits would be served by a transload facility in the Redwood Valley area. This service would run three times a week in each direction at speeds of 10-25 miles per hour (Class 1 and 2 operation). According to the capital plan outlined by the NCRA, the southern service would begin operating in the second quarter of 2003. (See map 1.2.1)

On the north end of the railroad there would be service provided between South Fork and Samoa. This would allow for excursion operations and enable any shipper along the corridor to connect with the Port of Humboldt Bay to ship to other destinations by water. Service on this section of the railroad would begin operating in the fourth quarter of 2003.

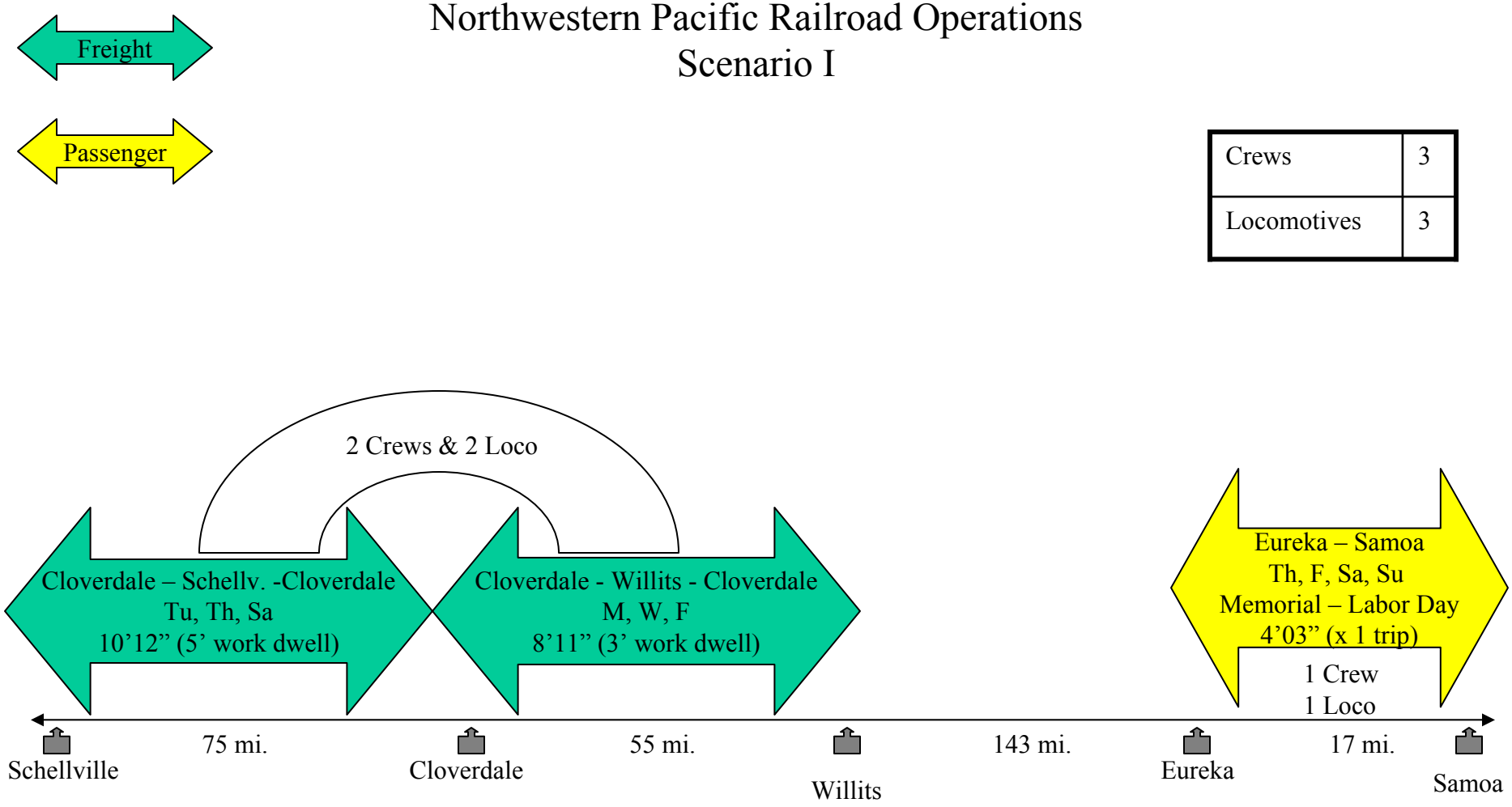
9.2.2 Operating Scenario II: Eel River Connection

Under Operating Scenario II, the entire route from Schellville to Samoa would be restored. This would allow basic operations through the Eel River Canyon connecting both outbound and inbound freight to the region. It would continue to operate 3 days a week in each direction at speeds of 10-25 miles per hour (Class 1 and 2 operation). It is anticipated that this section would be operational in the third quarter of 2006. (See map 1.2.1)

9.2.3 Operating Scenario III: Higher Level of Service

The level of service would be raised from three days a week to five day a week. The majority of the route would be maintained at the speeds that were accomplished under Operating Scenario II. This daily service would allow the railroad to cater to such customers such as solid waste vendors and other daily customers.

Figure 9-1
Northwestern Pacific Railroad Operations
Scenario I



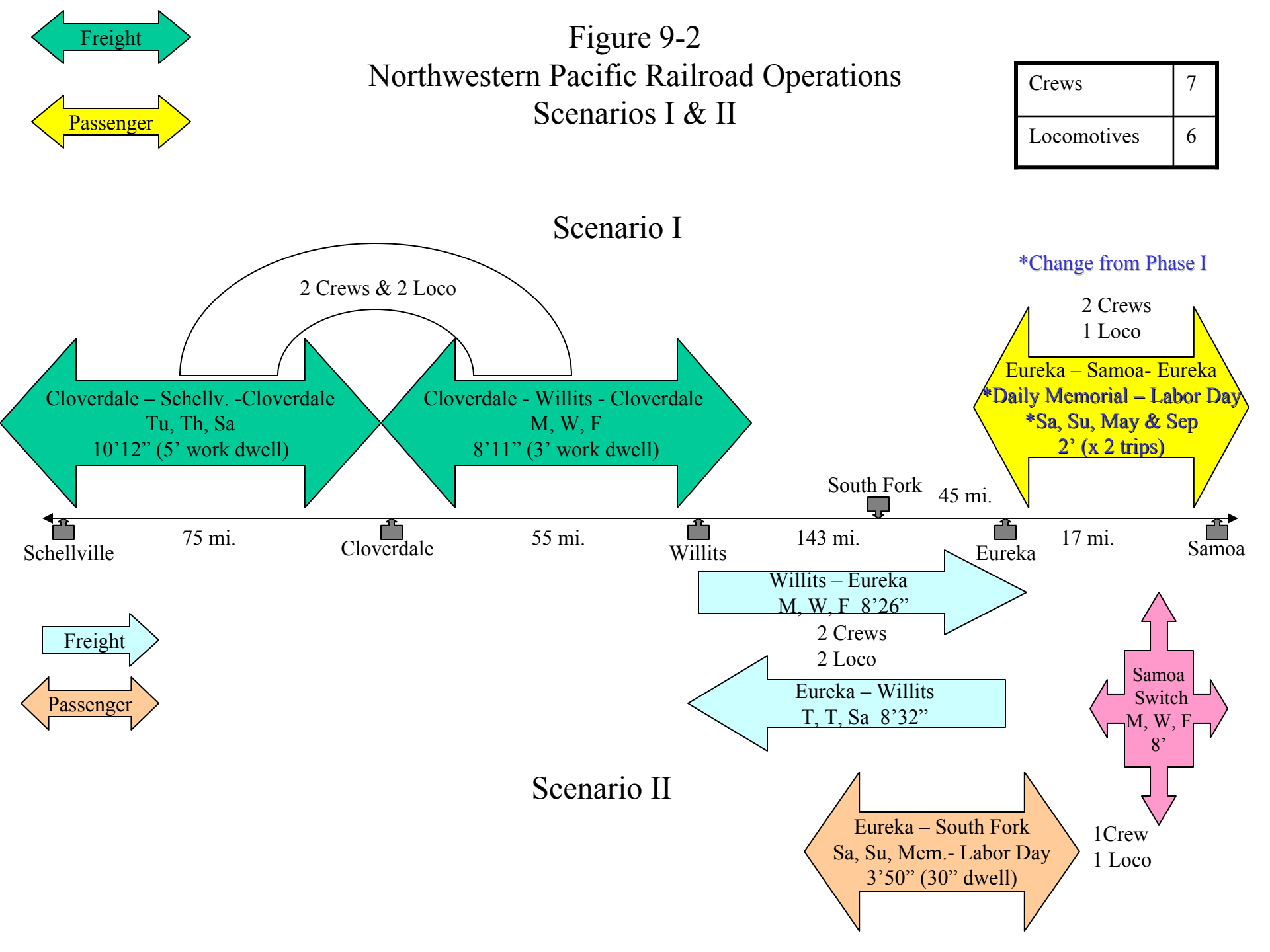
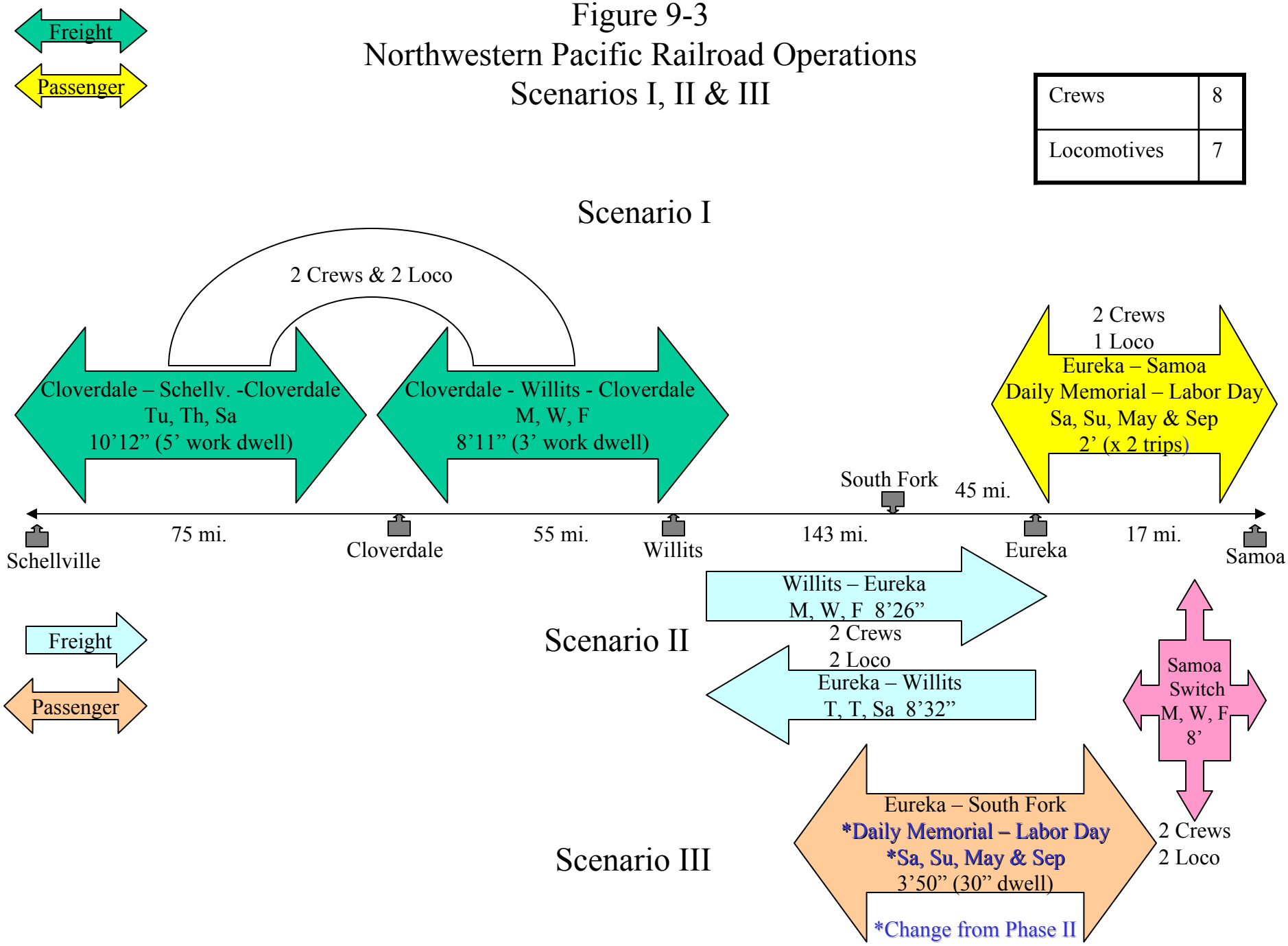

Freight
Passenger
Figure 9-2
Northwestern Pacific Railroad Operations
Scenarios I & II
Crews 7
Locomotives 6
Scenario I
*Change from Phase I
2 Crews & 2 Loco
Cloverdale – Schellv. -Cloverdale
Tu, Th, Sa
10'12" (5' work dwell)
Cloverdale - Willits - Cloverdale
M, W, F
8'11" (3' work dwell)
2 Crews
1 Loco
Eureka – Samoa- Eureka
*Daily Memorial – Labor Day
*Sa, Su, May & Sep
2' (x 2 trips)
South Fork
45 mi.
Schellville
75 mi.
Cloverdale
55 mi.
Willits
143 mi.
Eureka
17 mi.
Samoa
Willits – Eureka
M, W, F 8'26"
2 Crews
2 Loco
Eureka – Willits
T, T, Sa 8'32"
Samoa
Switch
M, W, F
8'
Freight
Passenger
Scenario II
Eureka – South Fork
Sa, Su, Mem.- Labor Day
3'50" (30" dwell)
1Crew
1 Loco

Figure 9-3
Northwestern Pacific Railroad Operations
Scenarios I, II & III

Crews	8
Locomotives	7



9.3 Passenger Operating Scenarios

Based on the information obtained in the interviews as well as data collected from previously completed studies, a set of three operating scenarios were defined for passenger rail service in the NWP corridor. The three scenarios incorporate many of themes stated above. They are differentiated by the level of service they offer (in terms of frequency and route) and potential demand (both expressed as high, medium and low levels).

The operating plans for the other railroads examined in this report were the starting point for developing the plans for the NWP corridor. The factors that were considered included annual visitor levels, local and regional population, visitor growth potential, the special attributes of each route, and the seasonality and frequency of trains of the other railroads.

9.3.1 Operating Scenario I

This trip would travel around Humboldt Bay connecting Eureka and Samoa. This service was assumed to occur between 2003 and 2005 and would be considered a "ramp up" period with a modest amount of service. Trains would operate at a maximum speed of 10 mph. The round trip would take about four hours (includes a 30 minute layover). Trains would be operated between Memorial Day and Labor Day on Thursday, Friday, Saturday and Sunday. A total of 64 trains would operate per year.

Because Samoa is also easily accessible by car, it would be important to have tie-ins with the ride that would make it unique and special, for example, a meal with entertainment at the Samoa Cookhouse or with the proposed Logging Museum.

Advantages of the Eureka to Samoa Trip:

- Uses Eureka as its base – established visitor and population base;
- Appealing scenery;
- Within the budget constraints of most tourists; and
- Opportunities for tie-ins in Samoa.

Disadvantages of the Eureka to Samoa Trip:

- Can make about the trip to Samoa in significantly less time by car;
- Tie-ins must be unique and substantial;
- Scenery is not dramatic and can also be viewed by car; and
- Trip length would take a half-day.

9.3.2 Operating Scenario II

This scenario would be implemented at the beginning of 2006. This scenario expands the twice a day Eureka to Samoa trip to daily service between Memorial Day and Labor Day and weekends the remainder of May and September. Due to track upgrades, it was assumed that this trip could be completed in two hours (includes a 30 minute layover). Because the trip could be made in less time, the number of trips per day was increased to two, instead of one. The shorter trip time would make it more appealing to a broader market. With this schedule, 248 trains would operate annually.

Starting in 2008, this scenario assumes that a new trip would be added between Eureka and South Fork. The trip would operate between Memorial Day and Labor Day once a day on Saturday and Sunday. A round trip would take almost four hours (includes a 30 minute layover). This trip would take advantage of the dramatic scenery of the Eel River Canyon as well as access to Rockefeller Forest and Founders Grove, popular destinations in Humboldt Redwoods State Park. Thirty-two trains would operate annually.

Advantages of the Eureka to South Fork Trip:

- Same trip cannot be made by car;
- Dramatic and unique scenery;
- Tie-in with established tourist destination (Humboldt Redwoods State Park);
- Uses Eureka visitor and population base; and
- Segmentation of the route may possible, for example from Eureka to Scotia or Loleta.

Disadvantages of the Eureka to South Fork Trip:

- Trip takes about a half-day; and
- May compete with the Eureka to Samoa trip.

9.3.3 Operating Scenario III

The Eureka to Samoa service level would be the same as in Operating Scenario II. Starting in 2013, it was assumed that the Eureka to South Fork service would expand operations to daily between Memorial Day and Labor Day and to Saturdays and Sundays in May and September. The trip time would remain the same. The overall benefit of this operating scenario would be that there would be a higher level of train service.

In addition to the 248 trains that would operate between Eureka and Samoa annually, 112 trains would operate between Eureka and South Fork annually.

Table 9-1

Northwestern Pacific Train Operations Summary

24-Jul-02

		Loco.	Each trip			Weekly Total				Annual Total		
Operating Scenario I												
Freight	**3 Day Service**		**Time/hrs**	**Miles**	**Gals**	**Time/hrs**	**Miles**	**Gals**	**# weeks**	**Time/hrs**	**Miles**	**Gals**
Cloverdale - Schellville - Cloverdale	TU,TH, SA	2	10'12"	150	333	30.5	450	999	52	1,586	23,400	51,948
Cloverdale - Willits - Cloverdale	M,W, F	-	8'11"	110	393	24.5	330	1,179		1,274	17,160	61,308
	Subtotal	2				55	780	2,178		2,860	40,560	113,256
Passenger	**Days**		**Time/hrs**	**Miles**	**Gals**	**Time/hrs**	**Miles**	**Gals**				
Eureka - Samoa, Memorial - Labor	TH,F,SA, SU	1	4	35	20	16	140	80	12 weeks	192	1,680	960
	1 Trip/day											
		3							Total for OS I	3,052	42,240	114,216
Operating Scenario II												
Freight	**3 Day Service**		**Time/hrs**	**Miles**	**Gals**	**Time/hrs**	**Miles**	**Gals**	**# weeks**	**Time/hrs**	**Miles**	**Gals**
Cloverdale - Schellville - Cloverdale	TU,TH, SA	2	10'12"	150	333	30.5	450	999	52	1,586	23,400	51,948
Cloverdale - Willits - Cloverdale	M,W, F	-	8'11"	110	393	24.5	330	1179		1,274	17,160	61,308
Willits - Eureka	M,W, F	2	8'26"	143	215	25.33	429	645		1,317	22,308	33,540
Eureka - Willits	TU,TH, SA	-	8'32'	143	381	25.5	429	1143		1,326	22,308	59,436
Samoa Switch	M,W, F	1	8'	50	100	24	150	300		1,248	7,800	15,600
	Subtotal	5				129.83	1,788	4,266		6,751	92,976	221,832
Passenger	**Days**		**Time/hrs**	**Miles**	**Gals**	**Time/hrs**	**Miles**	**Gals**				
Eureka - Samoa, Memorial - Labor	2 Trips Daily	1	2	35	20	28	490	560	12 weeks	336	5,880	6,720
May & Sep	Sa, Su Only	(Use Somoa Switch Loco.)				8	140	80	8 weeks	64	1,120	640
Eureka - S. Fork, Memorial - Labor	SA, SU		3'50"	90	94	7.66	180	188	12 weeks	92	2,160	2,256
	Subtotal	(Use Somoa Switch Loco.)								492	9,160	9,616
	Locomotives	6							Total for OS II	7,243	102,136	231,448
Operating Scenario III												
Freight (Same as Phase II)	**5 Day Service**		**Time/hrs**	**Miles**	**Gals**	**Time/hrs**	**Miles**	**Gals**	**# weeks**	**Time/hrs**	**Miles**	**Gals**
Cloverdale - Schellville - Cloverdale	M,T,W,T,F	1	10'24"	150	274	57	750	1,370	52	2,964	39,000	71,240
Cloverdale - Willits - Cloverdale	M,T,W,T,F	2	8'11"	110	393	40.9	550	1,965		2,127	28,600	102,180
Willits - Eureka	M,T,W,T,F	2	8'26"	143	215	41.75	715	1075		2,171	37,180	55,900
Eureka - Willits	M,T,W,T,F	2	8'32'	143	381	42.5	715	1905		2,210	37,180	99,060

Table 9-1

		Northwestern Pacific Train Operations Summary											24-Jul-02
Samoa Switch	M,T,W,T,F	1	8'	50	100	40	150	300		2,080	7,800	15,600
	Subtotal	8				222.15	2,880	6,615		11,552	149,760	381,441
Passenger	**Days**		**Time/hrs**	**Miles**	**Gals**	**Time/hrs**	**Miles**	**Gals**	12 weeks	**Time/hrs**	**Miles**	**Gals**
Eureka - Samoa, Memorial - Labor	2 Trips Daily	1	2	35	20	28	490	560		336	5,880	6,720
May & Sep	Sa, Su Only	(Use Somoa Switch Loco.)				8	140	80	8 weeks	64	1,120	640
Eureka - S. Fork, Memorial - Labor	Daily	1*	3'50"	90	94	28.5	630	658	12 weeks	342	7,560	7,896
May & Sep	SA, SU	-				7.66	180	188	8 weeks	61	1,440	1,504
	Subtotal	2								803	16,000	16,760
		* Dedicated Loco. required)										
	Locomotives	10						Total for OS III		12,355	165,760	398,201

10.0 FINANCIAL ANALYSIS OF THE PROPOSED OPERATING SCENARIOS AND MARKET DEMAND

The overall goal of this study is to determine the financial feasibility of operating the Northwestern Pacific Railroad. The following is an explanation of the inputs that went into the revenue and expense components of the financial model.

10.1 Explanation of Model Inputs and Assumptions

10.1.1 Freight Revenue Inputs

Section 6.0 describes in detail how the volume of freight carloads was determined for the first operating years of the service. This section translates this volume forecast into low, medium and high revenue estimates.

Given that there has not been freight service on the railroad for several years, it is assumed that it will take time to regain volumes from the shippers based on proven, consistent service. To this end, this study has discounted the forecasted revenue rates in the first five years under operating scenario I and II to reflect this period of market penetration.

Operating Scenario I:
Year one (2003) revenues are discounted to 40% of the forecasted carload volumes. By 2005 this is increased to 75% of the anticipated revenues and by 2007, the service should have the full amount of the anticipated carloads and revenue. For the years beyond 2008, 0% annual growth in carload volumes was assumed for the next 20 years.

Operating Scenario II:
With the connection of the Eel River Canyon in the fall of 2006, the north end shippers are included in the customer base of the NWP. However just as under Operating Scenario I, under OS II, this study has discounted the forecasted revenue rates to reflect an appropriate "ramp-up" period for service. 2006 is discounted to 40% of total forecasted volume, 2007 to 50%, 2008 to 75%, 2009 to 75% and finally in 2010 to 100% of the forecasted volume. After 2010 there is no net increase in the volumes shipped.

The revenue forecast is based on the January 2000 Freight Tariff NWP 8000: Appendix C. This tariff is a published document that was used in 2000 in revenue service by the NWPY. It is reasonable to expect that a new tariff structure would have to be negotiated in the future, but this is the most current and accurate source for appropriate tariff rates for the corridor. Consistent with the zonal system used in the above freight analysis, the revenue rates for each of the cars by type and destination were calculated. For years 2008 and on, based on a FRA study of Class 1 railroad tariff growth, a 2% per year increase in tariff rates was applied.

10.1.2 Passenger Revenue Inputs

The passenger revenue inputs are based on the interviews that were described in Section 8.0 and research of other excursion railroad properties. For all trips between Eureka and

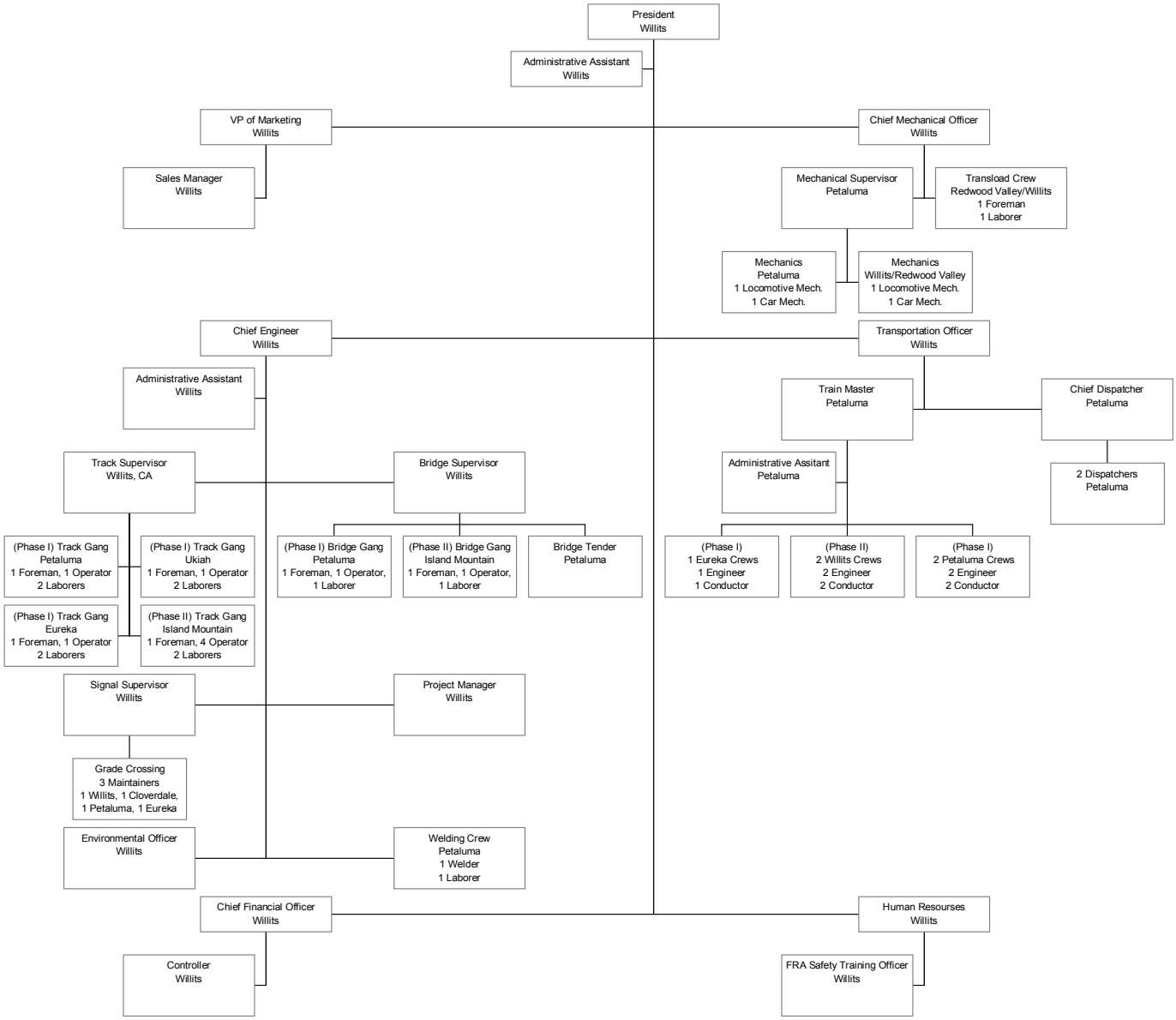
Samoa, the fare would be $15 for adults and $10 for children. From Eureka to South Fork, the fare was assumed to be $30 for adults and $16 for children.

It was assumed that there would be 1% growth in ridership per year. Additionally, it was assumed that inflation would be 3% and fares would track with inflation.

10.1.3 Freight Cost Inputs

In order to create a representative cost model for the Northwestern Pacific Railroad, PB with the NCRA, created a railroad organization that would represent the necessary positions to operate the railroad (see Figure 10-1).

Figure 10-1 - NCRA Corporate Structure



We then applied appropriate salaries and hourly rates to all of the people involved with running the railroad. For this exercise, following the three-phased approach to reopening the railroad, crew bases were developed at the following locations:

- Petaluma/Cloverdale - Serving the Schellville to Willits portion of the route (Scenario I);
- Willits - Serving the north end of the southern end of the route and as administrative headquarters (Scenarios I and II);
- Eureka - To act as a crew base for the Eureka based services (Scenario I); and
- Island Mountain - A maintenance center that would concentrate on servicing the Eel River Canyon (Scenario II).

In addition to organizing the railroad geographically, the railroad was organized into the following 'cost centers': transportation, mechanical, equipment/automotive, maintenance of way, insurance, general and administrative, fuel, locomotive leases and car hire/demurrage.

The following elements were not included in the cost model:

- Current or past financial obligations of the NCRA, such as interest;
- Ownership of any equipment;
- Depreciation; and
- Any revenues from miscellaneous sources such as easement leases.

In order to make the cost model represent the most current wage and per unit costs, the study drew upon the following sources:

- The Sonoma Marin Rail Plan, 1999;
- The Northwestern Pacific Railroad Year 2000 Budget;
- 1998 Metro North Budget;
- Personal interviews with industry Experts;
- Parsons Brinckerhoff;
- NCRA;
- Amtrak; and
- Willdan/HNTB, Capital Assessment.

All of the inputs for the cost model were reviewed by railroad professionals and represent the most current wage, equipment and material rates for the railroad industry and the region.

Transportation - is primarily the operating crews and dispatch functions for the railroad. It was assumed that two person crews would be required to run the trains along the NWP.

Mechanical - this is the cost associated with maintaining locomotives and cars associated with the service. It was assumed that the locomotives would be leased and that cars would be used on a 'car hire' basis for the customers along the NWP.

Insurance – Insurance is primarily liability insurance for the Railroad.

Maintenance of Way - for the purpose of this study it has been assumed throughout that when an operator began operating along the railroad that it would be in a "good state of repair." The implications of this are that in most sections of the railroad, standard per-mile costs can be used for the calculation of the expenses related to the track, bridges and tunnels of the railroad. The one place where there is an exception to this rule is through the Eel River Canyon. This section of the railroad has historically had severe problems and will require a sizable amount of preventative maintenance to keep the drainage in working order. For this reason, an additional track gang was placed at Island Mountain to service the 80 miles of the Eel River Canyon. This category also includes the vehicles and equipment that would be required to maintain the railroad.

General and Administrative - This section represents most of the office and management functions that would be required to run a railroad. These functions include everything from a President and CFO to Administrative Assistants. It also provides the training and environmental functions that would be critical to the NWP opening again.

Equipment/Vehicles– This category has the vehicle expenses related to all functions except for maintenance of way. These vehicles are primarily used by the executive staff and sales force. It is assumed that all of the vehicles are leased and that the operating costs are consistent with the federal standard 36.1¢ per mile.

Fuel - Fuel in a railroad operation is a major cost factor. It varies significantly by locomotive type and load.

Locomotive Leases - Since the NWP would be reopening with virtually none of its own equipment; the railroad will have to lease locomotives.

Car Hire/Demurrage - Car hire and demurrage are both significant cost components for the NWP. Conservative estimates are used for this railroad as it is assumed that only through consistent service and reliable turn-around of car hire equipment, will railroads, such as the Union Pacific, enter into 'free-time' agreements with the NWP. Such an agreement would allow the NWP an allowance to move cars over its railroad without having to pay a car hire fee.

10.1.4 Passenger Cost Inputs

Since the excursion rail service is based on the use of NWP crews and dispatching, and locomotive rental, the costs are fairly straightforward. It will just be an incremental cost for the use of the above-mentioned cost centers (e.g. transportation and equipment expense) that will be passed along to the passenger franchisee.

10.2 Financial Model (Spreadsheet)

Table 10-1 is the 25-year forecast for costs and revenues for the proposed operating scenarios for the NWP. The Table has three major sections: low, medium and high demand forecasts. Each of these demand sections are broken out for the three operating scenarios: I, II and III. These nine different scenarios are summarized in Table 10-2.

NWP Financial Model:
Low Demand Forecast

	Operating Scenario I				Operating Scenario II							
				Scenario I Summary								Scenario II Summary
Year	2003	2004	2005		2006	2007	2008	2009	2010	2011	2012	
Revenue												
Number of Freight Cars	1,339	1,674	2,511	**5,524**	3,749	4,896	5,670	5,670	6,444	6,444	6,444	**39,317**
Freight Revenue	$ 677,406	$ 846,758	$ 1,270,137	**$ 2,794,301**	$ 2,589,782	$ 3,343,072	$ 4,201,720	$ 4,236,268	$ 5,096,285	$ 5,198,210	$ 5,302,175	**$ 29,967,512**
Number of Passengers	-	4,608	5,760	**10,368**	22,320	22,543	25,200	25,452	25,707	25,964	26,223	**173,409**
Passenger Revenue	$ -	$ 58,291	$ 72,864	**$ 131,155**	$ 282,348	$ 285,171	$ 352,517	$ 356,042	$ 359,602	$ 363,198	$ 366,830	**$ 2,365,708**
Miscellaneous												
Total Revenue	$ 677,406	$ 905,049	$ 1,343,001	**$ 2,925,457**	$ 2,872,130	$ 3,628,243	$ 4,554,237	$ 4,592,310	$ 5,455,887	$ 5,561,409	$ 5,669,005	**$ 32,333,220**
Summary Expenses												
Transportation (different due to forecast year)	$ 707,600	$ 728,828	$ 750,693	**$ 2,187,121**	$ 1,327,521	$ 1,367,347	$ 1,408,367	$ 1,450,618	$ 1,494,137	$ 1,538,961	$ 1,585,130	**$ 10,172,081**
Mechanical	$ 451,571	$ 455,264	$ 484,496	**$ 1,391,331**	$ 793,698	$ 817,509	$ 842,034	$ 867,295	$ 893,314	$ 920,113	$ 947,717	**$ 6,081,680**
Equipment/Vehicles	$ 45,045	$ 46,396	$ 47,788	**$ 139,230**	$ 53,786	$ 55,400	$ 57,062	$ 58,774	$ 60,537	$ 62,353	$ 64,223	**$ 412,134**
Maintenance of Way*	$ 2,561,918	$ 2,638,775	$ 2,717,938	**$ 7,918,631**	$ 3,759,226	$ 3,872,002	$ 3,988,162	$ 4,107,807	$ 4,231,042	$ 4,357,973	$ 4,488,712	**$ 28,804,924**
Insurance	$ 200,000	$ 206,000	$ 212,180	**$ 618,180**	$ 218,545	$ 225,102	$ 231,855	$ 238,810	$ 245,975	$ 253,354	$ 260,955	**$ 1,674,596**
General and Administrative	$ 1,479,370	$ 1,523,751	$ 1,569,464	**$ 4,572,585**	$ 1,616,548	$ 1,665,044	$ 1,714,995	$ 1,766,445	$ 1,819,439	$ 1,874,022	$ 1,930,242	**$ 12,386,734**
Fuel	$ 125,638	$ 129,407	$ 133,289	**$ 388,333**	$ 267,796	$ 275,830	$ 284,105	$ 292,628	$ 301,407	$ 310,449	$ 319,762	**$ 2,051,976**
Locomotive Lease	$ 122,000	$ 125,660	$ 129,430	**$ 377,090**	$ 262,254	$ 270,122	$ 278,226	$ 286,573	$ 295,170	$ 304,025	$ 313,146	**$ 2,009,515**
emurrage) (different due to forecast year)	$ 49,920	$ 154,871	$ 169,517	**$ 374,308**	$ 294,399	$ 395,057	$ 486,631	$ 501,230	$ 600,844	$ 618,869	$ 637,435	**$ 3,534,466**
Total Expenses	$ 5,743,061	$ 5,854,081	$ 6,045,278	**$ 17,642,420**	$ 8,299,374	$ 8,943,413	$ 9,291,437	$ 9,570,180	$ 9,941,863	$ 10,240,119	$ 10,547,322	**$ 66,833,707**
Difference	$ (5,065,655)	$ (4,949,032)	$ (4,702,277)	**$ (14,716,964)**	$ (5,427,244)	$ (5,315,169)	$ (4,737,200)	$ (4,977,870)	$ (4,485,976)	$ (4,678,710)	$ (4,878,317)	**$ (34,500,488)**
Cost Inflation Assumed:	103%											

* Includes MOW vehicles, equipment and environmental manager

NWP Financial Model: Medium
Demand Forecast

	Operating Scenario I				Operating Scenario II							
				Scenario I Summary								Scenario II Summary
Year	2003	2004	2005		2006	2007	2008	2009	2010	2011	2012	
Revenue												
Number of Freight Cars	1,829	2,287	3,430	**7,546**	5,367	6,994	8,205	8,301	9,543	9,543	9,543	**57,495**
Freight Revenue	$ 933,675	$ 1,167,094	$ 1,750,641	**$ 3,851,409**	$ 3,850,159	$ 4,958,585	$ 6,297,223	$ 6,345,701	$ 7,686,259	$ 7,839,984	$ 7,996,784	**$ 44,974,694**
Number of Passengers	-	9,984	12,480	**22,464**	48,360	48,844	54,600	55,146	55,697	56,254	56,817	**375,718**
Passenger Revenue	$ -	$ 126,298	$ 157,872	**$ 284,170**	$ 611,754	$ 617,872	$ 745,563	$ 771,424	$ 779,138	$ 786,929	$ 794,799	**$ 5,107,478**
Miscellaneous												
Total Revenue	$ 933,675	$ 1,293,391	$ 1,908,513	**$ 4,135,579**	$ 4,461,913	$ 5,576,457	$ 7,042,786	$ 7,117,124	$ 8,465,397	$ 8,626,913	$ 8,791,582	**$ 50,082,172**
Summary Expenses												
Transportation (different due to forecast year)	$ 707,600	$ 728,828	$ 750,693	**$ 2,187,121**	$ 1,327,521	$ 1,367,347	$ 1,408,367	$ 1,450,618	$ 1,494,137	$ 1,538,961	$ 1,585,130	**$ 10,172,081**
Mechanical	$ 451,571	$ 455,264	$ 484,496	**$ 1,391,331**	$ 793,698	$ 817,509	$ 842,034	$ 867,295	$ 893,314	$ 920,113	$ 947,717	**$ 6,081,680**
Equipment/Vehicles	$ 45,045	$ 46,396	$ 47,788	**$ 139,230**	$ 49,222	$ 50,699	$ 52,220	$ 53,786	$ 55,400	$ 57,062	$ 58,774	**$ 377,161**
Maintenance of Way*	$ 2,561,918	$ 2,638,775	$ 2,717,938	**$ 7,918,631**	$ 3,759,226	$ 3,872,002	$ 3,988,162	$ 4,107,807	$ 4,231,042	$ 4,357,973	$ 4,488,712	**$ 28,804,924**
Insurance	$ 200,000	$ 206,000	$ 212,180	**$ 618,180**	$ 218,545	$ 225,102	$ 231,855	$ 238,810	$ 245,975	$ 253,354	$ 260,955	**$ 1,674,596**
General and Administrative	$ 1,479,370	$ 1,523,751	$ 1,569,464	**$ 4,572,585**	$ 1,616,548	$ 1,665,044	$ 1,714,995	$ 1,766,445	$ 1,819,439	$ 1,874,022	$ 1,930,242	**$ 12,386,734**
Fuel	$ 125,638	$ 129,407	$ 133,289	**$ 388,333**	$ 267,796	$ 275,830	$ 284,105	$ 292,628	$ 301,407	$ 310,449	$ 319,762	**$ 2,051,976**
Locomotive Lease	$ 122,000	$ 125,660	$ 129,430	**$ 377,090**	$ 262,254	$ 270,122	$ 278,226	$ 286,573	$ 295,170	$ 304,025	$ 313,146	**$ 2,009,515**
emurrage) (different due to forecast year)	$ 160,116	$ 230,869	$ 392,778	**$ 783,763**	$ 668,980	$ 900,522	$ 1,107,310	$ 1,155,215	$ 1,385,634	$ 1,427,203	$ 1,470,020	**$ 8,114,884**
Total Expenses	$ 5,853,257	$ 6,084,951	$ 6,438,055	**$ 18,376,263**	$ 8,963,790	$ 9,444,176	$ 9,907,274	$ 10,219,178	$ 10,721,516	$ 11,043,162	$ 11,374,456	**$ 71,673,553**
Difference	$ (4,919,582)	$ (4,791,559)	$ (4,529,543)	**$ (14,240,684)**	$ (4,501,877)	$ (3,867,720)	$ (2,864,488)	$ (3,102,054)	$ (2,256,119)	$ (2,416,248)	$ (2,582,874)	**$ (21,591,380)**
Cost Inflation Assumed:	103%											

* Includes MOW vehicles, equipment and environmental manager

NWP Financial Model: High
Demand Forecast

	Operating Scenario I				Operating Scenario II							
				Scenario I Summary								Scenario II Summary
Year	2003	2004	2005		2006	2007	2008	2009	2010	2011	2012	
Revenue												
Number of Freight Cars	2,320	2,900	4,349	**9,568**	6,692	13,610	17,515	17,515	21,420	21,420	21,420	**119,591**
Freight Revenue	$ 1,189,944	$ 1,487,430	$ 2,231,144	**$ 4,908,517**	$ 4,401,078	$ 10,207,973	$ 12,935,066	$ 13,086,574	$ 15,027,669	$ 15,328,223	$ 15,634,787	**$ 86,621,370**
Number of Passengers	-	15,439	19,299	**34,738**	74,400	75,144	84,000	84,840	85,688	86,545	87,411	**578,028**
Passenger Revenue	$ -	$ 195,306	$ 244,132	**$ 439,438**	$ 941,160	$ 950,572	$ 1,147,020	$ 1,186,806	$ 1,198,674	$ 1,210,660	$ 1,222,767	**$ 7,857,658**
Miscellaneous												
Total Revenue	$ 1,189,944	$ 1,682,735	$ 2,475,277	**$ 5,347,956**	$ 5,342,238	$ 11,158,544	$ 14,082,086	$ 14,273,380	$ 16,226,343	$ 16,538,883	$ 16,857,554	**$ 94,479,028**
Summary Expenses												
Transportation (different due to forecast year)	$ 707,600	$ 728,828	$ 750,693	**$ 2,187,121**	$ 1,327,521	$ 1,367,347	$ 1,408,367	$ 1,450,618	$ 1,494,137	$ 1,538,961	$ 1,585,130	**$ 10,172,081**
Mechanical	$ 451,571	$ 455,264	$ 484,496	**$ 1,391,331**	$ 793,698	$ 817,509	$ 842,034	$ 867,295	$ 893,314	$ 920,113	$ 947,717	**$ 6,081,680**
Equipment/Vehicles	$ 45,045	$ 46,396	$ 47,788	**$ 139,230**	$ 49,222	$ 50,699	$ 52,220	$ 53,786	$ 55,400	$ 57,062	$ 58,774	**$ 377,161**
Maintenance of Way*	$ 2,561,918	$ 2,638,775	$ 2,717,938	**$ 7,918,631**	$ 3,759,226	$ 3,872,002	$ 3,988,162	$ 4,107,807	$ 4,231,042	$ 4,357,973	$ 4,488,712	**$ 28,804,924**
Insurance	$ 200,000	$ 206,000	$ 212,180	**$ 618,180**	$ 218,545	$ 225,102	$ 231,855	$ 238,810	$ 245,975	$ 253,354	$ 260,955	**$ 1,674,596**
General and Administrative	$ 1,479,370	$ 1,523,751	$ 1,569,464	**$ 4,572,585**	$ 1,616,548	$ 1,665,044	$ 1,714,995	$ 1,766,445	$ 1,819,439	$ 1,874,022	$ 1,930,242	**$ 12,386,734**
Fuel	$ 125,638	$ 129,407	$ 133,289	**$ 388,333**	$ 267,796	$ 275,830	$ 284,105	$ 292,628	$ 301,407	$ 310,449	$ 319,762	**$ 2,051,976**
Locomotive Lease	$ 122,000	$ 125,660	$ 129,430	**$ 377,090**	$ 262,254	$ 270,122	$ 278,226	$ 286,573	$ 295,170	$ 304,025	$ 313,146	**$ 2,009,515**
emurrage) (different due to forecast year)	$ 204,744	$ 282,330	$ 481,587	**$ 968,661**	$ 805,809	$ 1,770,269	$ 2,386,514	$ 2,382,341	$ 3,129,285	$ 3,223,163	$ 3,319,858	**$ 17,017,239**
Total Expenses	$ 5,897,885	$ 6,136,411	$ 6,526,865	**$ 18,561,161**	$ 9,100,619	$ 10,313,923	$ 11,186,478	$ 11,446,304	$ 12,465,167	$ 12,839,122	$ 13,224,295	**$ 80,575,907**
Difference	$ (4,707,942)	$ (4,453,676)	$ (4,051,588)	**$ (13,213,206)**	$ (3,758,380)	$ 844,621	$ 2,895,608	$ 2,827,076	$ 3,761,176	$ 3,699,761	$ 3,633,259	**$ 13,903,121**
Cost Inflation Assumed:	103%											

Figure _____ Financial Summary Sheet

NWP Financial Model:
Low Demand Forecast

	Operating Scenario III																		
																		Scenario III Summary	Grand Total
Year	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028			
Revenue																			
Number of Freight Cars	6,444	6,444	6,444	6,444	6,444	6,444	6,444	6,444	6,444	6,444	6,444	6,444	6,444	6,444	6,444	**6,444**		**103,104**	**147,946**
Freight Revenue	$ 5,408,218	$ 5,516,382	$ 5,626,710	$ 5,739,244	$ 5,854,029	$ 5,971,110	$ 6,090,532	$ 6,212,343	$ 6,336,589	$ 6,463,321	$ 6,592,588	$ 6,724,439	$ 6,858,928	$ 6,996,107	$ 7,136,029	$ 7,278,750		**$ 100,805,320**	**$ 133,567,134**
Number of Passengers	32,400	32,724	33,051	33,382	33,716	34,053	34,393	34,737	35,085	35,435	35,790	36,148	36,509	36,874	37,243	37,615		**559,155**	**742,931**
Passenger Revenue	$ 453,236	$ 457,768	$ 462,346	$ 466,969	$ 471,639	$ 476,355	$ 481,119	$ 485,930	$ 490,789	$ 495,697	$ 500,654	$ 505,661	$ 510,717	$ 515,824	$ 520,983	$ 526,192		**$ 7,821,877**	**$ 10,318,740**
Miscellaneous																			
Total Revenue	$ 5,861,454	$ 5,974,150	$ 6,089,056	$ 6,206,213	$ 6,325,668	$ 6,447,465	$ 6,571,651	$ 6,698,272	$ 6,827,379	$ 6,959,018	$ 7,093,242	$ 7,230,100	$ 7,369,645	$ 7,511,931	$ 7,657,011	$ 7,804,942		**$ 108,627,197**	**$ 143,885,874**
Summary Expenses																			
Transportation (different due to forecast year)	$ 2,247,042	$ 2,314,453	$ 2,383,886	$ 2,455,403	$ 2,529,065	$ 2,604,937	$ 2,683,085	$ 2,763,578	$ 2,846,485	$ 2,931,880	$ 3,019,836	$ 3,110,431	$ 3,203,744	$ 3,299,856	$ 3,398,852	$ 3,500,818		**$ 45,293,351**	**$ 57,652,554**
Mechanical	$ 1,225,396	$ 1,262,158	$ 1,300,023	$ 1,339,024	$ 1,379,194	$ 1,420,570	$ 1,463,187	$ 1,507,083	$ 1,552,295	$ 1,598,864	$ 1,646,830	$ 1,696,235	$ 1,747,122	$ 1,799,536	$ 1,853,522	$ 1,909,128		**$ 24,700,170**	**$ 32,173,181**
Equipment/Vehicles	$ 60,537	$ 62,353	$ 64,223	$ 66,150	$ 68,135	$ 70,179	$ 72,284	$ 74,453	$ 76,686	$ 78,987	$ 81,356	$ 83,797	$ 86,311	$ 88,900	$ 91,567	$ 94,314		**$ 1,220,231**	**$ 1,771,595**
Maintenance of Way*	$ 4,623,373	$ 4,762,075	$ 4,904,937	$ 5,052,085	$ 5,203,647	$ 5,359,757	$ 5,520,550	$ 5,686,166	$ 5,856,751	$ 6,032,454	$ 6,213,427	$ 6,399,830	$ 6,591,825	$ 6,789,580	$ 6,993,267	$ 7,203,065		**$ 93,192,788**	**$ 129,916,344**
Insurance	$ 268,783	$ 276,847	$ 285,152	$ 293,707	$ 302,518	$ 311,593	$ 320,941	$ 330,570	$ 340,487	$ 350,701	$ 361,222	$ 372,059	$ 383,221	$ 394,717	$ 406,559	$ 418,756		**$ 5,417,833**	**$ 7,710,608**
General and Administrative	$ 1,988,150	$ 2,047,794	$ 2,109,228	$ 2,172,505	$ 2,237,680	$ 2,304,810	$ 2,373,955	$ 2,445,173	$ 2,518,528	$ 2,594,084	$ 2,671,907	$ 2,752,064	$ 2,834,626	$ 2,919,665	$ 3,007,255	$ 3,097,472		**$ 40,074,895**	**$ 57,034,214**
Fuel	$ 533,285	$ 549,283	$ 565,762	$ 582,735	$ 600,217	$ 618,223	$ 636,770	$ 655,873	$ 675,549	$ 695,816	$ 716,690	$ 738,191	$ 760,337	$ 783,147	$ 806,641	$ 830,840		**$ 10,749,359**	**$ 13,189,668**
Locomotive Lease	$ 483,810	$ 352,448	$ 363,022	$ 373,912	$ 385,130	$ 396,683	$ 408,584	$ 420,841	$ 433,467	$ 446,471	$ 459,865	$ 473,661	$ 487,871	$ 502,507	$ 487,871	$ 502,507		**$ 6,978,648**	**$ 9,365,252**
emurrage) (different due to forecast year)	$ 882,359	$ 676,255	$ 696,543	$ 717,439	$ 738,962	$ 761,131	$ 783,965	$ 807,484	$ 831,708	$ 856,660	$ 882,359	$ 908,830	$ 936,095	$ 964,178	$ 993,103	$ 1,022,896		**$ 13,459,969**	**$ 17,368,743**
Total Expenses	$ 12,312,735	$ 12,303,666	$ 12,672,776	$ 13,052,959	$ 13,444,548	$ 13,847,884	$ 14,263,321	$ 14,691,221	$ 15,131,957	$ 15,585,916	$ 16,053,493	$ 16,535,098	$ 17,031,151	$ 17,542,086	$ 18,038,637	$ 18,579,796		**$ 241,087,244**	**$ 325,563,372**
Difference	$ (6,451,282)	$ (6,329,516)	$ (6,583,720)	$ (6,846,746)	$ (7,118,880)	$ (7,400,420)	$ (7,691,670)	$ (7,992,948)	$ (8,304,579)	$ (8,626,898)	$ (8,960,252)	$ (9,304,998)	$ (9,661,506)	$ (10,030,155)	$ (10,381,625)	$ (10,774,854)		**$ (132,460,047)**	**$ (181,677,499)**
Cost Inflation Assumed:																			

* Includes MOW vehicles, equipment

NWP Financial Model: Medium
Demand Forecast

	Operating Scenario III																		
																		Scenario III Summary	Grand Total
Year	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028			
Revenue																			
Number of Freight Cars	9,543	9,543	9,543	9,543	9,543	9,543	9,543	9,543	9,543	9,543	9,543	9,543	9,543	9,543	9,543	**9,543**		**152,688**	**217,730**
Freight Revenue	$ 8,156,719	$ 8,319,854	$ 8,486,251	$ 8,655,976	$ 8,829,096	$ 9,005,677	$ 9,185,791	$ 9,369,507	$ 9,556,897	$ 9,748,035	$ 9,942,996	$ 10,141,855	$ 10,344,693	$ 10,551,586	$ 10,762,618	$ 10,977,871		**$ 152,035,421**	**$ 200,861,525**
Number of Passengers	70,200	70,902	71,611	72,327	73,050	73,781	74,519	75,264	76,017	76,777	77,544	78,320	79,103	79,894	80,693	81,500		**1,211,502**	**1,609,685**
Passenger Revenue	$ 958,581	$ 991,830	$ 1,001,749	$ 1,011,766	$ 1,021,884	$ 1,032,103	$ 1,042,424	$ 1,052,848	$ 1,063,376	$ 1,074,010	$ 1,084,750	$ 1,095,598	$ 1,106,554	$ 1,117,619	$ 1,128,795	$ 1,140,083		**$ 16,923,971**	**$ 22,315,618**
Miscellaneous																			
Total Revenue	$ 9,115,300	$ 9,311,684	$ 9,488,000	$ 9,667,742	$ 9,850,979	$ 10,037,780	$ 10,228,215	$ 10,422,355	$ 10,620,273	$ 10,822,045	$ 11,027,746	$ 11,237,453	$ 11,451,246	$ 11,669,206	$ 11,891,414	$ 12,117,954		**$ 168,959,392**	**$ 223,177,143**
Summary Expenses																			
Transportation (different due to forecast year)	$ 2,247,042	$ 2,314,453	$ 2,383,886	$ 2,455,403	$ 2,529,065	$ 2,604,937	$ 2,683,085	$ 2,763,578	$ 2,846,485	$ 2,931,880	$ 3,019,836	$ 3,110,431	$ 3,203,744	$ 3,299,856	$ 3,398,852	$ 3,500,818		**$ 45,293,351**	**$ 57,652,554**
Mechanical	$ 1,225,396	$ 1,262,158	$ 1,300,023	$ 1,339,024	$ 1,379,194	$ 1,420,570	$ 1,463,187	$ 1,507,083	$ 1,552,295	$ 1,598,864	$ 1,646,830	$ 1,696,235	$ 1,747,122	$ 1,799,536	$ 1,853,522	$ 1,909,128		**$ 24,700,170**	**$ 32,173,181**
Equipment/Vehicles	$ 60,537	$ 62,353	$ 64,223	$ 66,150	$ 68,135	$ 70,179	$ 72,284	$ 74,453	$ 76,686	$ 78,987	$ 81,356	$ 83,797	$ 86,311	$ 88,900	$ 91,567	$ 94,314		**$ 1,220,231**	**$ 1,736,622**
Maintenance of Way*	$ 4,623,373	$ 4,762,075	$ 4,904,937	$ 5,052,085	$ 5,203,647	$ 5,359,757	$ 5,520,550	$ 5,686,166	$ 5,856,751	$ 6,032,454	$ 6,213,427	$ 6,399,830	$ 6,591,825	$ 6,789,580	$ 6,993,267	$ 7,203,065		**$ 93,192,788**	**$ 129,916,344**
Insurance	$ 268,783	$ 276,847	$ 285,152	$ 293,707	$ 302,518	$ 311,593	$ 320,941	$ 330,570	$ 340,487	$ 350,701	$ 361,222	$ 372,059	$ 383,221	$ 394,717	$ 406,559	$ 418,756		**$ 5,417,833**	**$ 7,710,608**
General and Administrative	$ 1,988,150	$ 2,047,794	$ 2,109,228	$ 2,172,505	$ 2,237,680	$ 2,304,810	$ 2,373,955	$ 2,445,173	$ 2,518,528	$ 2,594,084	$ 2,671,907	$ 2,752,064	$ 2,834,626	$ 2,919,665	$ 3,007,255	$ 3,097,472		**$ 40,074,895**	**$ 57,034,214**
Fuel	$ 533,285	$ 549,283	$ 565,762	$ 582,735	$ 600,217	$ 618,223	$ 636,770	$ 655,873	$ 675,549	$ 695,816	$ 716,690	$ 738,191	$ 760,337	$ 783,147	$ 806,641	$ 830,840		**$ 10,749,359**	**$ 13,189,668**
Locomotive Lease	$ 483,810	$ 352,448	$ 363,022	$ 373,912	$ 385,130	$ 396,683	$ 408,584	$ 420,841	$ 433,467	$ 446,471	$ 459,865	$ 473,661	$ 487,871	$ 502,507	$ 487,871	$ 502,507		**$ 6,978,648**	**$ 9,365,252**
emurrage) (different due to forecast year)	$ 1,514,120	$ 1,559,544	$ 1,606,330	$ 1,654,520	$ 1,704,156	$ 1,755,280	$ 1,807,939	$ 1,862,177	$ 1,918,042	$ 1,975,583	$ 2,034,851	$ 2,095,896	$ 2,158,773	$ 2,223,536	$ 2,290,243	$ 2,358,950		**$ 30,519,939**	**$ 39,418,587**
Total Expenses	$ 12,944,496	$ 13,186,955	$ 13,582,563	$ 13,990,040	$ 14,409,741	$ 14,842,034	$ 15,287,295	$ 15,745,913	$ 16,218,291	$ 16,704,840	$ 17,205,985	$ 17,722,164	$ 18,253,829	$ 18,801,444	$ 19,335,776	$ 19,915,849		**$ 258,147,214**	**$ 348,197,030**
Difference	$ (3,829,195)	$ (3,875,270)	$ (4,094,564)	$ (4,322,298)	$ (4,558,762)	$ (4,804,253)	$ (5,059,080)	$ (5,323,559)	$ (5,598,017)	$ (5,882,795)	$ (6,178,239)	$ (6,484,711)	$ (6,802,583)	$ (7,132,238)	$ (7,444,362)	$ (7,797,895)		**$ (89,187,822)**	**$ (125,019,887)**
Cost Inflation Assumed:																			

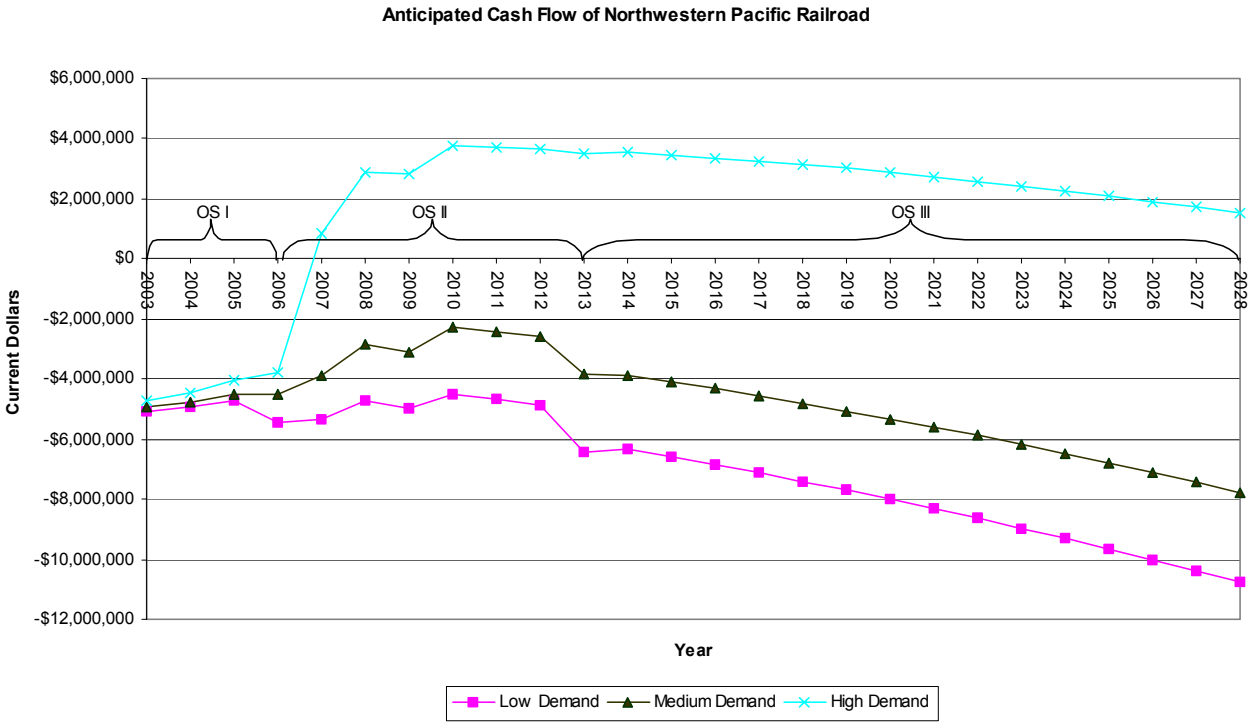
* Includes MOW vehicles, equipment

NWP Financial Model: High
Demand Forecast

	Operating Scenario III																		
																		Scenario III Summary	Grand Total
Year	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028			
Revenue																			
Number of Freight Cars	22,420	22,420	22,420	22,420	22,420	22,420	22,420	22,420	22,420	22,420	22,420	22,420	22,420	22,420	22,420	**22,420**		**358,720**	**487,880**
Freight Revenue	$ 17,026,643	$ 17,367,176	$ 17,714,519	$ 18,068,810	$ 18,430,186	$ 18,798,789	$ 19,174,765	$ 19,558,261	$ 19,949,426	$ 20,348,414	$ 20,755,383	$ 21,170,490	$ 21,593,900	$ 22,025,778	$ 22,466,294	$ 22,915,619		**$ 317,364,451**	**$ 408,894,339**
Number of Passengers	108,000	109,080	110,171	111,273	112,385	113,509	114,644	115,791	116,949	118,118	119,299	120,492	121,697	122,914	124,143	125,385		**1,863,849**	**2,476,616**
Passenger Revenue	$ 1,474,740	$ 1,525,893	$ 1,541,152	$ 1,556,563	$ 1,572,129	$ 1,587,850	$ 1,603,729	$ 1,619,766	$ 1,635,964	$ 1,652,323	$ 1,668,847	$ 1,685,535	$ 1,702,390	$ 1,719,414	$ 1,736,608	$ 1,753,974		**$ 26,036,878**	**$ 34,333,974**
Miscellaneous																			
Total Revenue	$ 18,501,383	$ 18,893,068	$ 19,255,671	$ 19,625,373	$ 20,002,315	$ 20,386,640	$ 20,778,494	$ 21,178,027	$ 21,585,389	$ 22,000,738	$ 22,424,229	$ 22,856,025	$ 23,296,290	$ 23,745,192	$ 24,202,902	$ 24,669,594		**$ 343,401,329**	**$ 443,228,313**
Summary Expenses																			
Transportation (different due to forecast year)	$ 2,247,042	$ 2,314,453	$ 2,383,886	$ 2,455,403	$ 2,529,065	$ 2,604,937	$ 2,683,085	$ 2,763,578	$ 2,846,485	$ 2,931,880	$ 3,019,836	$ 3,110,431	$ 3,203,744	$ 3,299,856	$ 3,398,852	$ 3,500,818		**$ 45,293,351**	**$ 57,652,554**
Mechanical	$ 1,225,396	$ 1,262,158	$ 1,300,023	$ 1,339,024	$ 1,379,194	$ 1,420,570	$ 1,463,187	$ 1,507,083	$ 1,552,295	$ 1,598,864	$ 1,646,830	$ 1,696,235	$ 1,747,122	$ 1,799,536	$ 1,853,522	$ 1,909,128		**$ 24,700,170**	**$ 32,173,181**
Equipment/Vehicles	$ 60,537	$ 62,353	$ 64,223	$ 66,150	$ 68,135	$ 70,179	$ 72,284	$ 74,453	$ 76,686	$ 78,987	$ 81,356	$ 83,797	$ 86,311	$ 88,900	$ 91,567	$ 94,314		**$ 1,220,231**	**$ 1,736,622**
Maintenance of Way*	$ 4,623,373	$ 4,762,075	$ 4,904,937	$ 5,052,085	$ 5,203,647	$ 5,359,757	$ 5,520,550	$ 5,686,166	$ 5,856,751	$ 6,032,454	$ 6,213,427	$ 6,399,830	$ 6,591,825	$ 6,789,580	$ 6,993,267	$ 7,203,065		**$ 93,192,788**	**$ 129,916,344**
Insurance	$ 268,783	$ 276,847	$ 285,152	$ 293,707	$ 302,518	$ 311,593	$ 320,941	$ 330,570	$ 340,487	$ 350,701	$ 361,222	$ 372,059	$ 383,221	$ 394,717	$ 406,559	$ 418,756		**$ 5,417,833**	**$ 7,710,608**
General and Administrative	$ 1,988,150	$ 2,047,794	$ 2,109,228	$ 2,172,505	$ 2,237,680	$ 2,304,810	$ 2,373,955	$ 2,445,173	$ 2,518,528	$ 2,594,084	$ 2,671,907	$ 2,752,064	$ 2,834,626	$ 2,919,665	$ 3,007,255	$ 3,097,472		**$ 40,074,895**	**$ 57,034,214**
Fuel	$ 533,285	$ 549,283	$ 565,762	$ 582,735	$ 600,217	$ 618,223	$ 636,770	$ 655,873	$ 675,549	$ 695,816	$ 716,690	$ 738,191	$ 760,337	$ 783,147	$ 806,641	$ 830,840		**$ 10,749,359**	**$ 13,189,668**
Locomotive Lease	$ 483,810	$ 352,448	$ 363,022	$ 373,912	$ 385,130	$ 396,683	$ 408,584	$ 420,841	$ 433,467	$ 446,471	$ 459,865	$ 473,661	$ 487,871	$ 502,507	$ 487,871	$ 502,507		**$ 6,978,648**	**$ 9,365,252**
emurrage) (different due to forecast year)	$ 3,586,621	$ 3,694,220	$ 3,805,047	$ 3,919,198	$ 4,036,774	$ 4,157,877	$ 4,282,613	$ 4,411,092	$ 4,543,425	$ 4,679,727	$ 4,820,119	$ 4,964,723	$ 5,113,664	$ 5,267,074	$ 5,425,087	$ 5,587,839		**$ 72,295,101**	**$ 90,281,002**
Total Expenses	$ 15,016,997	$ 15,321,631	$ 15,781,280	$ 16,254,718	$ 16,742,360	$ 17,244,631	$ 17,761,969	$ 18,294,829	$ 18,843,673	$ 19,408,984	$ 19,991,253	$ 20,590,991	$ 21,208,720	$ 21,844,982	$ 22,470,620	$ 23,144,739		**$ 299,922,377**	**$ 399,059,445**
Difference	$ 3,484,386	$ 3,571,438	$ 3,474,391	$ 3,370,655	$ 3,259,955	$ 3,142,009	$ 3,016,524	$ 2,883,198	$ 2,741,716	$ 2,591,754	$ 2,432,976	$ 2,265,034	$ 2,087,570	$ 1,900,210	$ 1,732,282	$ 1,524,855		**$ 43,478,953**	**$ 44,168,868**
Cost Inflation Assumed:																			

The forecast of cash flow for the railroad over time are summarized in graphical form in Figure 10-2:

Figure 10-2



As can been seen in the above graph, only the high demand scenario is able to create a positive cash flow. Both the medium and low scenarios are not able to "break even" on a cash flow basis and in fact widen the operating gap due to the overwhelming costs of operating the railroad in a 0% growth environment.

11.0 CONCLUSIONS REGARDING 25 YEAR OPERATING FEASIBILITY

11.1 Summary of Financial Results

11.1.1 Low demand

Under the low demand scenario, the railroad will not breakeven for the life of this analysis. If the low demand stays at the same level for the next 25 years, it will not be able to overcome the fixed or variable costs of operating the railroad.

11.1.2 Medium demand

Under all three operating scenarios there will be a net negative cash flow. If the medium demand stays at the same level for the next 25 years, it will not be able to overcome the fixed or variable costs of operating the railroad.

11.1.3 High demand

Under the high demand scenario once the north end of the railroad is connect to the south, the railroad is net cash flow positive, averaging approximately six million dollars a year in net positive cash flow.

11.2 Conclusions

Given the results outlined in Table 10-2, the financial model demonstrates that without both the market numbers and a reasonable increase in tariff that is on pace with inflation, it is very difficult to make it to a breakeven point. It is also critical to understand that the railroad is net cash flow positive only in the most optimistic projections.

1. **300 Miles of operating railroad**: The railroad has to operate the entire 300 miles in order to have a positive cash flow. Under scenario I for all three demand categories, the railroad operated at a loss. The fixed costs of operating a railroad are too high to support the proposed 141-mile route between Willits and Schellville. For example under operating scenario I the percentage of G&A is approximately 30% of the total expenses. This is 10% higher than what is considered normal for the industry. What is interesting is that when the whole railroad is operating in 2007, the percentage drops to 22%, which is a more reasonable percentage for the expenses.

2. **Credibility:** It will be critical for the railroad to operate consistently for several years to prove that it is a viable operation. We heard this from the NCRA and from the shippers that we interviewed. The railroad does not have to be fast and it does not have to be daily, but it does have to be reliable. As was demonstrated in the revenue model, there is skepticism as to if the railroad will function and for how long. It will be critical that the NCRA choose a highly credible operator to operate the Northwestern Pacific. All indications are that without a credible operator, the shippers will not trust their freight to the railroad.

3. **Price:** The NWP is wholly dependent on the cooperation of the California Northern Railroad and the Union Pacific Railroad. The rates that the NWP will be able to charge are interdependent on what rates the UPRR and the CNRR will want to negotiate. Again, the issue of credibility will play an important role as car hire rates and "free time" allowances will be dependent on the reliability of the NWP. All of these items will have profound impacts on the operation of the railroad and its revenue. Additionally it will be critical for the railroad to be price competitive with the trucking industry.

4. **New Markets**: As was underscored in the freight feasibility chapter, it is clear that the addition of new commodities such as aggregates, solid waste or new activity from the Port of Humboldt Bay,(which represent 45% of the high demand), could have a profound impact on the feasibility of the railroad. However, all three of these commodities would require substantial investment in environmental review, facilities and equipment. This type of investment of time and resources would only be put forward if the interested parties were assured of the long-term commitment of the railroad.

5. **Political Capital of Excursion Rail:** While excursion rail service contributes a relatively small amount financially to the bottom line (approximately seven percent), it can provide a positive image of the railroad to the community, possible shippers and government. It could also have a positive multiplier effect on regional tourism revenues.

This financial analysis demonstrates that, depending on the participation of the shippers of Humboldt and Mendocino Counties, the railroad could operate with a net positive cash flow under the high demand scenario. It is important to note that this study in no way reflects the current outstanding financial commitments of the NCRA, or previous operators. Additionally it does not address the capital costs of bringing the railroad up to a state of good repair that would allow the operations to begin. So there are two major cost issues that would have to be considered in the final evaluation of the financial feasibility of this railroad. These two issues were not part of the original scope of this project.

That said it is clearly a policy decision as to if either a private operator would want to absorb the risk of operating this railroad for potential long term gain, or if the State or other funding agency would want to provide an operating subsidy for the railroad operator for a period of time.

NEXT STEPS:

The examination of the economic impacts that the railroad has on the counties of Humboldt, Mendocino and Sonoma. Based purely on the cash flow of the NWP, the railroad will have a difficult time supporting itself. If the economic impact of the railroad is considered in the equation, there may be a greater justification for the subsidy of the line depending on its regional contribution. The PB Team has been authorized to conduct such a study and anticipates finishing this evaluation in the next six weeks.

The integration of financial feasibility study with the capital plan into a full financial analysis. The next step would be to analyze the relationship of capital investment and other past commitments, to this financial feasibility study. The Return on Investment (ROI) and Net Present Value could be calculated for the railroad. These common business indicators would be very useful for understanding the relationship between the capital investment and the cash flow forecast and would give a complete picture of the long term prospects of the railroad.

New market exploration. Key to the NWP's success is the development of new markets. As was mentioned above, the Port of Humboldt Bay is going to be examined under this study. However, aggregates, solid waste, nuclear waste and national security opportunities should be studied in further detail. Such a review would help the NCRA and the State more accurately forecast the timing and revenue potential of these crucial commodities.