Palouse River and Coulee City Railroad: Market Assessment

Report to the Washington State Department of Transportation

Palouse River and Coulee City Railroad: Market Assessment

Prepared for the

Washington State Department of Transportation
Office of Freight Strategy and Policy

By

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TABLE OF CONTENTS

TABLE OF CONTENTS (continued)

FIGURES

TABLES

TABLES (continued) .....

ACKNOWLEDGEMENTS

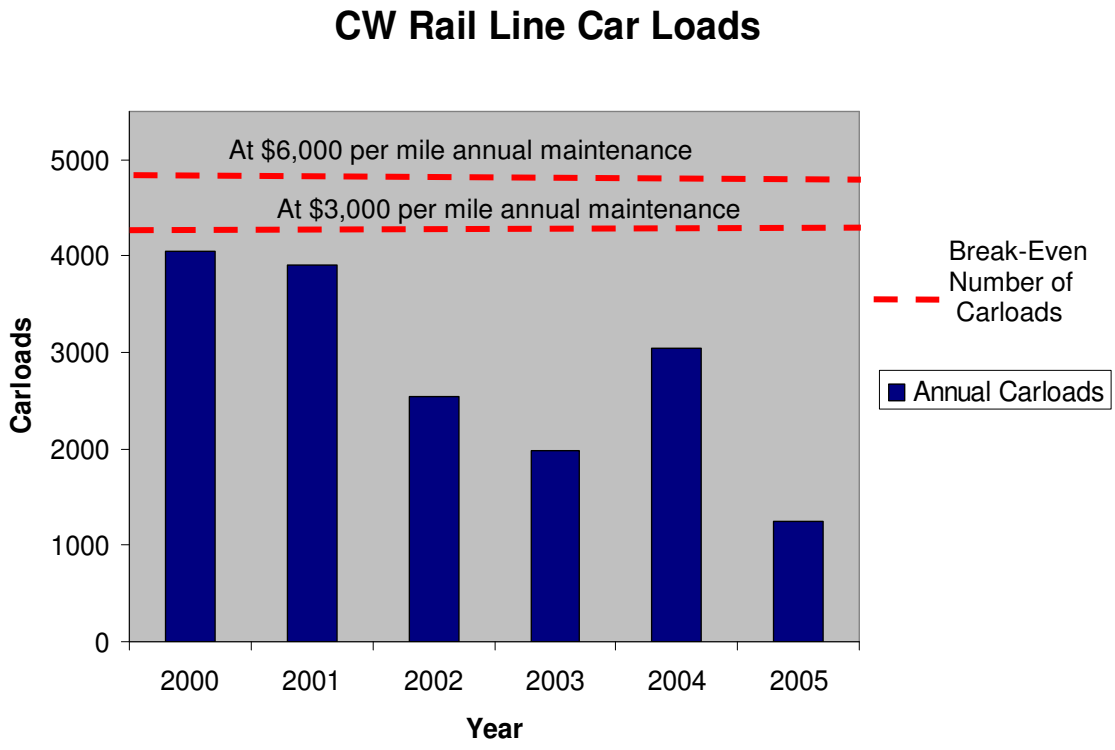
Selected material for this report was obtained from information collected and gathered by the Strategic Freight Transportation Analysis (SFTA) research and implementation project, conducted under a grant from the Washington State Department of Transportation. Also, the grain co-ops served by the CW rail line were very helpful providing historical shipping volumes and explaining the market dynamics. Dr. Denver Tolliver of the Upper Great Plains Transportation Institute and Tom McLaughlin of Tyee Partners, Inc. also provided valuable input. Any errors, though, remain the responsibility of the authors.

EXECUTIVE SUMMARY

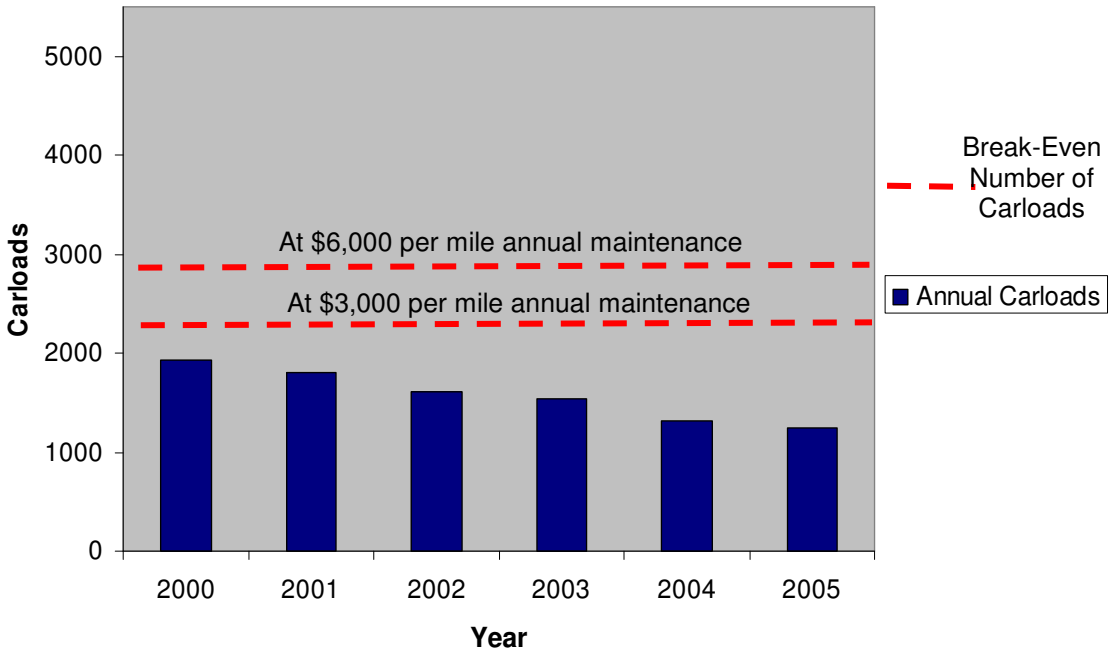
This market assessment of the PCC lines has revealed a dynamic and uncertain market with a multitude of competing forces and decisions makers/stakeholders in the market having different options. Among other issues that are certainly not known with certainty, but may be critical, are the level of maintenance chosen for the line, the timing, magnitude and location of the track rehabilitation, the level of grain traffic committed and achieved on the three lines, the amount of new "economic development" traffic reached (Geiger spur, Rabanco, bio-diesel, strawboard plants, forest products, bulk minerals and clay, etc.), the continued progressive marketing by the Ritzville facility management, energy impacts on operating costs of all modes, etc. These forces make this marketing assessment and accompanying viability evaluation and any resultant investment recommendations also uncertain and susceptible to the business by the firms and institutions in the market. The lack of certainty makes consultant evaluations and state policy recommendations necessary but vulnerable.

The basic issue is identified in the three figures below. The volume of carloads on the CW line and the P&L line have consistently been below that needed to cover all costs of operation, at various levels of maintenance. The PV Hooper line also falls short on full maintenance, but not to the degree of the other two branch lines. In previous years the shortfall was covered by Watco's deferring maintenance on the lines; in recent years the shortfall has increase to where

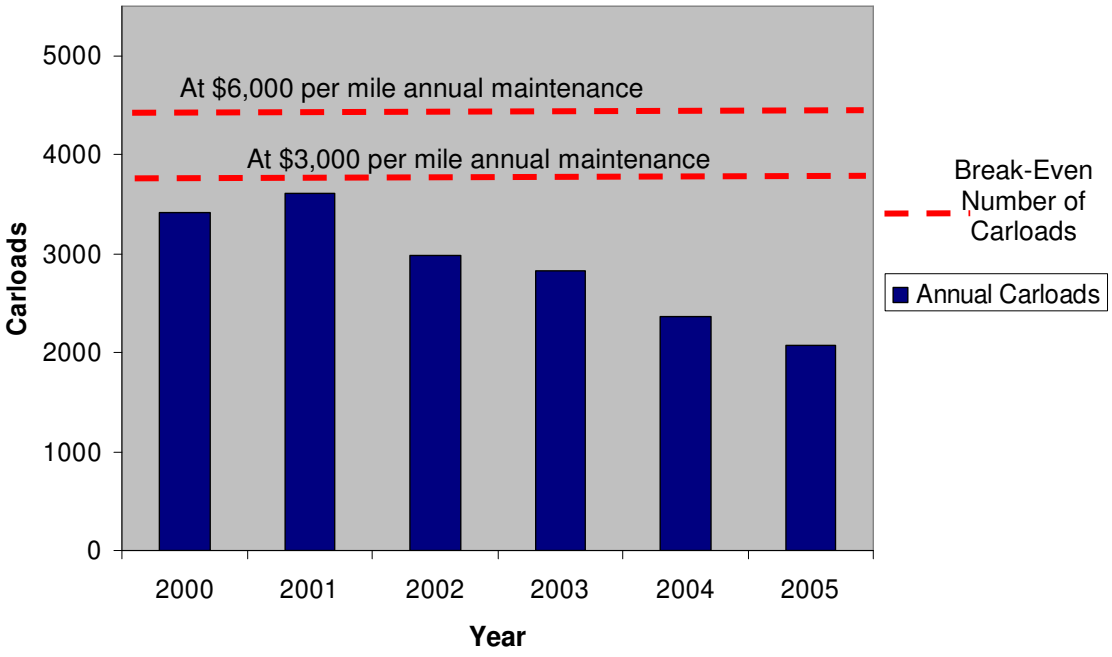
operating costs may not even be covered and the railroad has considered abandoning the two CW Line and the P&L branch line segments. That situation led to this market assessment for the Washington State Department of Transportation where costs, revenues and sustainability under varying conditions were examined. Data provided by Watco, surveys and interviews with shippers, and accompanying analyses by Dr. Denver Tolliver, and Tyee Partnerships, Inc. were used in the assessment.



P&L Line Car Loads



PV Hooper Line Car Loads



Most Probable Scenario

- The CW line is marginally profitable or unprofitable depending on shifting market conditions and shipper commitment. If high maintenance investments per mile are necessary to operate at the cost efficient 25 mph, and shipper commitment to the line is low or remains at recent levels, and existing carrier costs (irrespective of who the carrier is) are incurred, a shortfall loss will occur and continued ownership (State, port, or whomever) will require an annual operating cost investment. This investment would be around $200,000-$400,000 if high maintenance is required and zero to $100,000 if only medium levels of maintenance are necessary.

- Similarly, the P&L Line will have to experience significant increases in movements to more than 2,200 carloads to independently attain marginally viable status and this is dependent on track rehabilitation. If such movements are not achieved, and no rehabilitation is undertaken, the most probable scenario of the P&L Line is continuous State investments of $500,000 to $1,000,000 on an annual basis.

- The final segment, the PV Hooper, can be expected under a most probable scenario, to be viable, especially after the rehabilitation allocated currently to this line. This viability is directly caused by, and is dependent on, the use of the shuttle system with movement of grain to the river for transportation by barge. Without this movement viability might also be in question for this line. Some marginal investment by the State for maintenance expenses might be called upon.

Best Possible Scenario

- For the CW Line the best expectations occur when grain volumes increase over 3,000 cars as a result of renewed shipper commitment to the CW line (due to Scoot train efficiencies, desire to maintain competitive transportation market, search for marketing flexibility, new firms and traffic), while maintenance is only required at the medium level (still twice the current levels) and operating costs are decreased (due to new ownership/operating management, increased volume, earlier rehabilitation investment, state Grain Train cars, etc.) Under this scenario, revenues will cover both fixed and operating costs, including any return on investment desired by the operators or owners. No additional annual investment would be required by the state.

- For the PV Hooper line the best possible scenario would be when volumes increase to the level last achieved in1999, maintenance is only required at the existing level of expenditure and costs decrease due to the increased rehabilitation expenditures. Under this scenario, this segment of the PCC would be able to contribute to the overall operation of the other two lines, with no State investment needed.

- The best possible scenario for the P&L Line is a significant decrease in costs due to the substantial investment planned for this line segment, accompanied by increased traffic from the agricultural, forest products and minerals industries in its trade area. Under this scenario, an annual investment of up to $100,000-200,000 would still be needed.

Worst Possible Scenario

- This would arise for all three lines when increasing traffic volumes fail to materialize (for whatever reason), no new "economic development" traffic is realized, a high maintenance level is required (for whatever reason), increase in carrier costs per car caused by low traffic levels occur, a new 110 car load facility is built in competition with CW line movements, and BNSF rate differentials make the Ritzville facility even more attractive.

- In this case annual investments, if the CW Line is to be kept operational, might be as high as $1,000,000 per year. Similar levels of investment for the P&L Line might be necessary. The PV Hooper Line, even in the worst possible scenario, is expected to be marginally profitable, unless rail-barge traffic is lost with drawdown of the dams on the lower Snake River.

Public and Private Benefits, both quantifiable and potential, to consider in this decision are substantial. No benefit/cost analysis was requested for this study but Table E.1 briefly summarizes the subsidies and road damages expected for each of the branches. Road damage and usage costs avoided by maintaining the CW line are estimated to be from $3.4 million to $11.5 million for state highways every 15-20 years. For the same period of time county roads, because of their lower level of construction and the long distance routes utilized by the trucks, are estimated to incur road expenditures of $21.7 million to over $50 million, in traffic related to the CW line. The range of total highway impacts from CW line abandonment is between $25.7 million and over $61.5 million, (or more, if extra reconstruction on certain county roads is necessary) identifying a significant benefit to the state and counties from maintaining the CW line.

The total road impacts by elimination of the P&L line are estimated by Tolliver to be $3,530,000 in total ($2,980,000 for state highways and $550,000 on county roads). The road damage caused by the loss of the PV Hooper line is somewhat less, $2,742,000 ($992,000 for state highways and $1,750,000 on county roads).

Table E.1 Subsidies vs. Road Damage, by PCC Rail Line

	C&W	P&L	PV Hooper
Subsidy (Annual)			
Most Probable	$2,000 - $400,000	$500,000 - $1,000,000	0
Best Possible	0	$100,000 - $200,000	0
Worst Possible	$1,000,000	$1,000,000	0
Road Damage (Total)			
State	$3,400,000 - $11,500,000	$2,980,000	$992,000
County	$21,700,000 - $50,000,000	$550,000	$1,750,000
Total	$25,100,000 - $61,500,000	$3,530,000	$2,742,000
Road Damage (Annual Average)			
State	$227,000 - $767,000	$198,667	$66,133
County	$1,447,000 - $3,333,000	$36,667	$116,667
Total	$1,673,000 - $4,100,000	$235,333	$182,800

Spreading the total costs out over the life of the road shows the annual road damage of about $1.7 to 4.1 million per year, compared to annual subsidies of up to $1 million per year for the CW Line. Similarly, the PV Hooper line, with no expected necessary

subsidies, had road damages of about $180,000 per year. It is the P&L Line where a partial benefit-cost analysis, using just these costs, has annual road damage of about $235,000 but requires annual subsidies ranging up to $1,000,000.

Other Benefits Exist and are associated with having the competitive and complementary functions of the PCC, benefits such as lower costs available to shippers as competition drives prices charged down to long term variable costs, improving efficiency in the overall system. Certainly, efficiencies are available to those firms that can adapt to the new business model of the BNSF and the PCC. These lines also offer shippers flexibility in marketing their products, increasing the modes, routes and marketing/storage alternatives, including using the secondary freight market to guarantee car availability or generate revenue enhancement in an up market. Since the BNSF's business model is to focus on long movements of large volumes, the collection service provided by the PCC has increased value, if it can adapt to and work with that business model. The current shippers believe that rate increases by truck-barge or truck-Ritzville are being constrained by the continued availability of the PCC lines.

Energy consumption and emissions production would be increased if these lines are no longer available. The energy efficiency of rail is 30% higher than barge and about 100% better than truck. Emissions production follows proportionately the level of energy (fuel) used in transporting the products out of and into the region.

Actual Operating Costs for the existing or future railroad operations must be determined. Tyee's analysis and comments reveals the uncertainty felt by the analyst, and agreed with by these authors, on the completeness and accuracy of the original and revised costs and traffic levels offered by Watco. Negotiations with the current or new

operator require increased transparency of financial information above that currently available. Alternative and potential rail managers/firms can aid in that operational information discovery.

Actual Maintenance and Marketing Efforts are critical to the long term viability of the three lines. Any purchase or operating agreement should include specific detail on responsibilities, auditing and enforcement of the maintenance commitments as well as traffic and cost experiences; otherwise the value of the State's investment deteriorates and the viability of the lines are threatened. The marketing effort should also be specified in detail in any contract, marketing effort that indicates a reaching out for both past traffic and new potential traffic, both agricultural and that brought on by economic development in the region. Grain shippers should be aided in seeing the potential tradeoff between short term "cents" saving versus long term "dollars" costs if any of the lines are eliminated.

INTRODUCTION AND BACKGROUND

The Palouse River and Coulee City Railroad (PCC) has played a substantial role in the transportation system of the State of Washington. Railroad transportation overall serves an integral role in the movement of Washington products to distant markets. In fact, without the development of the railroads, especially in eastern Washington, the level of development in agriculture, forestry and mining seen today would simply not have occurred. Access to markets, domestic and international, has made it profitable and productive to live and to farm, harvest and mine in the areas far from those consumer markets.

Eastern Washington has historically been blessed with the existence of a complete transportation system with the availability of all freight transportation modes; truck, rail and barge. The advent of barge transportation, with the opening of Lower Granite Dam in 1975, provided a complementary and competitive role to that of rail transportation. Truck and barge work so closely together in moving products to markets that they are often referred to as one mode, “truck-barge”. Past work by the authors of this report show that, in 1994, slightly over 61% of the grains moving out of eastern Washington went by barge; in 2002, that barge share was still at 60%, but interestingly for this region, slightly over 5% was by the new combination of rail and barge. In the earlier period the entire movement had been brought to the barge transshipment facilities by truck. Hence, this complementary role between barge and the other facilities is pronounced and productive for the region.

But, the barge system also served an effective competitive role in the region, causing railroad rates to be held at stable levels. In fact, a past review of rates by these authors indicates that, as late as 1999, railroad rates were at the 1936 level. This is not because

of the benevolence of the large railroads, but it is because of the competitive role served by the presence of barge transportation and the changing technologies used by the railroads. Now, this barge mode is serving as a complement to the shortline rail movements, especially on the PV Hooper line.

Competition from the truck-barge mode, then, was very instrumental in holding railroad rates very close to costs of operation on the Class I railroads (BNSF and UP), as evidenced by revenue to fully allocated costs in the 80% range. But, these low rates, combined with the low returns being experienced by railroads nationally, and the Staggers Rail Act of 1980 which gave increased flexibility to railroads to abandon or sell off unprofitable lines, lead to massive abandonment of rail lines in the 80's and 90's. In Washington State over one-third of the lines were abandoned during that period. Because of the low revenue being earned on these lines, most of these lines had not been regularly maintained at the desired level and, as a result, were not in very good physical condition at the time of abandonment or sale.

In lieu of total abandonment and pulling up the tracks, the formation of short-line or regional railroads became common. Such short line railroads were less fettered with labor restrictions, more market oriented and less wage driven, allowing many to succeed where the Class I railroads' were failing. In Eastern Washington two lines were formed, the Palouse River Railroad and the Blue Mountain Railroad; in 1996 these two lines were formally purchased from the BNSF and combined into the Palouse River and Coulee City Railroad. These are the subject lines for the Phase I and Phase II reports from this marketing assessment.

The success of short line railroads throughout the nation has varied. Many railroads, initially purchased by "rail buffs", lacked the managerial expertise and the marketing knowledge to survive in the long run. Others, especially railroads dependent on bulk agricultural movements, found the revenue too low to sustain operations. These concerns are being expressed here in eastern Washington where Watco has publicly and privately stated that several of these lines generate such a low level of traffic and revenue that only branch operating costs are barely covered, if at all, with the returns not covering annual debt service, rehabilitation needs or return on equity (corporate allocation) for the railroad entity. The PCC, through its corporate owner, Watco Companies, Inc from Pittsburgh, Kansas, is now considering abandoning the CW line rather than selling the line to the State of Washington, as had been earlier decided. As will be reviewed below, the financial condition of the P & L line as an operating entity has generated other questions, as well as the extent of rehabilitation to be done on each of the three lines: CW, P & L and the PV Hooper.

The potential of continued and expanded public ownership and significant rehabilitation investments of some of the sections of this shortline railroad have raised questions of operations, rehabilitation, local control and interest, and required investments. Answering all of these questions is difficult due to the dynamic and changing marketing landscape in the region surrounding the branches as well as for the investment currently in the lines. But the need for information and analysis to guide and shape public decisions on the appropriate role of the State in this situation is critical.

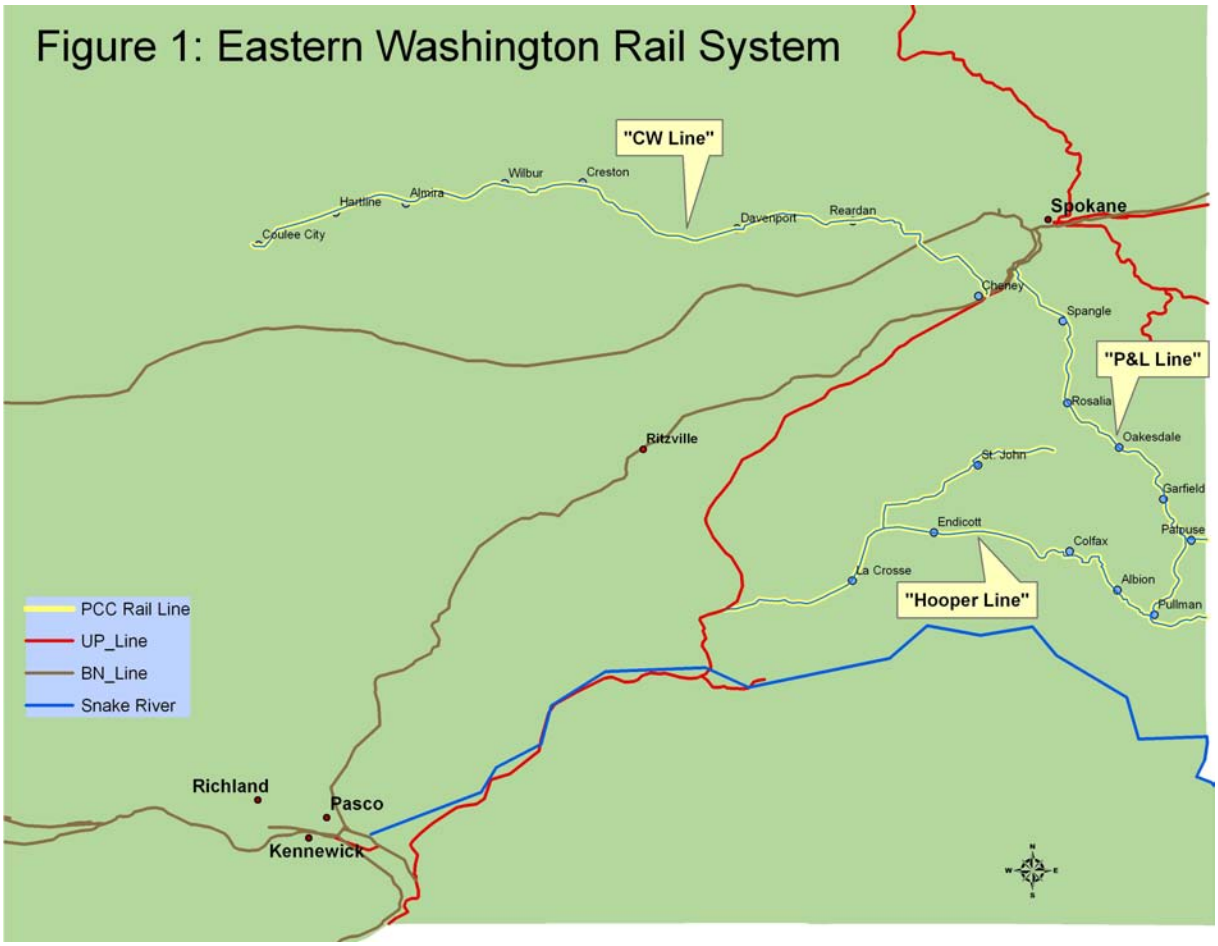


Figure 1: Eastern Washington Rail System
"CW Line"
Wilbur
Creston
Almira
Hartline
Coulee City
Davenport
Reardan
Spokane
Cheney
Spangle
"P&L Line"
Rosalia
Oakesdale
St. John
Garfield
Endicott
Palouse
Colfax
La Crosse
Albion
Pullman
"Hooper Line"
Ritzville
PCC Rail Line
UP_Line
BN_Line
Snake River
Richland
Pasco
Kennewick

SCOPE AND OBJECTIVES

The Washington State Department of Transportation and Drs. Ken Casavant and Eric Jessup, through HDR Engineering, Inc., agreed on the following scope, objectives and tasks for this study.

Background

The Washington State Department of Transportation desires information on the historical, current and potential future of the market surrounding the Palouse and Coulee City Rail Lines. Changing market conditions, including but certainly not limited to a 110 car rail loading facility at Ritzville, are affecting traffic on these lines and the operating railroad has suggested abandonment might be necessary. This study is to provide that desired information in a timely manner, based on interviews and surveys of potentially involved or affected firms and entities.

Objectives for Phase I Study (see Palouse River and Coulee City Railroad: CW Line Market Assessment, WSDOT, March, 2006)

1. Evaluate the current viability of the CW line on a private business basis and the changes that have created the current situation

2. Examine potential changes in the market and industry that will be affecting the traffic, revenue and the line's viability in the future.

3. Inventory public benefits associated with maintenance of the CW line.

4. Summarize and project the conditions affecting future economic viability of the CW rail line and the provision of public benefits.

Objectives for Phase II Study (the overall focus of this report)

1. Evaluate the current viability of the PV Hooper Line, the P&L Line and the overall complete PCC.

2. Examine potential changes in the market and industry that will be affecting the traffic, revenue and lines in the future.

3. Inventory public benefits associated with continued operation of the line segments of the PCC, and

4. Summarize and project the conditions affecting the future economic viability of the overall PCC and the continued provision of public benefits.

Work Tasks

The following specific work tasks for this project are to be performed by the authors as parts of Phase I and Phase II studies:

Work Task 1: Interviews and Data Generation

Conduct a series of interviews to do a market study of the CW rail line. Information to be compiled in this study will be identified in consultation with the Freight Strategy and Policy office of the WSDOT. General information will be sought as to:

- Movement of grain shippers to the Ritzville shuttle train from the CW line in the past several years and the volume of shifted traffic that has occurred.

- Shippers that have remained on the CW line, their volume on the line and the desirability of the CW line from these shippers' perspectives, as well as those shippers that prefer to use truck-barge and the associated volumes.

- Other shippers, such as Coulee Dam electric entities and Geiger spur businesses that rely on the CW line and, if so, how much or how often and what are the alternatives for such movements.

- Shipper investments made relative to use of the CW line and, if so, what type and how much is the investment? Further investment needed if CW line is no longer available?

- Perspective of special interests (cities, counties, RTPOs, parks, federal interests, etc.) relative to maintaining the CW line.

- Impacts on roadway infrastructure for remaining shippers of loss of the CW line

Work Task 2: Analysis

Summarize and analyze the information, emphasizing evaluation of the economic feasibility of the CW shortline, the impact of losing the CW line and the manner that shippers and other stakeholders would react to such an occurrence.

Work Task 3: Reports

Write a draft report on findings of the market analysis and any recommendations

Work Task 4: Customer survey

Initiate and conduct a complete customer survey in late January and early February for the three PCC lines; CW, P&L, and PV Hooper. A list of current, past and potential shippers will be compiled and a mail questionnaire will be distributed, using the Dillman Total Questionnaire Survey Method. Information will be classified as to in-state versus out-of-state, commodity, producers versus marketing managers. Other information will be sought, including the following:

- Volume of shipments, by loads/mode per week and by total shipments.

- Current transit time from PCC facility to final destination, and other modal quality of service characteristics by mode.

- Cost and availability of existing and alternative modes or means of shipment, in current dollars and on specific routing with as much specificity as possible on road miles and rail miles on each alternative.

- Business development plans or expectations in the region, including bio-diesel plants and implications.

- Rational for current decisions as to modal choice, both quantitatively and qualitatively.

- Trend analysis of modal shifts in Washington's wheat supply chain between;

    - Shortline rail/barge
    - Truck/barge
    - Shortline rail to coastal ports current and projections, along the three PCC branch lines.

Work Task 5: Summarize and Analysis

Summarize and analyze the data developed in the industry-wide survey emphasizing the future expected movement patterns and the impact of decreased or no service on the PCC.

Work Task 6: Preliminary and Final Report

Write a preliminary draft report and a final report to the Freight Strategy and Policy office of the WSDOT

CURRENT SITUATION

WSDOT was preparing, in September, 2005, to undertake negotiations to finalize the purchase of the CW line (the monies were now available in this biennium and WSDOT doesn't purchase property until the funds are available), having completed all necessary and required title searches, but on September 13, 2005, Watco withdrew its earlier offer to sell the CW line to the State. Watco suggested that market conditions for the value of the line, and the changing market situation for traffic on the line, made it more profitable to abandon the line and sell the rails, ties and other materials for scrap value. On September 16, 2005 WSDOT informed the chairs of the Senate and House Transportation Committees, members in affected districts and community leaders with rail projects dependent for service on the CW line that Watco had stopped the sale of the CW line to the state. Watco then stopped service on the CW line in early October, 2005. Since future service on both the CW and the P & L lines, where a substantial surcharge had been imposed, was questionable at this time, WSDOT informed Watco and the legislature that they wouldn't make commitments for additional rail line purchase or rehabilitation until issues were clarified.

WSDOT has authority to spend $1.58 million of the PCC rehabilitation funds in the 2005-2007 biennia, with plans to spend most of those funds on the P & L line. WSDOT was considering Watco's request to shift some of those funds to the PV Hooper line, when Watco informed WSDOT it wanted to eliminate service on the P & L line. Watco then said it would only provide service on the remaining PV Hooper line if all of the available funds were used on that line. WSDOT has since declined to spend those rehabilitation funds under this cloud of uncertainty.

The reasons for this changed market and shortline situation include the increased value of the Net Liquidation Value(NLV) for the C &W line, hence an opportunity cost/return that Watco wants to realize, the successful and creative Ritzville shuttle facility, a real or perceived car shortage possibly affecting traffic volumes (partially due to hurricane Katrina and shifting traffic patterns), the BNSF and UP's emphasis on "operating as mainline railroads" and dedicating power and capacity to that effort especially in a time of increased freight transportation demand, and the concern about requirements for Watco to maintain the three lines at Category Level II after sale of the lines, among others.

The benefits identified earlier in the due diligence studies for all three branch lines may still be in existence to some degree but the answer to the question of "can the three lines become profitable for an operator, Watco or others," is more uncertain. Watco's position, in its discussions with WSDOT, is that it will work with the state and shippers (by offering rates and services) to try and achieve that goal but it requires a private/public partnership to continue service. This current study, as well as studies by Denver Tolliver on road damage and Tom McLaughlin on financial analysis, is designed to address some of these questions.

PCC RAIL LINE MARKET ASSESSMENT

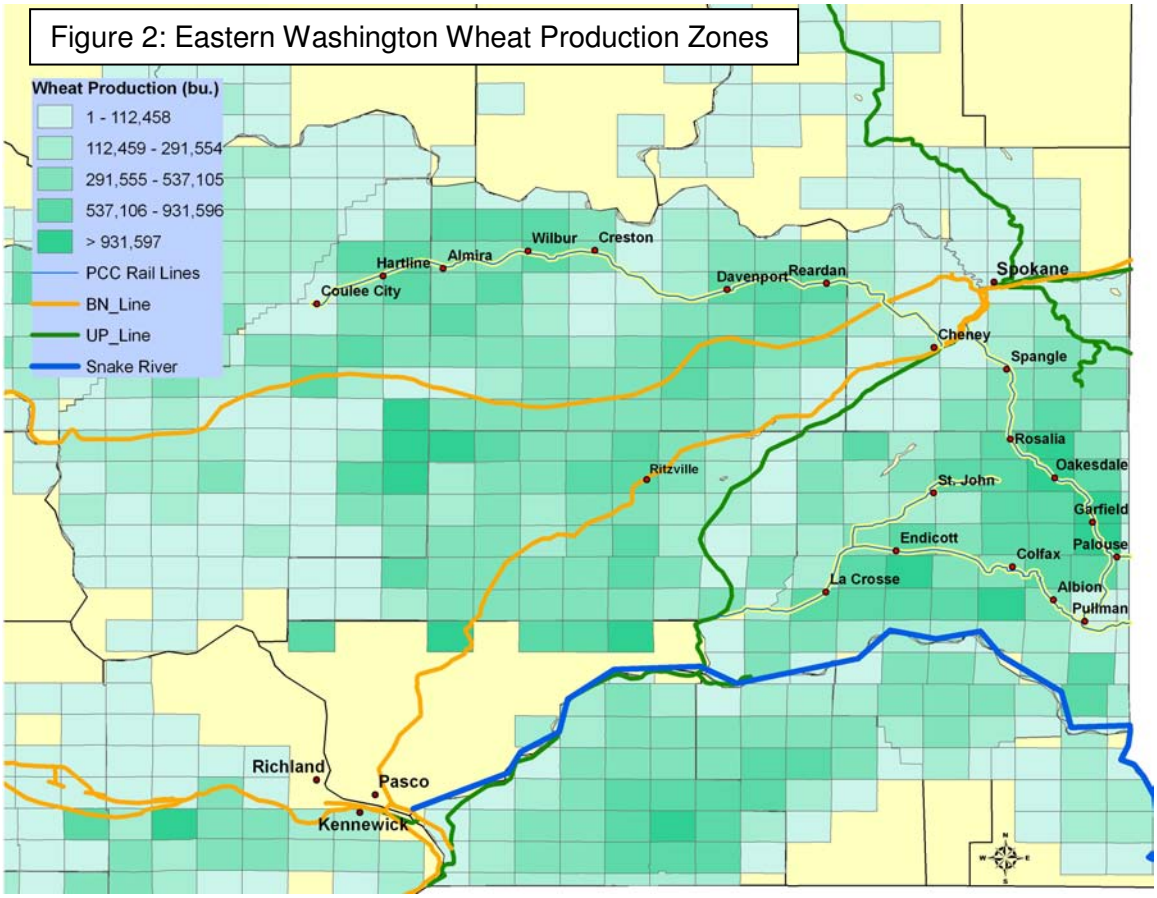
Eastern Washington Production Region / Landscape

It is useful and important to understand the wheat production characteristics throughout Eastern Washington in order to fully appreciate the competitive transportation dynamics that continue to evolve within different geographical contexts. These production data at the township level were compiled from a combination of sources. Total state wheat production of 148,247,000 bushels was obtained from the Washington State Agricultural Bulletin and represents the average statewide wheat production over the last ten years. The production volume allocated to each county represents each county's ten year average proportion of state total, multiplied against 148,247,000. Within each county, production was allocated to each township based upon a combination of available wheat producing acres and average yield per acre as recorded by producers participating in state and federal farm support programs. The production volume represented by each county and the statewide percentage attributed to each county are presented in Table 1 and the percentages geographically depicted in Figure 3.

The Palouse region of Eastern Washington is one of the more productive wheat/barley/peas/lentil producing regions in the world, with dry-land wheat yields often exceeding 120 bushels per acre. The concentration of wheat production by township is displayed in Figure 2, with wheat production stretching from western Douglas and Grant counties east to the Washington-Idaho border and from the northern reaches of Douglas, Lincoln and Spokane counties south to the Washington-Oregon border. The intensity of wheat production is visually apparent throughout the region, moving from low

intensity light-green areas to the high intensity production townships in the dark-green areas, illustrating the relationship between wheat production intensity and the rail

Figure 2: Eastern Washington Wheat Production Zones

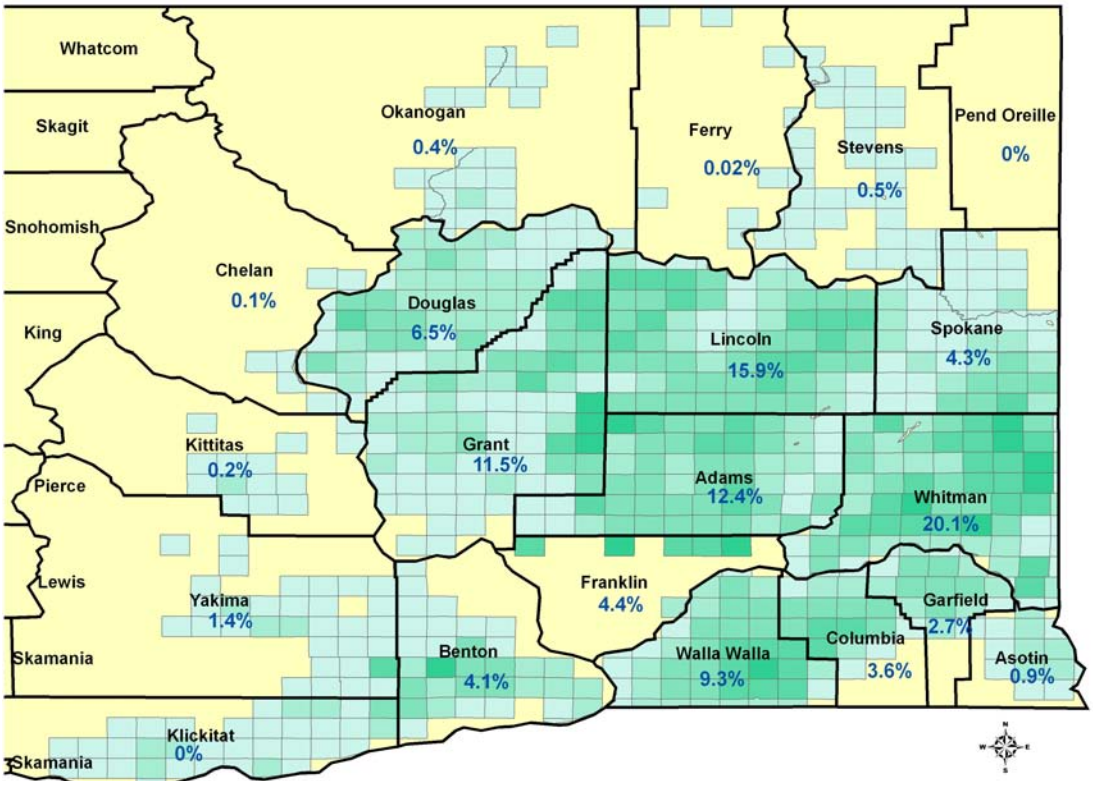


Source: Wheat production represents 10 year statewide average, allocated to townships based on average yield and acres as specified by producers participating in state and federal farm support programs.

transportation infrastructure. Following a pattern that is relatively consistent with rain precipitation levels throughout Eastern Washington, the western portion of the Palouse displays considerable lower yields per acre and therefore less total production as compared to the regions east toward the Idaho border where soil conditions and precipitation levels are more favorable for yields and total production. This is readily apparent when comparing total wheat production from two geographically large areas

such as Douglas and Grant counties to Whitman County, as depicted in Figure 3. Douglas and Grant counties combined represent 18% of total state wheat production whereas Whitman County alone accounts for over 20%. However, while productivity

Figure 3: Proportion of Wheat Production, by County



Source: Wheat production represents 10 year statewide average, allocated to townships based on average yield and acres as specified by producers participating in state and federal farm support programs.

increases to the east, total production in Douglas County alone would generate 2,768 rail cars per year.

Eastern Washington Geographical Market Conditions Prior to Ritzville Shuttle

Prior to the construction and operation of the unit-train/shuttle loading facility in Ritzville, Washington, there were several geographic market attraction zones for grain

Table 1: Eastern Washington County Level Wheat Production

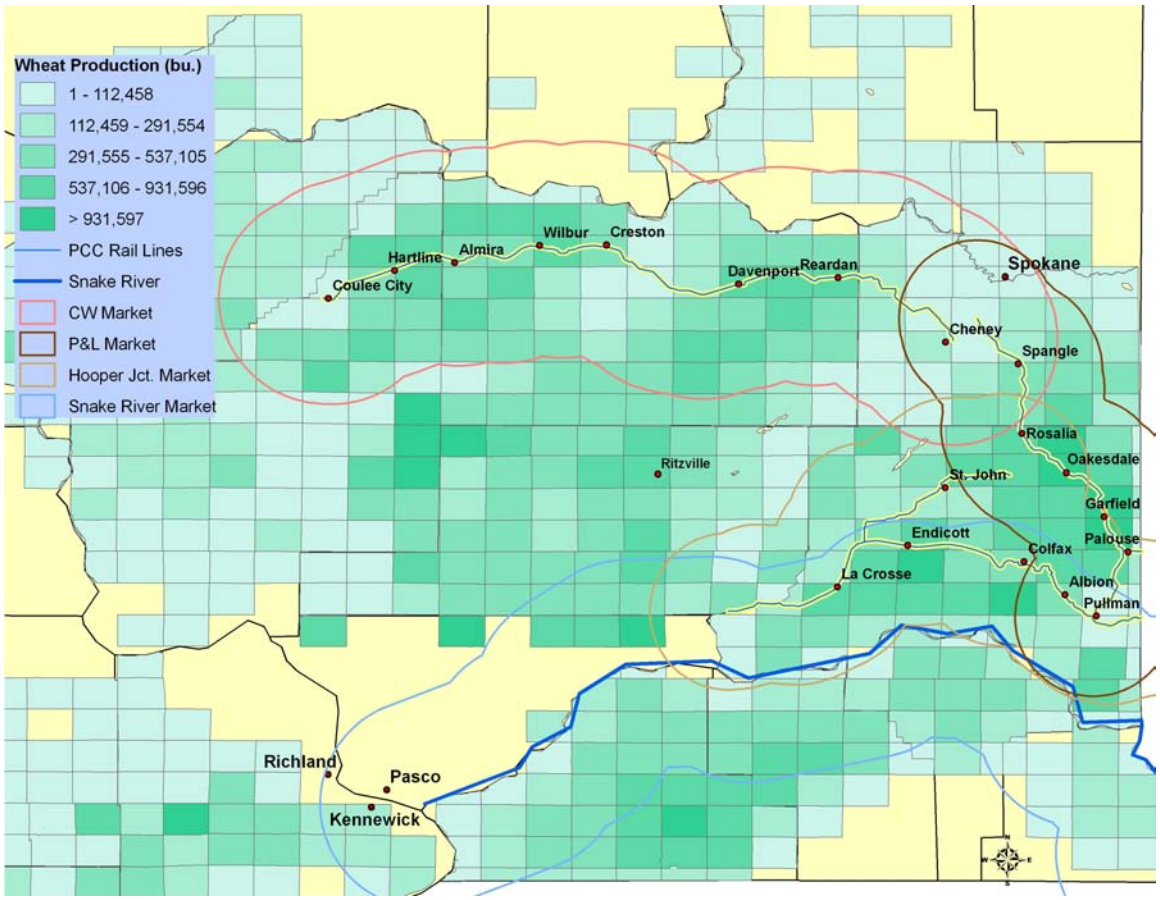
County	Production (bu.)	Percent (%)
Adams	18,339,349	12.4%
Asotin	1,329,808	0.9%
Benton	6,026,393	4.1%
Chelan	159,000	0.1%
Columbia	5,355,928	3.6%
Douglas	9,688,926	6.5%
Ferry	32,245	0.02%
Franklin	6,504,497	4.4%
Garfield	4,067,257	2.7%
Grant	16,981,749	11.5%
Kittitas	343,572	0.2%
Klickitat	2,493,952	1.7%
Lincoln	23,589,651	15.9%
Okanogan	563,724	0.4%
Spokane	6,384,415	4.3%
Stevens	670,465	0.5%
Walla	13,800,900	9.3%
Whitman	29,849,293	20.1%
Yakima	2,065,877	1.4%
Ten Year Avg State Production	**148,247,000**	**100%**
Source: Washington State Ag. Bulletin, 2004		

movements in Eastern Washington. These market attraction zones (depicted in Figure 4) generally surround the contours of the transportation network throughout eastern Washington, especially the rail and river transportation system. These market attraction zones are depicted with concentric circles around each zone including 1) the CW rail line, 2) the P&L rail line, 3) the Hooper Line and 4) the Snake River.

The actual specific geographical boundary of each of these markets is continually changing, fluctuating and overlapping based upon current market conditions, world grain demand, time of year and the individual transportation services required by grain merchants/handlers throughout the region. The entrepreneurial ability of individual elevator managers can also reshape these boundaries. While distance and

geographical proximity play a significant part in where grain is shipped, likewise availability to rail cars, rail service, available storage/handling capacity, contract terms and price from grain merchandisers also impact the proportion of grain shipped via rail versus truck-barge shipments to the river. However, one would expect that as distance to the river increases for grain producers or elevator operators, rail shipments become the more attractive and competitive alternative, subject to availability and price. Rail shipments from Ritzville did occur prior to construction of the shuttle facility, but were constrained to 26 car units.

Figure 4: General Grain Market Attraction Zones Prior to Shuttle Loader at Ritzville

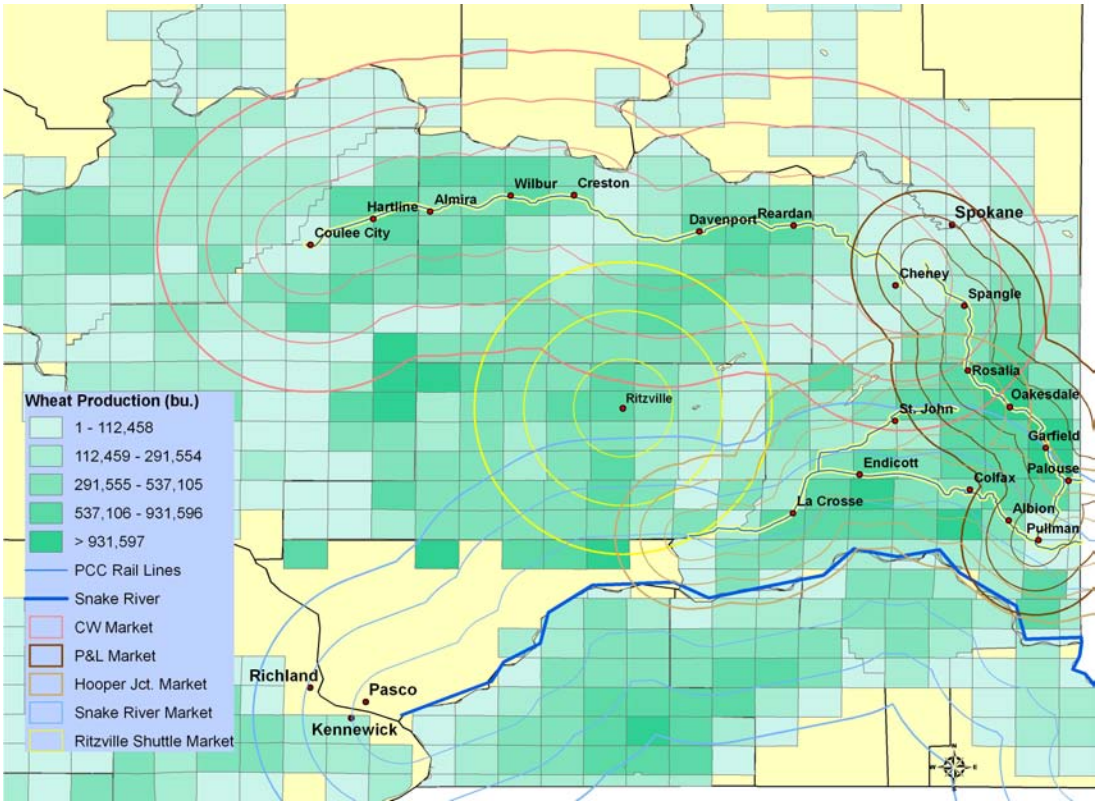


Source: Wheat production represents 10 year statewide average, allocated to townships based on average yield and acres as specified by producers participating in state and federal farm support programs.

Eastern Washington Geographical Market Changes with Ritzville Shuttle

Once the 110 unit rail shuttle facility was completed in Ritzville, WA, the geographical grain market landscape changed, as depicted in Figure 5. Primarily this change was to the short-run benefit to area grain companies and producers who now could exercise additional shipping options. These shipping options (truck-barge, truck-rail to the PCC rail system, truck-rail to Ritzville) increased the marketing flexibility and transportation choices of grain elevator operators while the multi-modal competitiveness kept downward pressure on transportation rates. The profit margins to businesses providing the transportation services may become smaller with increased competition for traffic, adding greater incentive for these transportation providers to increase volume and number of shipments when profit margin per shipment declines, thereby reshaping the market boundaries.

Figure 5: Current Grain Market Attraction Zones with Shuttle Loader at Ritzville



Source: Wheat production represents 10 year statewide average, allocated to townships based on average yield and acres as specified by producers participating in state and federal farm support programs.

The facility at Ritzville immediately began to compete for grain volume that previously was shipped either truck-barge to the river and to a smaller degree with grain shipped on the PCC rail system. What Ritzville offered was ample storage at critical times (between 3 and 4 million bushels, including outside storage), ability to move large volumes of grain quickly (110 unit train loading facility), scale efficiencies, and a high degree of customer service (not charging for double handling, storage availability at harvest time, partially subsidized truck movements, etc.). As a result, the geographical market attraction zones around the Snake River and the PCC system are now competing with a market attraction zone surrounding Ritzville, Washington, as depicted in Figure 5. As previously mentioned, distance is not the only determinate of how grain shipments flow, but it is a dominant factor to consider. Thus, it is useful to identify the wheat production within certain distance radius of each market attraction zone to provide a better understanding of market potential within each zone (Table 2). This helps illustrate the choices that grain shippers have made in marketing their product when the production volumes are compared to elevator storage capacities and actual historical movements by transportation mode.

Slightly less than half of the total statewide wheat production, 72,374,249 bushels, is produced within 35 miles of the Snake River. This is one of the main reasons why truck-barge movements represent such a sizeable proportion of total wheat shipments in Eastern Washington. However, there is also ample grain produced in the north Palouse region surrounding the CW rail line. Increasing in distance from this rail line in ten mile increments, 20,778,050 bushels (ten mile radius), 33,786,387 bushels (twenty mile radius) and 48,714,985 bushels (thirty mile radius) are produced. If we convert this grain production volume into train car equivalents, this volume represents 6,202, 10,085 and 14,542 rail cars respectively. The CW line is followed by the PV Hooper line in terms of

density of production surrounding the PCC rail system, with 10 million, 21 million and 31 million bushels produced within a 5, 10 and 15 mile radius, respectively. To the east, the P&L rail line has 8 million, 15 million and 19 million bushels produced within a 5, 10 and 15 mile radius, respectively. The smaller of these five market attraction zones is Ritzville, in terms of proximity to production volume within a 10, 20 and 30 mile radius. However, over 20 million bushels of wheat are still produced within a 30 mile radius of this shuttle loading facility (Table 2).

Table 2: Wheat Production Volume by Market Zone

Market Zone	Distance Radius	Bushels	Rail Cars[1]	Trucks[2]
CW Rail Line	10 mile	20,778,050	6,202	17,315
	20 mile	33,786,387	10,085	28,155
	30 mile	48,714,985	14,542	40,596
P&L Rail Line	5 mile	8,080,007	2,412	6,733
	10 mile	15,164,853	4,526	12,637
	15 mile	19,913,890	5,944	16,595
Hooper Rail Line	5 mile	10,763,880	3,213	8,970
	10 mile	21,884,991	6,533	18,237
	15 mile	31,438,247	9,384	26,199
Ritzville	10 mile	4,208,463	1,256	3,507
	20 mile	9,824,575	2,933	8,187
	30 mile	20,784,843	6,204	17,321
Snake River	35 mile	72,374,249	21,604	60,312

[1] Assumes rail car capacity of 3,350 bushels.

[2] Assumes truck capacity of 1,200 bushels and 72,000 pounds.

Table 3: Wheat Storage Capacity for Elevators Served on PCC Rail System

Elevator / Station	Bushel Capacity (000)	Car Loading Capacity
Almira	3,066	26 unit
Belmont	296	3 unit
Cement	1,000	26 unit
Cheney	674	7 unit
Colfax	1,061	7 unit
Coulee City	2,083	26 unit
Creston	754	26 unit
Davenport	3,778	26 unit
Endicott	2,950	26 unit
Fairfield	1,800	26 unit
Fallon	1,148	26 unit
Freeman	300	5 unit
Govan	509	10 unit
Hanson	765	5 unit
Hartline	2,059	26 unit
Hite	697	10 unit
McCoy	380	6 unit
Mockonema	220	8 unit
Mondovi	1,073	26 unit
Oaksdale	1,715	26 unit
Palouse	1,456	9 unit
Plaza	836	26 unit
Reardan	1,700	26 unit
Rockford	854	6 unit
Rocklyn	325	13 unit
Rosalia	551	3 unit
Spangle	1,656	26 unit
St. John	5,250	26 unit
Thornton	647	26 unit
Whelan	188	8 unit
Wilbur	4,990	26 unit
Winona	850	8 unit
Total Rail Storage	45,631	

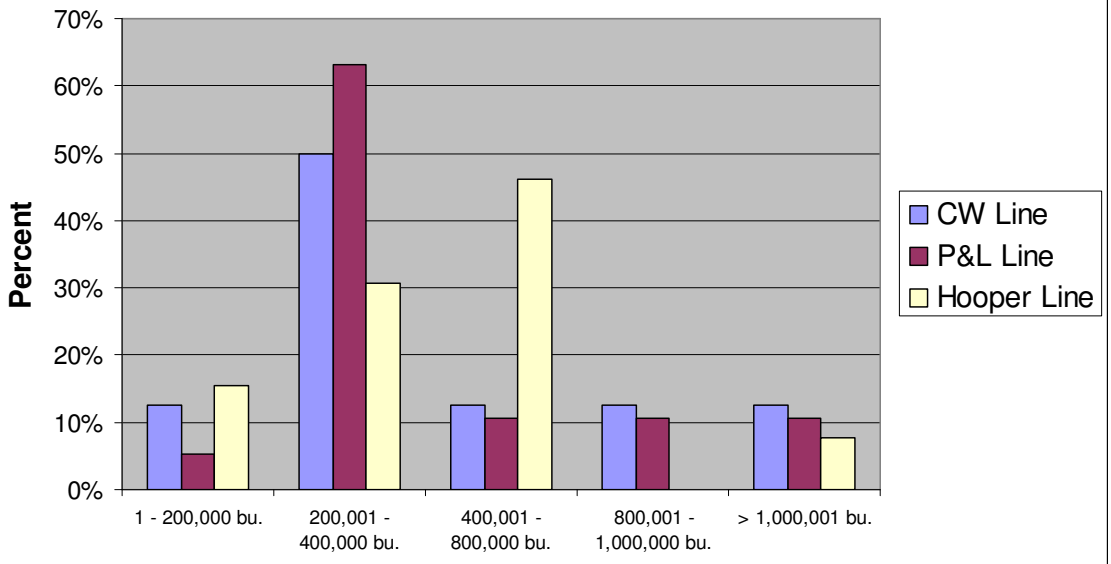
Source: UP/BNSF Grain Elevator Directories

Palouse and Coulee City Shipper Survey

A survey of Eastern Washington shippers was conducted to obtain information regarding transportation shipping characteristics, including mode/destination choices and transportation shipping rates. Thirty three firms, representing 167 locations were sent questionnaires. Completed responses were received from 51 of the 167 locations for a response rate of 28.5%. The following summarized information represents data collected from this industry survey.

While the trend is toward larger, more consolidated operations with lower per unit operating costs and shuttle train loading capabilities, there are still a significant number of medium size facilities throughout the Eastern Washington region, as represented in Figure 6. Warehouse facilities in the 200,000 to 400,000 bushel range represents the prevailing facility size for the CW (the Ritzville facility had about four million bushels) and P&L lines, with the larger volume range of 400,001 to 800,000 being the dominant size on the Hooper rail line.

Figure 6: Elevator Size Distribution, by Number of Elevators on Each PCC Rail Line Segment



PCC shippers were also asked about the proportion of grain shipments by mode/destination alternative between the years 2001 and 2005 for each PCC rail line segment. The results of these summarized findings reveal the market shifts which have occurred over time as the shuttle facility at Ritzville has grown in volume and regional presence. Not all segments of the PCC system have been equally impacted or experienced market shifts away from PCC rail movements (Figures 7, 8, 9). Shippers on the CW rail line have experienced the greatest decrease in the proportion of shipments on the PCC system, going from just above 80% in 2001 to 43% in 2005. The majority of this volume is now being shipped to Ritzville which increased from 5% in 2002 to 40% in 2005. Shipments via truck-barge and "other" mode/destinations were below 10% for shippers on the CW line, due to the long distance to the Snake/Columbia river system. Additionally, shippers along the central to eastern sections of the CW line have shifted more volume to Ritzville than those located on the western portion of the CW line.

Shippers on the P&L and Hooper rail lines have been much more balanced in the proportion of shipments between the PCC rail system and truck-barge to the river (Figures 8 and 9), illustrating the increased competition from the barge system and the overlapping market attraction zones in Figure 5 in the Eastern Palouse region. Seeking to minimize transportation costs, P&L shippers decreased shipments to the PCC system from 40% in 2001 to 22% in 2005 while increasing truck-barge shipments over the same time horizon from 25% to 41%. P&L shippers have also increased the proportion of shipments to "other" mode/destinations from 24% in 2001 to 34% in 2005, primarily rail movements on Union Pacific. Shippers on the Hooper line have decreased shipments on the PCC system from 52% in 2001 to 41% in 2005, while increasing truck-barge shipments from 43% to 58%.

Figure 7: CW Line: Proportion of Shipments by Mode/Destination Alternative

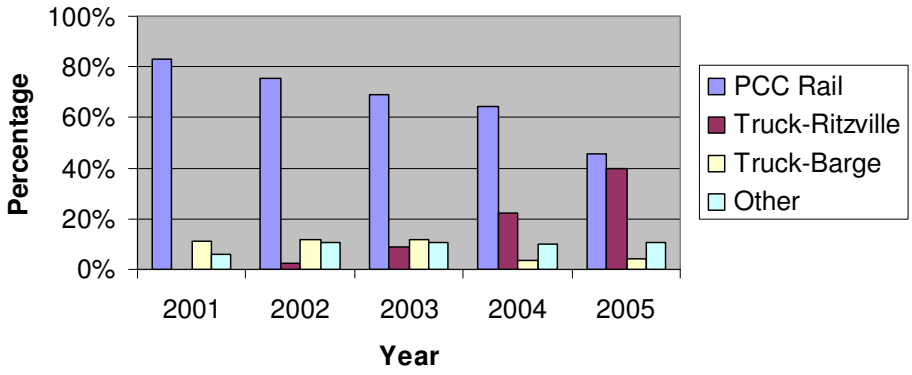


Figure 8: P&L Line: Proportion of Shipments by Mode/Destination Alternative

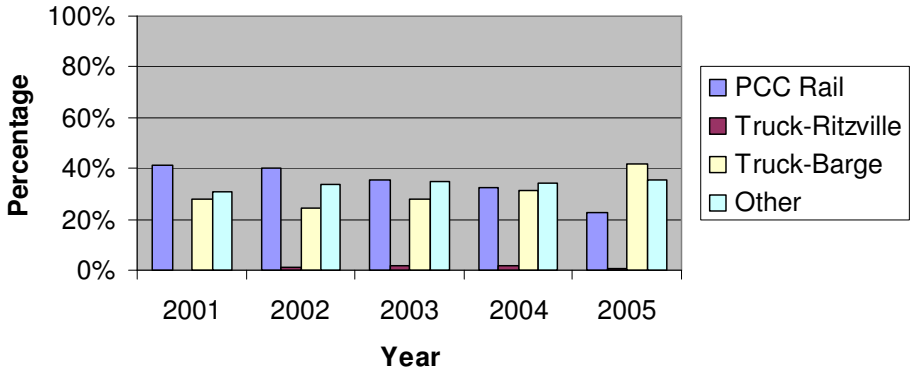
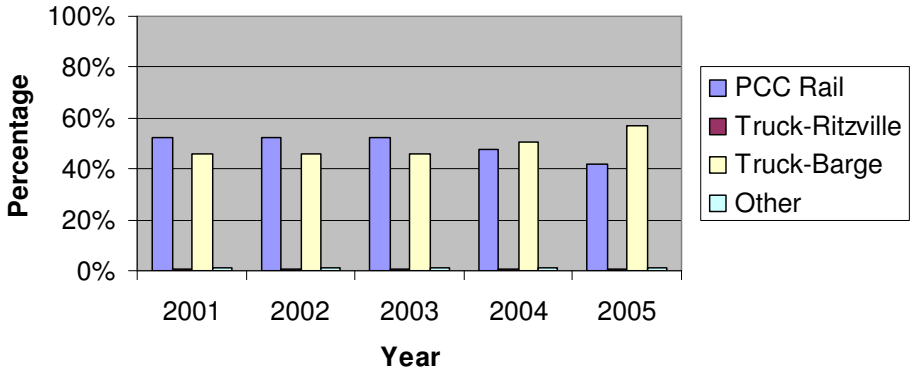


Figure 9: Hooper Line: Proportion of Shipments by Mode/Destination Alternative



Actual transportation rates for each mode/destination alternative, as provided by shipper responses, have generally increased since 2001 for all PCC rail sections (Figures 10, 11, 12). Comparison of the different transportation rates by PCC segment also reveals the competitive dynamics occurring in the Eastern Washington bulk transportation market. Transportation rates on the Hooper line are the lowest of the three PCC rail segments, ranging from 32 cents / bushel in 2001 to 41 cents / bushel in 2005. This is a direct result of the competitive forces between rail and truck-barge and the close proximity to the river transportation system. Transportation rates on the P&L line are slightly higher, ranging from 35 cents / bushel in 2001 to 50 cents / bushel in 2005, but are still lower than transportation rates on the CW line which range between 42 cents / bushel in 2001 to 55 cents / bushel in 2005. The transportation rate for "other" shipments is considerable less than shipments on PCC rail, truck-Ritzville or truck-barge but represents a relatively small proportion of shipments for each PCC segment except for the P&L line. Comparison of the transportation rates by mode/destination alternative and PCC segment also help explain the shipper's decisions regarding where/how volume is shipped. On the CW line, transportation rates for truck-Ritzville have consistently been slightly below the PCC transportation rate and considerable less than the truck-barge rate between 2001 and 2005. In a business where margins are extremely thin, one can understand why shippers on the CW line have moved toward the Ritzville market and why truck-Ritzville shipments represent a small percentage for P&L and Hooper line shippers. However, for shippers on the Hooper line, transportation rates for shipments on the PCC system have been consistently higher than both truck-barge and truck-Ritzville while volume shipments on the PCC are above 40%, perhaps indicative of the shipper's commitment to utilize the PCC system when cheaper alternatives exist.

Figure 10: CW Line Transportation Rates by Mode/Destination Alternative and Year

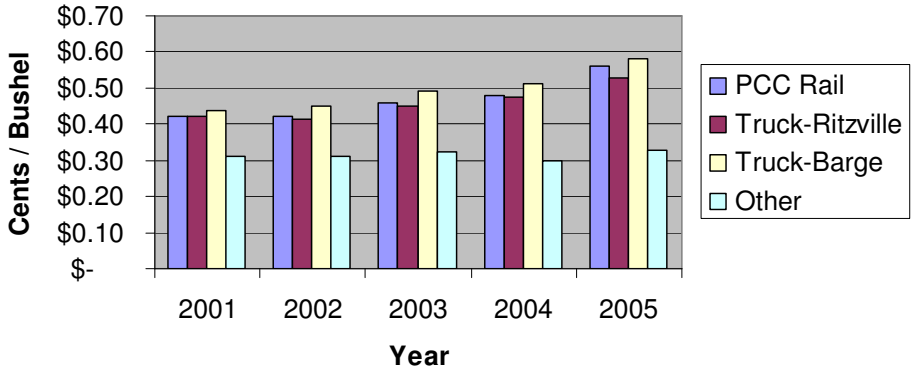


Figure 11: P&L Line Transportation Rates by Mode/Destination Alternative and Year

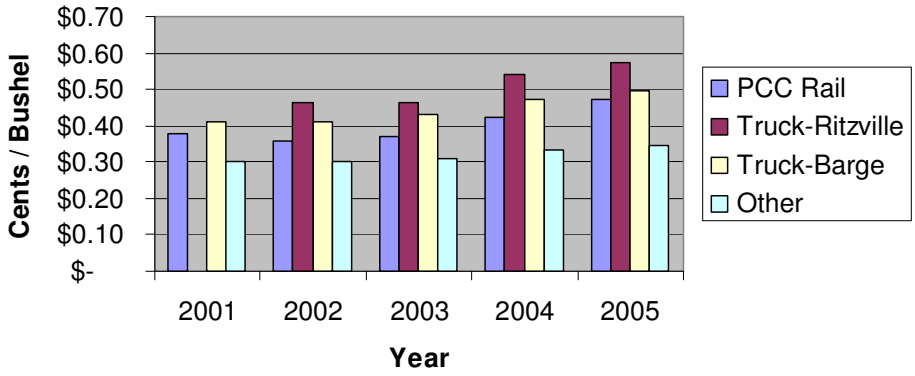
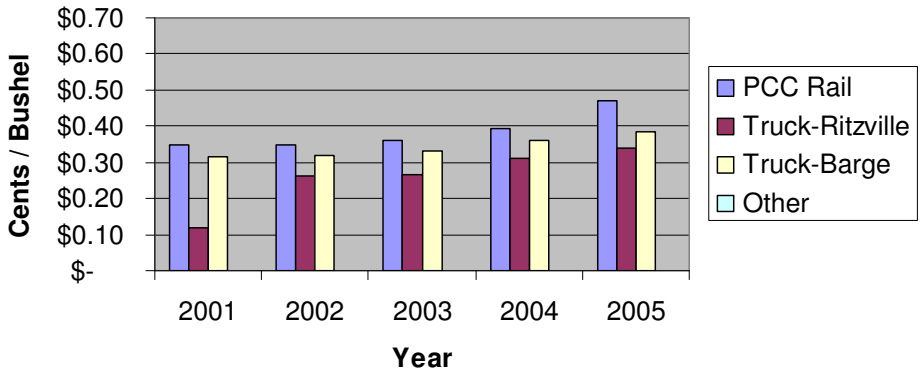


Figure 12: Hooper Line Transportation Rates by Mode/Destination Alternative and Year



Additionally, Watco has purchased and made available railcars for the shuttle system operating on the Hooper line, and has not done the same for the P&L and C&W lines.

Shippers on the PCC rail system were also asked if they would be willing to commit additional grain volumes to help insure PCC viability (Figures 13 and 14). The vast majority of shippers on the CW line (75%) indicated they would be willing to increase shipments, with the remaining 25% indicating they would not be willing to increase shipments. A very similar willingness is also shared by shippers on the P&L line, with 66% of shippers indicating they would be willing to increase PCC volumes in order to help assure system viability. Shippers on the Hooper line, however, were fairly evenly split between increasing volume (47%) and not making any volume commitments (53%). Perhaps even more surprising, when those that indicated they would be willing to ship more volume were asked to indicate the increase magnitude, the majority of respondents indicated they would be willing to increase more than 15%, especially for shippers on the CW line where 100% of respondents indicated they would be willing to make that commitment. Shippers on the P&L were evenly split between increase amounts of 10-15% (40% or respondents) and greater than 15% (40% of respondents) while the majority of Hooper shippers were willing to increase volume more than 15% (40%). These survey results, if backed by actual contracts by shippers with the PCC, would indicate a region-wide commitment on the part of grain shippers to keep the PCC system operational and viable into the future.

Figure 13: Proportion of Respondents Willing to Commit Additional Volume to PCC Rail

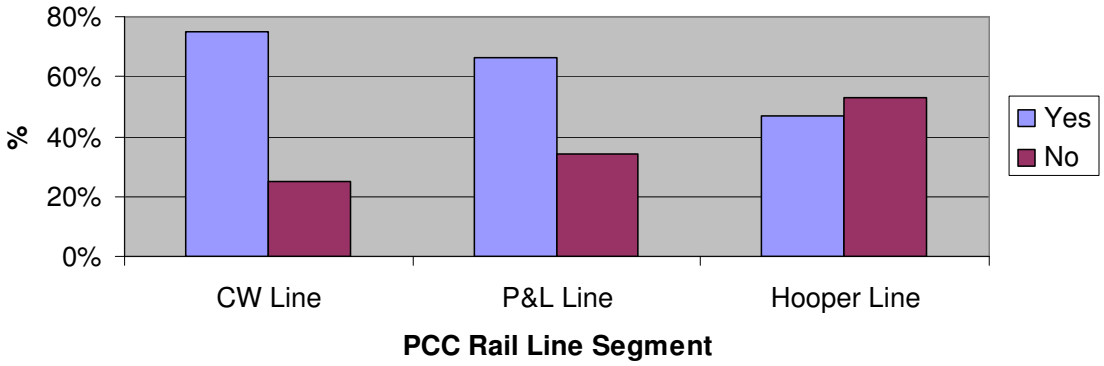
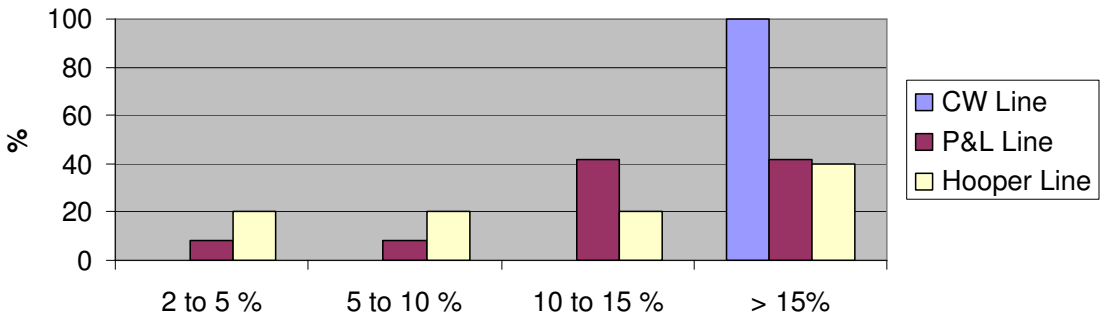


Figure 14: Proportion of Respondents that Would Be Willing to Ship Additional Volumes, by Increase Amount



Grain Shipping/Pricing Dynamics

The marketing and transportation of grain out of the Pacific Northwest is a very complex activity, conducted by a multitude of decision makers who are continually responding to constantly changing market conditions. A clearer understanding of these different types of shipping customers/decision makers may shed more light on industry wide changes, especially as it relates to modal shipping choices.

Large Grain Cooperatives:

These farmer-owned grain cooperatives handle a large proportion of grain produced in Eastern Washington. Recent consolidation in the grain industry has resulted in significant market concentration, where the top five firms (in terms of volume handled) now represent over 180 grain elevators and 47% of the total statewide grain volume (SFTA Research Report # 5, found at http://www.sfta.wsu.edu/research/reports/pdf/Rpt_5_Dynamics_of_Grain.pdf). This is up from 1994 when the top five firms had 94 elevators and controlled below 29% of the statewide production. The size of these operations opens up many avenues for how they market grain; multi-modal transportation access and availability is critical. Most of these large grain cooperatives have significant investments (in terms of fixed-costs) in both rail and barge infrastructure and equipment with partial or complete ownership in storage/handling facilities located on both rail and river. Maintaining significant investment in both transportation modes helps diversify market risk and also draws grain to regions that may not be least-cost or lowest-rate movements at all times.

One of the more common marketing tools employed by these large grain cooperatives to help minimize price risk related to transportation cost fluctuations is buying and selling rail cars in the open freight market. This is very similar to farmers employing price

hedging strategies with their wheat crop, where grain cooperatives located on rail will purchase rail cars at the beginning of the year or whenever rates are more favorable, in some cases many more cars than they may plan to utilize. Later in the year as harvest time approaches, the grain cooperative has the option of selling those grain cars if the market for cars is tight and prices much higher or utilizing them for shipping grain. This largely explains the lower proportion of shipments on the PCC system in 2004 and 2005 by the larger grain cooperatives (especially on the CW line) who benefited by taking a long position in the freight market and then later selling those cars due to extremely favorable conditions and moving grain by the next cheapest option (truck-Ritzville). This is one example where the lowest transportation rate on a given day doesn't necessarily dictate how/when/where grain will move. However, without rail access these large grain cooperatives wouldn't be able to utilize this marketing tool which would significantly limit their marketing flexibility. Given both the size of grain volume handled and the importance of participating in the freight market for the large cooperatives, they have also indicated preliminary interest in making volume commitments on the PCC system in order to help assure the lines existence.

Small-Medium Grain Cooperatives:

These types of grain cooperatives were much more prevalent 15-20 years ago, prior to the industry wide consolidations that have produced the larger grain cooperatives. These operations are generally much smaller in scale, handling less than half the volume of larger grain cooperatives and located in specific regions. These cooperatives are also much less likely to have investments in both rail and river transportation infrastructure and facilities, but rather one or the other. Also, due the limited size and scale, they are less likely to engage in positions on the freight market and are more likely to ship grain by the least-cost modal option. This is characteristic of grain cooperatives

located in the central to eastern section of the CW rail line, the southern section of the P&L rail line and the majority of the Hooper line. This is especially true on the CW line where a significant share of their shipments have moved to the Ritzville shuttle loading facility over the last two years. Without being able to take advantage of the freight market and the increased rates reflecting national car shortages closer to harvest, these shippers are at a distinct disadvantage, especially when rail car availability is problematic as it was for much of 2004 (the car problem was exacerbated in 2005 by BNSF not providing cars other than to the Hooper shuttle program, a large bumper crop in the region and the national traffic shifts caused by Katrina). Thus, these types of operations are much more likely to move grain to where the rates are the lowest but also benefit from having the multi-modal competition present.

Large Grain Producer Operations:

Consolidation has also occurred for grain production operations throughout Eastern Washington. Many of these producers are members of a grain cooperative and market some portion of their crop through these grain elevators. However, some of the larger operations possess a significant amount of on-farm grain storage and also own their own trucks and ship directly from the farm to barge-loading facilities along the Snake River. While these producers frequently engage in option and hedging strategies, they are not large enough to participate in the freight market (buying/selling rail cars). Generally speaking, this type of shipper moves grain in the least cost fashion but relies upon different modes to maintain competitive shipping alternatives.

Small-Medium Grain Producer Operations:

These producers are typically older farmers, with farms ranging in size from 1,000 to 5,000 acres and market the majority of their grain through their local cooperative. These

producers are less likely to ship truck-barge directly to a river port unless they are located near the river, but generally ship to the closest elevator. They also have less investment in larger truck equipment that would allow significant transport by truck.

River Transportation as a Continuing Competitor to the PCC System and Ritzville

Barge transportation on the Columbia-Snake obviously serves as the competitor to the railroad, both the mainline and the PCC system, conditioning the rates that can be charged and the areas that will be served. This competitive relationship between truck-barge and rail movements is the original business model under which Watco anticipated a market opportunity. While they did not anticipate competing with the shuttle loader at Ritzville, the dynamic, ever-changing business environment requires adjustment to changing market conditions. These types of business dynamics and market responses will continue and the river will continue to play an integral role.

The principal and critical constraint on the barge system is a need for continued dredging at the entrances to some terminals and in some parts of the navigation channel. The U.S. Army Corps of Engineers has a plan to provide the required dredging, costing about $2.1 to $4.9 million per year over a 70+ year period, and this plan was partially implemented this winter, due to a compromise between the Army Corps of Engineers and the Tribes/environmental interests. Without dredging, the barges had, in some cases, been loaded light (as much as 35% light), decreasing efficiency and increasing per unit costs to shippers. Shippers and ports had stepped in and contracted for private dredging until this compromise was reached. The future status of this effort remains uncertain.

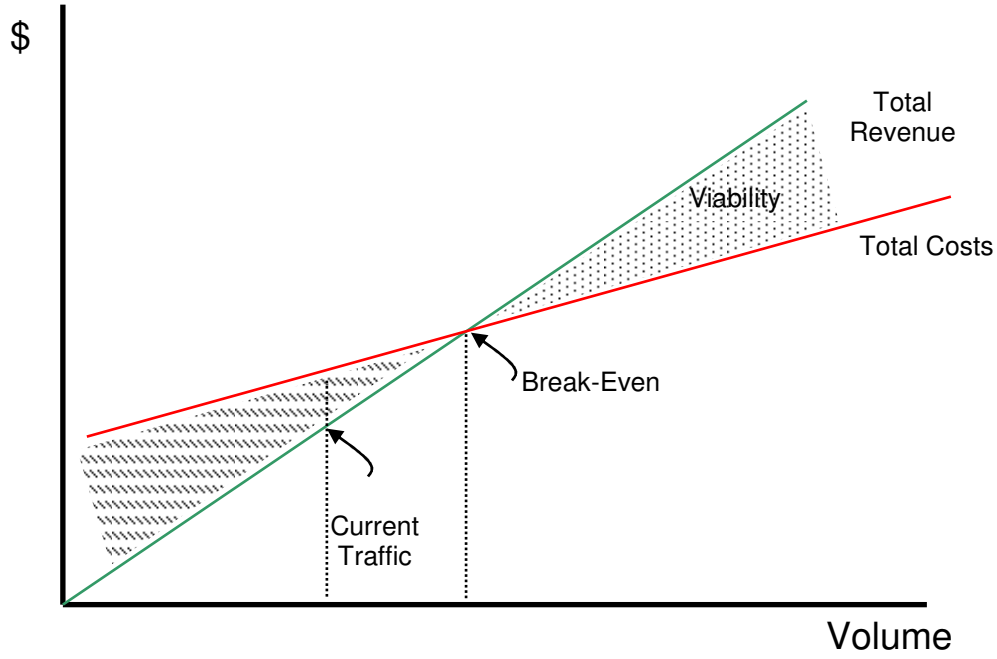
A major potential impact is the continued ruling by a U.S. District Court judge that a federal salmon recovery strategy adopted in December 2000 is illegal because it relies improperly on actions that are not "reasonably certain to occur". Judge James A. Redden said that the reliance on certain federal and non-federal activities results in a false assessment that federal Columbia/Snake river hydro-system dams can be operated as planned without jeopardizing the existence of salmon and steelhead stocks listed under the Endangered Species Act. Negotiations continue as to whether dam removal is to remain an item under discussion.

The uncertainty surrounding both the halt in annual dredging and the renewed possibility (though extremely low) of breaching of some dams has a direct effect on the PCC network. First, the competitive position of the short line railroad is greatly enhanced if either of these actions continues. Secondly, in the extreme case, the need for service from the line is greatly increased since loss of dredging or implementation of a river draw down will both necessitate hauling grains and products to the Tri-City area, if barge is to be accessed and efficiently used in the future. If barge is no longer competitive, then rail movement the full distance to the port becomes necessary, and, importantly, new traffic for both the originating PCC system and the long haul Class I railroads is created. Thus, the state may recognize value in maintaining the three-legged stool of three modes as part of the total transportation system.

FINANCIAL / BREAK-EVEN ANALYSIS

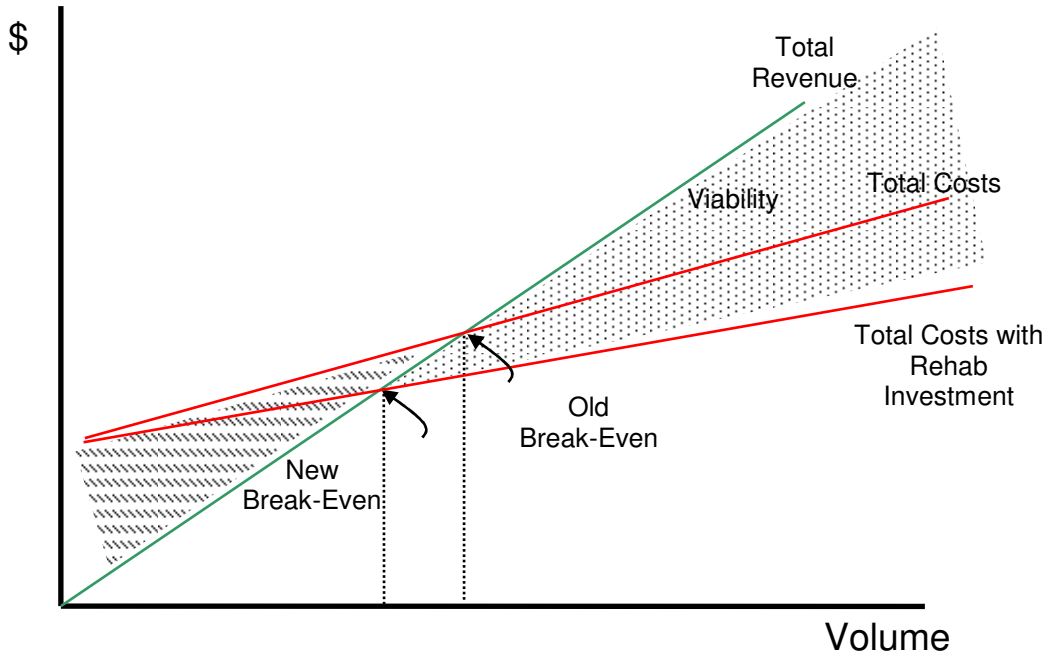
The heart of economic feasibility and sustainability of a railroad is indicated in Figure 15. As a fairly reasonable example of the situation surrounding the operation of the total PCC railroad, consider the slope of the revenue line to be around $420 per car (actual realized rates vary but generally are around this figure). The cost line indicates the increase in total costs of operation, including a contribution to any operating agency (Watco in our example), as volume increases. Initially at low levels of traffic, the costs are significantly above revenue, resulting in a loss to the railroad firm. As increased volumes of carloads are realized on the line, the point is reached where revenues equal costs, including the corporate contribution, or the break-even point.

Figure 15: Break-Even Analysis



If, as indicated in Figure 16, the costs of operation are decreased by rehabilitation investments, from exterior sources, the break even volume could actually shift to a lower amount. So, under the lowered cost scenario, the initial volume of cars generates a significant difference between revenue and costs, an amount that would be available for increased maintenance investments for each mile in the line.

Figure 16: Break-Even Analysis with Rehabilitation



Examination of the pro forma details on all three branch lines indicates that, in addition to the decrease in variable operating costs, other "fixed operating expenses" could be decreased. Needed track expenditures, after rehabilitation, might go down, subject to the need to maintain the track at class level II. Rail car leases ($247,360 for the CW Line) could possibly be decreased, at least on the CW Line, by the use of negotiated State owned Grain Train cars. Property taxes and insurance ($35,840) might decrease on the CW Line if the track is owned by the State or a shippers association. In sum, the

cost decrease estimate suggested above is probably conservative, given the numbers provided by Watco.

Pro forma information for the 2005 operating year for all three branch lines was provided by Watco to allow specific examination of this financial situation. This brief analysis, done by Tom Mclaughlin of Tyee Partners, LLC, is based on those figures as presented by Watco, with no actual books or tax records being audited by Tyee Partners, Inc.

The financial information for the three branch lines is summarized in Table 4 below. The individual economic viability of the three lines varies substantially, with the PV Hooper Line showing a positive return, even after a corporate allocation (withdrawal), and the P&L Line experiencing a loss in 2005 of almost $460,000. Over all, the PCC experienced, based on this version of the Watco numbers, a loss in 2005 of $575,000, of which almost $200,000 was for corporate allocations to the Watco's home office. But, as will be examined and developed later in this report, revenues and annual carloads in 2005 were down due to Watco's elimination service in October, 2005 by either embargo (CW Line) or substantial surcharge (P&L Line).

There are substantial concerns with these numbers, especially looking at the P&L Line where variable costs exceed the revenue created by the level of movements. Such a situation defies economic logic since any increase in volume potentially increases the loss. Further, the variable expenses on the CW Line are $577,957 for 2,150 loads, an average of $268.82 per carload. The P&L Line shows variable costs of $678,173 for 1,280 carloads, an average of $529.82. Such a discrepancy indicates, according to Tyee, concurred with by these authors, a problem with the cost model or the information itself.

Table 4: PCC Three Branch Line Financial Comparatives, 2005

	CW Line Projected (2005)	Hooper Line Actual 2005	P & L Line Actual 2005
Car Loads	2,150	2,028	1,280
Revenue	$960,214	$843,351	$542,631
Expense			
Variable Operating	$577,957	507,512	$678,173
Fixed Operating	$450,764	228,126	$277,455
Total Operating	$1,028,721	$735,638	$955,628
Operating Profit (Loss)	$(68,507)	$107,173	$(412,997)
Corporation Allocation	$81,618	$71,685	$46,124
Net Profit (Loss)	$(150,125)	$36,028	$(459,121)

Adapted from Tyee Partners, LLC Financial Analysis

Notably absent from the financial data offered by Watco is any indication of the synergistic benefits among the lines of sharing overhead, equipment, power or employees. Such economies of size are almost always found in such co-mingling of resources within a firm. Such economies may be found under operation by alternative railroad management.

CW Line Analysis

The following financial analysis for each branch line recognizes concerns with Watco's financial data. However, the State doesn't have financial rights to Watco's financial reports and therefore this study made use of the unconfirmed data provided by Watco (Table 5). Tyee determines, using the projected cost figures provided by Watco, what the volume would need to be on the line to be at break even for the year, including the

corporate allocation of $81,618 . This volume was determined to be 2,995 cars for the year. In the analysis, revenue and variable costs of operation are adjusted to reflect the new movements, but no improvements to track or operations at the higher speed level are assumed.

Based on Watco Projections, What are the Impacts on Profitability of Increased Volume or Accelerated Track Rehabilitation?

Table 5: CW Line Financial Projections: Two Alternative Scenarios

	Projected (2005)	Volume Increased	Track Rehabilitation Accelerated
Car Loads	2,150	2,995	2,150
Revenue	$960,214	$1,337,600	$960,214
Expense			
Variable Operating	$577,957	$805,108	$384,613
Fixed Operating	$450,764	$450,764	$450,764
Total Operating	$1,028,721	$1,255,872	$835,377
Operating Profit (Loss)	$(68,507)	$81,729	$124,837
Corporation Allocation	$81,618	$81,618	$81,618
Net Profit (Loss)	$(150,125)	$111	$43,219

Further C&W Line analysis was done focusing on an improvement in operational efficiency if a rehabilitation investment of $8,554,450 is moved up from 2005-11 to near term of 2005-07, with no changes in the projected 2005 volume of 2,150 cars per year. The analysis assumes labor cost savings of 50% due to increasing the train speed on the track from 10 mph to 25 mph (Tolliver in his earlier analysis found that as density increased, the cost savings per car were around $75. At 2,150 cars, those savings would be $161,250, within $32,000 of the Tyee Partners, Inc. estimate, generally corroborating the estimate in the Tyee analysis). Under this scenario the CW line

generates some revenue over operating costs. These pro forma figures from Watco, and the initial analyses by Tyee Partners, Inc., allowed these authors to further consider an additional scenario where volume of cars increased to 2,995 and the lowered operating costs from earlier rehabilitation investment, as provided in Table 6. The analysis shows that under this situation the CW line can generate $379,618 over operating costs, with a net, after Watco's corporate allocation of $81,618, of almost $300,000.

It should be again noted that the split between operating variable cost and operating fixed cost is not explained, along with a depreciation charge, in the Watco financial information. Fuller information would allow more detailed economic analysis.

Based on Watco Projections, What are the Impacts on Profitability of Increased Volume and Earlier Track Rehabilitation?

Table 6: CW Line Financial Projections: Combined Volume Increase and Rehab

	Projected (2005)	Both Volume Increase and Accelerated Rehabilitation
Car Loads	2,150	2,995
Revenue	$960,214	$1,337,600
Expense		
Variable Operating	$577,957	$507,218
Fixed Operating	$450,764	$450,764
Total Operating	$1,028,721	$957,982
Operating Profit (Loss)	$(68,507)	$379,618
Corporation Allocation	$81,618	$81,618
Net Profit (Loss)	$(150,125)	$298,000

Using Actual 2005 Figures from Watco, What are the Breakeven Levels, the Profit or Loss, and the Effect of Varying Levels of Maintenance?

Tyee Partners, LLC was then asked to re-examine the numbers offered by Watco as reflected in the actual year-end reports (Table 7). Specific attention was paid to:

- The revised financial information from Watco for 2005 actual results.
- Break-Even levels with full track maintenance and rehabilitation spending decreasing in increments of $1,000 from $8,000 to $3,000 and noting the assumptions.
- Operating profits (losses) at carload levels of 4,000, 3,500, 3,000 and 2,500 with full maintenance spending at $8,000 per mile annually.

Comparative financial reporting differences:

Table 7: Revised Financial Information from Watco for 2005 Year-End Actual

	2005 Projected	2005 Actual
Revenue (Carloads)	$960,214	$652,256
Lease Car – Per Diem	$172,896	$0
Carloads	2,150	1,561
Average Revenue/Carload	$446.61	$417.84
Average Variable Cost/Carload	$268.82	$323.70
Number of Locomotives	3	4
Lease Car Expense Corporation Allocation	$222,595	$0
(Loss)	($150,125)	($266,592)

Tyee conditions the presentation of the above numbers offered by Watco by stating information that would be necessary for more complete analysis of such data:

> *"Why would an additional locomotive be added (3 to 4) when carload volume has decreased by 27%?*
>
> *Why have variable costs per car load increased from $268.82 to $323.70? This is a 20% increase based on information supplied within a 5 month span of time.*

If the line was shut down on October 5, 2005, the results as presented appear to not reflect the true operating costs, but include costs associated with non-operating periods."

Tyee further states:

"*When interim financial statements are prepared and submitted to outside parties, it is a normal operating practice to footnote significant reporting changes explaining restatements, reclassifications, or transfer of revenue or expenses to other categories. In these statements, there are no explanations related to the reporting changes or significant differences."*

How many carloads does the CW Branch Operation need to ship to Break-Even, at different track maintenance spending levels?

Assumptions:

- *All track sections will be rehabilitated to Class 2 levels to enable 25 mph speeds on all sections of the track.*
- *The track rehabilitation cost is reported as $8,544,450. However, this level of spending may not be sufficient to restore the track entirely to Class 2 levels. This amount is based on 2003 dollars and is understood to represent the cost to restore approximately75% of the track.*
- *The speed and operating efficiency will decrease in direct proportion with decreased spending on track maintenance resulting in deteriorating track condition.*
- *Average car load revenue of $417.84 remains constant.*
- *Average variable costs per carload would gradually increase at the same percentage change as the decrease in track maintenance costs. It is assumed the cutbacks in track maintenance will reduce speeds on all or some sections of the track.*
- *If track maintenance costs are not maintained at national average levels, the track rehabilitation will deteriorate back to the current condition.*

Track Maintenance Spending	Break Even Volumes	Variable Cost per Carload
$8,000	**4.812**	**$ 207.40**
$7,000	**4,735**	**$ 226.79**
$6,000	**4,640**	**$ 246.17**
$5,000	**4,521**	**$ 265.55**
$4,000	**4,369**	**$ 284.96**
$3,000	**4,163**	**$ 304.32**

As spending decreases on track maintenance, Tyee's analysis shows the Break Even point will decrease because spending is being deferred. There will be offsetting operating efficiency losses, but the real cost comes at the point when the track condition deteriorates back to the Class I or 10 mph condition. The track rehabilitation cost in 2003 or 2004 dollars is $8.5 million. The impact of spending less than the national average on track maintenance has short term operating benefits to an operator, but has significant long-term rehabilitation impacts to the owner, especially if the CW Branch is purchased by Washington State.

What is the Impact on Profit (Loss) at Different Levels of Traffic, With $8,000 Annual Maintenance Per Mile?

Table 8: Profit (Loss) with Operating levels at 4,000, 3,500, 3,000, and 2,500 Car Loads and Full Maintenance Spending at $8,000 per mile Annually				
Carload	4,000	3,500	3,000	2,500
Revenue/Carload	$417.84	$417.84	$417.84	$417.84
Variable Cost/Carload	$207.40	$207.40	$207.40	$207.40
Track Maintenance	$8,000	$8,000	$8,000	$8,000
Profit (Loss)	($170,832)	($276,053)	($381,274)	($486,495)

The Tyee analysis shows the volumes above at the current average carload revenues and variable cost will yield operating losses, assuming full track maintenance costs to maintain the track condition at Class 2 or 25 mph levels. But the analysis also indicates the level of subsidy that might allow the rail line to be maintained at the high level of $8,000 per mile, the national average.

Tyee identified issues of continuing concern about his analysis and the CW line, from his perspective:

- "Increasing volume will most likely require further price concessions
- Limited opportunity for increased volumes or new business in the region
- Strong competition (Ritzville Shuttle Loader)
- Assumes WSDOT cost of $ 8,544,450 for Track Rehabilitation
- Assumes track maintenance costs will be maintained at $8,000 per mile annual average national standards
- The current operating method, competitive market, and full track rehabilitation make it difficult to realize an adequate Return on Investment (ROI) for a private company operator
- Watco shows Leased Car – Per Diem revenue of $172, 896. The source and continuation of this revenue source needs to be understood."

Tyee then offers the following conclusions (these authors find the same problems for all of the Watco information):

In my professional opinion there are several issues that need to be addressed:

- *"The information supplied by Watco is confusing and needs to be clarified. The September information clearly states they are actual results from January – July and projected for August – December. The more recent information has been submitted as being actual results for 2005. Most trend financial statements show actual results by month. The format supplied by Watco appears to be based on annual numbers and then divided by 12 for monthly totals. There is no source data to know where the annual numbers come from or the ability to tie the numbers back to source data.*

- *Significant cost changes need to be explained. Operations on the CW Branch were ceased on October 5, 2005. However, the variable costs as reported by Watco, indicate these costs continued, which makes no sense. If train movement ceases, so should labor, fuel, and other variable cost components. If staff were reallocated, this needs to be stated in a footnote. When operations ceased in October, why did the number of locomotives increase from 3 to 4 from the September reports to the final year-end reports?*

- *WSDOT is considering a large investment in the purchase of the CW Branch and/or the financial subsidy of the PCC Railroad. These decision should be based on an in-depth due diligence of actual information, not projected Performa information, supplied by the seller (Watco). A normal acquisition of a business would be based on detailed information, such as actual Trial Balances, Monthly Income Statements, Balance Sheets, and supporting details reports such as Payroll Registers, Invoice Registers, etc. As part of the due diligence process , the seller of an entity is required to furnish documents that have been audited by an independent third party (CPA firm) or have been filed with government agencies (tax returns). The same process should be followed as it relates to the PCC Railroad and the CW Branch."*

In sum, these authors agree with the Tyee analysis showing the near term current viability of the existing CW line is decreased as assumed maintenance per mile is increased. At the national average of $8,000 no further rehabilitation is expected to be required since consistent maintenance eliminates the need. Further, if the Watco figures and suggested experience are realized, significant increases in traffic or revenue would be required to support the national maintenance average of $8,000 per mile.

P&L Line Analysis

The State of Washington purchased the P&L line Right of Way (ROW) and track structure in 2004. Watco retained the exclusive right to operate the P&L line. In September 2005 Watco informed the State that this branch line no longer provides safe

and efficient transportation rail services for investors or customers. Watco informed WSDOT that they planned to terminate of operations on the P&L Line and move P&L traffic from Wilson Siding and Moscow, Idaho, to the PV Hooper Line, representing $170,000 in annual revenue.

The P&L Line is a 106 mile line between Marshall and Pullman, with some connections to facilities in Idaho. Full rehabilitation to Class 2 status (25 mph) could cut travel time and therefore variable operating costs approximately half. The State of Washington's rehabilitation plan includes $7,523,350 for the P&L Line ($1,260,000 in 2005-07, $2,069,750 in 2007-09, $3,490,000 in 2009-11, and $603,000 for 2011-13). In Fall 2005 Watco asked the state to move all appropriated rehabilitation funds to the PV Hooper Line, as part of their plans to abandon service on the P&L and C&W Lines

.

What is the Impact on Viability and Break-Even of Track Rehabilitation?

Table 9: Financial Comparison for P&L Line

	Actual 2005	Break-even Volume W/Track Rehab
Car Loads	**1,280**	**2,230**
Revenue	**$ 542,631**	**$ 945,364**
Variable Operating Expenses	**$ 678,173**	**$ 621,321**
Fixed Operating Expenses	**$ 277,455**	**$ 277,455**
Total Operating Expenses	**$ 955,628**	**$ 898,776**
Operating Profit (Loss)	**$ (412,997)**	**$ 46,588**
Corporate Allocation	**$ 46,124**	**$ 46,124**
Net Profit (Loss)	**$ (459,121)**	**$ 464**

Tyee identifies the break even volume that would be needed, after the $7,523,350 rehabilitation identified above has been accomplished, to achieve a positive cash flow on

the P&L. Even with a decrease in variable costs per car from $530 to $278, The P&L Line needs to grow volume by about a 75 percent above the level in 2005 (12 % above the high reached in1999) to reach break even. The operational savings gained by rehabilitation of the rail line is unlikely to or barely brings the line into profitability. In addition, Watco's maintenance expenditures on the P&L Line averaged only about $2,411 per mile; annual track maintenance below $6-8,000 may result in a degraded asset, slower speeds and increased variable costs.

PV Hooper Line

The PV Hooper Line, as indicated earlier, is currently a marginally viable line. Watco proposed that the currently allocated WSDOT Track Rehabilitation funding designated for all three lines, be used solely on the PV Hooper Line. They further suggested that they operate the PV Hooper Line with a different operating model, one that included abandonment of service on the P&L Line and capturing of that traffic on the PV Hooper.

Watco has deferred maintenance on the PV Hooper Line, so many of the track segments can be operated at only 10 mph. If the track were upgraded to Class 2 (25 mph), time and cost of operation would be cut to approximately half, resulting in lower operating costs and improved service. The State of Washington has approved $5,021,200 to rehabilitate this line ($3,835,250 in 2007-09, and $1,185,950 in 2009-11). Tyee outlines the financial information provided by Watco as follows:

- *The first set shows the current operating model. This shows the PV Hooper Branch Line as it is currently operating on an 84 mile stretch between Hooper and Pullman, with an additional branch from Winona to Thornton. The current car load volume is 169 per monthly average for 2,028 per year.*

- *The second set shows a proposed operating model that changes the operations to re-route traffic from Wilson Siding and Moscow, Idaho, currently serviced by the P&L Branch Line, to the PV Hooper Branch. This operating model assumes the termination of the P&L Branch Line operations and increases the PV Hooper Branch Line to 115 miles of track. The average use would increase to 199 car loads per month or 2,390 car loads per year, a shift of $170,000 of revenue. This changes the destination to Wallula to transfer to barges (rail to barge) as an alternative to rail to coast transport primarily to Vancouver, WA. No information has been provided to explain financial impacts with these changes to barge transport as compared to rail transport to the coast. This alternative includes the proposed WSDOT investment in Track Rehabilitation of $1,582,000.*
- *The third set shows the proposed re-routing operating model without the impact of WSDOT Track Rehabilitation funding.*

What is the Impact if Watco is Able to Divert $120,000 of Revenue and Rehabilitation Funds from the P&L to the PV Hooper Line?

Table 10: Financial Comparisons on PV Hooper Line

	Actual 2005	Re-route w/ State Rehab	Re-route w/o State Rehab
Car Loads	**2,028**	**2,390**	**2,390**
Revenue	**$ 843,351**	**$1,022,744**	**$ 1,022,744**
Variable Operating Expenses	**$ 507,512**	**$ 530,102**	**$ 530,102**
Fixed Operating Expenses	**$ 228,126**	**$ 230,530**	**$ 230,530**
Total Operating Expenses	**$ 735,638**	**$ 760,632**	**$ 760,632**
Operating Profit (Loss)	**$ 107,713**	**$ 242,112**	**$ 242,112**
Corporate Allocation	**$ 71,685**	**$ 85,233**	**$ 85,233**
Depreciation	**$ 0**	**$ 134,112**	**$ 286,558**
Net Profit (Loss)	**$ 36,028**	**$ 22,767**	**$ (129,679)**
Net Profit (loss) without Depreciation expense		**$ 156,879**	**$ 156,879**

This set of financial figures suggests that only with a combination of rehabilitation by the WSDOT and the reallocation of $170,000 from the P&L Line will there be an increase in net profit. Yet, as pointed out by Tyee, the depreciation expense and its construction is suspect. If this expense is removed as done by these authors above, this line makes a $156,879 profit with or without the rehabilitation investment, indicating the uncertainty that should be around these financial numbers. Watco's maintenance expenses on the PV Hooper line have averaged $2,367 per mile, 30-40% of the normal $6,000 to $8,000 required to fully maintain the trackage.

MARKET POTENTIAL

The viability of any railroad or specific rail line is heavily determined by the traffic on that line. Increased traffic lowers per car costs and increases the revenue on the line. The markets and attendant traffic available to the PCC line are heavily reliant on the agricultural industry in the region. The PCC's customer base is predominately grain shippers with stable wheat production volumes. It is useful to identify near-term market opportunities which may impact the economic viability of the line. As indicated in the following table, and previous survey results, as well as the interviews and discussions in the region by these authors, it appears that movements towards overall viability are possible, especially with the rehabilitation funds allocated to these lines. However, the impact of maintenance expenses at the higher levels will affect that potential for unsubsidized operation.

Full Year of Operation

Both of the lines' performances in 2005 were affected by the surcharge and embargo put on the CW Line and the P&L line in October of 2005 (For a detailed description of the various market potentials specific to the CW Line, see Casavant and Jessup, 2006). Since October, November and December are three of the four highest volume months in the typical shipping year, an additional 716 and 428 cars on the CW Line and the P&L Lines, respectively, could have been moved in 2005. No market conditions were identified in the interviews to suggest this is unreasonable.

Scoot Train Proposal for the CW Line

The possibility of this recovery occurring on the CW Line is enhanced by a new shuttle arrangement currently under discussion among the BNSF, The Templin-Terminal at

Ritzville, The PCC railroad, local shippers and the WSDOT. It involves using 78 car "Scoot-Trains", essentially a shuttle movement, to move grain on the CW line to the 110 car shuttle loader facility at Ritzville.

This concept, while only in the talking stage at this point, does offer potential recovery of traffic to the CW line, with competitive rates to truck-barge movements and efficiency gains for most parties. Contracts and commitments will have to be negotiated and determined.

Geiger Spur: Traffic and Economic Growth

Some of the proposed traffic for the CW line is probable at best and only possible at worst. The traffic from the new Geiger Spur, however, has potential to add to the revenue picture of the CW line.

Transformers and Heavy Equipment: Security and Traffic

The Bureau of Reclamation has determined that up to 46 transformers will be needed at Grand Coulee Dam over the next six years, equipment that is over-height and over-weight and would need special permits and carriers to travel on state highways. Though these extra ordinary movements are not large in volume, they will generate additional revenue since they are expected to be moved at significantly higher rates than a grain hopper car.

Bio-Diesel Production

Various parties have discussed the possibility of locating a crushing plant on the CW line and other lines in eastern Washington. This process, where canola and other crops would be transformed into oil and later blended with diesel fuel to create a bio-diesel fuel mix, has received a boost for near term production from the legislature. The House

recently approved an immediate $9 million emergency loan package. Though the locations of any crushing plants have not been specified, there is potential to site new plants that would generate additional rail traffic on the PCC.

Forest Products and Minerals

Survey results and discussions with potential mining operations in Idaho indicate the possibility of new traffic being generated in the area of interest for the PCC. While not operating at this time a minerals firm in Idaho, I-Minerals has indicated significant traffic for the PCC could be forth coming. Similarly, increased forest products production by Bennett Lumber and shipment by rail has been identified as future possibilities.

INVENTORY OF PUBLIC BENEFITS

The most commonly cited public benefit of retaining railroad service on the PCC system is the 1,561-2,150 or more carloads that still move by the railroad and do not move on the highways in the region. If these carloads were transported by truck it would generate up to 6,600 truckloads in the region around the CW line. Some of these would be both short and long hauls (20 to 91 miles) to the shuttle train facility and others might be consistently longer hauls to the river. In all cases those movements would result in accelerated wear on those roadways.

Denver Tolliver from the Upper Great Plains Transportation Institute has completed an analysis of highway pavement impacts in the event that the CW line, PV Hooper and P&L Lines are abandoned and this traffic is redirected onto county and state highways. Tolliver offers the following informative summary of his findings for the CW Line (For the full report, see Tolliver and HDR Engineering, Inc.).

> *The purpose of this study is to estimate the highway impacts resulting from traffic diversions from the Central Washington (CW) rail line. In 1999, approximately 4,300 carloads were originated from stations on the CW line. Another 3,971 carloads were originated in 2000. In comparison, only 2,150 carloads were originated in 2005. With the exception of a few carloads of farm implements, grain is the only commodity that is regularly handled on the line. Apparently, much of the traffic originated during 1999 and 2000 has shifted to trucks and is already moving over highways in the region.*
>
> ***Most Likely Post-Abandonment Scenario**. If the CW line is abandoned, traffic that is currently moving by rail will be trucked to barge transfer facilities or to the shuttle-train terminal in Ritzville. In order to identify the most likely post-abandonment destinations and potentially-impacted highways, the cost of transshipping grain via Ritzville was compared to the cost of transshipping grain via river ports. The comparison considered trucking cost to the transshipment location, transfer cost, and rail and barge rates to Portland and Kalama. When all things are considered, Ritzville is the most likely post-abandonment destination.*
>
> ***Impacted Routes**. The shortest path was identified from each station to Ritzville. Many of these routes include county roads. The estimated costs are a*

mixture of state and county road impacts. Impacted county roads include Kiner, Monson, Rosenoff, Waukon, Rocklyn, and Danekas. Impacted state highways include SR-17, SR-21, and SR-28.

***State Highway Impact Model**. State highways are analyzed using an incremental thickness model and data derived from the 2005 Washington State Pavement Management System. The incremental model is an abstract representation of the pavement rehabilitation process using overlays. It is based on the AASHTO rehabilitation/overlay method. The model determines the additional overlay thickness needed to accommodate the new truck traffic. The incremental method assumes that the structural number (SN) of a pavement is closely matched to existing truck traffic.*

***Estimated State Highway Impacts**. An additional $3.4 million in resurfacing cost will be incurred in future years if the CW line is abandoned. Of this total, $2.8 million will be needed for SR-21, portions of which have structural numbers of less than 2.0. This estimate is quite conservative because some segments of SR-21 with bituminous surfaces (i.e., BST pavements) may need reconstruction. The portion of SR-21 between mileposts 41 and 55.7 is of special concern. These BST sections have SN values ranging from 1.2 to 1.7. The base layers are untreated and relatively thin (e.g., 6 inches). If this portion of SR-21 has to be reconstructed, the incremental cost of state highways will increase from $3.4 million to $11.5 million.*

***County Road Impact Analysis**. The recent diversion of traffic from the CW line has increased truck trips on many county roads. At present, there are significant mismatches between structural numbers and truck traffic. In these cases, the incremental method may understate highway rebuilding costs. Thus, the SN required for existing and incremental traffic is computed directly from the pavement design equation. Although this approach identifies the increased structural numbers needed for impacted highways, it is not a pure incremental method—i.e., it does not distinguish between the costs attributable to the 2,150 carloads on the line and recently diverted traffic.*

***Estimated County Road Impacts**. Two sets of estimates are described in the report: (1) those prepared by Adams and Lincoln counties, and (2) those derived using the model described above. The model suggests that portions of Danekas, Hills, Monson, and Waukon Roads may need to be reconstructed, while the structural capacity of the remaining segments can be increased through resurfacing. The total cost of this solution is $21.7 million. This estimate is substantially lower than the total county estimate of $51.4 million for full reconstruction of impacted sections. Because the counties' estimates are based on field data and detailed engineering knowledge of soils and base materials, they have the greatest credence.*

***Comprehensive vs. Incremental Impacts**. The $21.7 million estimate reflects the needs of both existing and incremental traffic. From a cost-responsibility perspective, these costs are traceable to traffic originated from CW stations. However, some of these costs may be incurred regardless of whether the additional 2,150 carloads are added to the highways. The higher county estimates consider all traffic (current and projected) and the preferred*

improvement option of reconstruction. There are some differences between the two sets of cost estimates because of route assumptions.

***Data Limitations and Analysis Issues**. The cost estimates presented in this report are not purely incremental because they reflect traffic diversions from the CW line since 2000, as well as other grain truck traffic in the region. However, most of these impacts are attributable to past or projected traffic diversions from the line. The estimates are subject to several key assumptions and limitations: (1) The mix of commodities shipped from the line is unknown. It is assumed that all 2,150 cars are loaded with grain. (2) Inbound truck shipments to elevators are assumed to remain the same. The analysis focuses only on outbound movements from CW elevators. (3) Several roads in Spokane County are impacted by truck shipments from stations located at the eastern end of the line. However, these stations do not currently ship by rail. Therefore, their impacts are not analyzed. (4) Several BST segments of SR-21 may need reconstruction, which would greatly increase the projected cost of state highway improvements.*

***Conclusion**. When county road impacts are viewed from a comprehensive perspective which reflects both past and projected traffic diversions, the cost estimates range from $21.7 million to about $50 million. The higher county estimates reflect full reconstruction and consider traffic from elevators that are not currently shipping by rail, as well as other potential grain truck impacts. When the minimum projected state impacts of $3.4 million are added to the minimum county impacts, the predicted cost is $25.1 million.*

The results of these highway impacts are presented in Table 11. These costs represent resurfacing those segments of county and state highways which would be impacted by diverted truck flows. Collectively, Tolliver estimated county road improvements needed as a result of losing the CW line total $21.7 million every 12-15 years. As indicated by Tolliver (and also Jerry Lenzi, WSDOT East Region Administrator who reviewed the report), this represents a conservative estimate for county road impacts given that only 2,150 rail cars are considered, when the average annual number of rail cars shipped on the CW line over the last five years would be closer to 3,000. Lenzi also pointed out that while the design life of these pavements is between 15-20 years, the experience in Eastern Washington is closer to 12-15 years. Also, the county engineers from each of the counties impacted conducted a similar analysis and their collective estimate totaled

$51.4 million but included slightly different assumptions on recently diverted traffic that is already occurring on the county roads, and also the route selected to access river ports.

Table 11: Cost of Resurfacing with Selective Reconstruction Improvements			
County Highway	**Reconstruction**	**Resurfacing**	**Total**
Danekas Rd	$ 2,273,988	$ 704,000	$ 2,977,988
Harrington/Toyko Rd			
Hills Rd	$ 1,746,261		$ 1,746,261
Kiner Rd		$ 1,540,000	$ 1,540,000
Monson Rd	$ 3,305,500	$ 1,322,200	$ 4,627,700
Rocklyn Rd		$ 2,358,400	$ 2,358,400
Rosenoff Rd		$ 2,855,600	$ 2,855,600
Schoessler Rd		$ 156,200	$ 156,200
Waukon Rd	$ 2,557,500	$ 2,901,800	$ 5,459,300
Total County Road Impacts	**$ 9,883,249**	**$ 11,838,200**	**$ 21,721,449**
Total State Highway Impacts		**$ 3,400,000**	**$ 3,400,000**
Total County and State Highway Impacts			**$ 25,121,449**

Source: Adapted from Denver Tollivers' Report "Projected Pavement Impacts of CW Rail Line: Final Report 3/25/2006.

Thus, the range of total highway impacts from CW line abandonment was found to be between $25.1 million and over $51.4 million, every 12-20 years as the roads life is used up under differing road conditions, identifying a significant benefit in avoided costs to the state from maintaining this rail line. It should be noted that as these highways are improved, additional safety, efficiency and economic development benefits are created as a result of the highway improvements.

Tolliver also looked at the potential highway impacts of traffic diversions from the P&L and the PV Hooper rail lines (for the complete report, see Appendix D). In this second study he found:

In 2000, 5,917 carloads were handled on the PV-Hooper line. Another 1,946 carloads were handled on the P&L line. In 2005, only 2,028 and 1,280 carloads were handled on the two lines, respectively. Apparently, much of the traffic originated during 2000 has shifted to trucks. The remaining traffic is concentrated at a few stations. In 2005, approximately 77 percent of the carloads handled on the PV-Hooper line were originated from Willada and Endicott. Roughly 94 percent of the carloads handled on the P&L were originated or terminated south of Rosalia.

In a diversion scenario, lumber traffic originated from Princeton, Idaho and fertilizers and farm chemicals originated from Wilson would move to Lewiston. However, grain traffic diverted from the P&L would be trucked to Almota. Similarly, shipments now originated from Colfax, Mockonema, St. John, and Thornton would be trucked to Almota. Traffic originated from Endicott, La Crosse, and Willada would move to Central Ferry. These potential new highway shipments are expected to move in Rock Mountain Double trucks.

In this scenario, two highways would be heavily impacted: SR-194 and Almota Road. Core samples provided by WSDOT's Eastern Region office suggest that the aggregate base layers of SR-194 have become intermixed with clay and silt over time and no longer provide effective support. In addition, a substantial grade exists on much of this route, especially near Almota. Thus, SR-194 would probably need reconstruction. Given the rugged terrain of the region, pavement reconstruction is expected to cost $800,000 per mile. At this cost, $16.8 million would be needed to reconstruct approximately 21 miles of SR-194. An additional 11 miles of Almota Road—from Colfax to the junction of SR-194—may need reconstruction at a cost of $800,000 per mile. Approximately $16.8 million would be needed to reconstruct this segment.

With the exception of SR-194, state highways are analyzed using an incremental thickness model, in which the effects of diverted traffic are quantified by estimating the additional overlay thickness needed when the pavements are resurfaced. These estimates reflect an average paving cost of $220,000 per roadway mile. Most of the impacted county roads are thin bituminous surface treatments with old stone or gravel bases. A majority of these roads would need additional structure to handle the traffic now moving by rail. With the exception of Almota Road, it is assumed that this structure would be added through resurfacing.

Three state highways—SR-127, SR-194, and SR-272—would be significantly-impacted by traffic diversions. Approximately $4 million of the projected cost for these highways can be traced to the 2005 rail traffic. Most of this estimate is attributable to the projected reconstruction cost of SR-194—which is allocated between existing and new traffic in proportion to the equivalent single-axle loads (ESALs) traced to each group.

In addition to Almota Road, several county roads would be significantly impacted including Endicott South, Endicott SW, Endicott West, Hume, Lancaster, Morasch, and Zaring Cutoff Roads. It is assumed that the additional structure needed for these highways would be added through resurfacing, at a cost of $220,000 per mile. However, all of this cost cannot be attributed to new traffic (i.e., the 2005 rail traffic that may be diverted from the lines). Therefore, the resurfacing costs are allocated to new traffic on the basis of annual ESALs. Using this method, approximately $140,000 of annual county road costs are attributed to new traffic. The cumulative cost responsibility of the new traffic is projected over the maximum assumed lives of the pavements—15 years for

resurfaced pavements and 20 years for reconstructed pavements. In this approach, only $2.3 million (or 2.1 percent of the total projected resurfacing and reconstruction costs of county roads) are allocated to existing traffic.

In conclusion, approximately $6.3 million of state and county road impacts are projected if the remaining grain traffic on the P&L and PV-Hooper lines is diverted to truck-barge. These estimates are subject to several assumptions and data limitations:

- *The carloads used in the study reflect projections for the 4th quarter of 2005.*
- *Inbound truck shipments to elevators are assumed to remain the same.*
- *The exact structural numbers and baseline traffic of county roads are unknown.*
- *Some of the projected highway costs may be unavoidable, regardless of what happens to the remaining carloads on the lines.*
- *Traffic previously diverted from the rail lines is not reflected in the $6.3 million estimate. This estimate relates only to the projected 2005 rail traffic on the lines.*
- *Highways in Idaho will be impacted by traffic moving from Princeton and Wilson siding to Lewiston. These impacts are not included in the study.*
- *The analysis does not consider all factors that influence highway cost. At some level, additional truck traffic may trigger the upgrading of a segment of roadway; or, the classification of the roadway may require an improvement to current design standards. When this occurs, roadway widening is necessary to achieve design lane and shoulder widths. Moreover, side slopes may be flattened for safety reasons, utilities may be adjusted, and guardrails installed or improved—all of which increase cost.*

Tables 12 and 13 identify, by station, the origin or destination of carloads on both the PV Hooper and P&L lines. The traffic is a mixture of grains, chemicals, and lumber products. Lumber is originated from Princeton, Idaho and Fertilizer and farm chemical shipments are associated with the Wilson Siding.

Table 12. Rail Traffic Originated or Terminated on the PV-Hooper Line in 2005			
Station	**Carloads**	**Closest River Port**	**Highway Distance (mi.)**
Colfax	76	Almota	18
Mockonema	167	Almota	21
Thornton	149	Almota	43
St. John	35	Almota	43
Willada	705	Central Ferry	40
Endicott	850	Central Ferry	30
La Crosse	46	Central Ferry	23

The remaining traffic is concentrated at a few stations. In 2005, approximately 77 percent of the carloads handled on the PV-Hooper line were originated from Willada and Endicott. Roughly 94 percent of the carloads handled on the P&L were originated or terminated south of Rosalia.

Table 13. Rail Traffic Originated or Terminated on the P&L Line in 2005		
Station	**Carloads**	**Highway Miles to Almota**
Spangle, WA	31	60
Plaza, WA	25	52
Rosalia, WA	17	45
Oakesdale, WA	359	39
Farmington, WA	35	50
Palouse, WA	68	35
Fallon, WA	91	32
Princeton, ID (spur)	230	48
Willson Siding, WA	287	30
Moscow, ID	137	32

The projected impacts for state highways are indicated in Table 14. Approximately $4 million dollars in impact are expected for these roads, with most of the impact being on SR-104.

Table 14. Projected Cost of State Highway Improvements Attributable to Potential Traffic Diversion from the P&L and PV-Hooper Lines	
Route Number	**Projected Incremental Cost**
127	$264,370
194	$3,648,475
272	$59,065
Total	**$3,971,910**

The annual cost responsibility of the resurfacing and reconstruction for the affected county roads is approximately $140,000 (Table 15). Over the assumed lives of the reconstruction the cumulative impacts of the potential new traffic amounts to about $2.3 million. Thus, as indicated earlier, the public road benefits of maintaining the traffic on operating PV Hooper and the P&L Lines is approximately $6.3 million.

Table 15. Annual Cost Responsibility of Rail Traffic for Projected Improvements to County Roads Under a Maximum Traffic Diversion Scenario	
Road	**Annual Pavement Cost Responsibility**
Almota Rd	$31,525
Endicott SW Rd	$13,850
Endicott South Rd	$8,075
Endicott West Rd	$10,920
Hume Rd	$14,150
Lancaster Rd	$23,660
Long John Morasch Rd	$22,925
Zaring Cutoff Rd	$15,010
Total	**$140,115**

There are other benefits that were difficult to quantify under the time constraint of this study, but nonetheless do exist. These would include the following:

- Increased **energy consumption and environmental emissions** occur as wheat is diverted from the PCC lines and truck is used for longer distances. A recent study updating energy coefficients in the region for transportation (Trent and Casavant, Alternative Evaluations of a River Drawdown: Reassessing the Environmental Paradox, Journal of the Transportation Research Forum, Fall 2005), found the regional energy use by mode to be 278, 366 and 549 BTU's per ton-mile for rail, barge and truck movement, respectively. Thus energy consumed per ton mile as grain is moved by truck rather than rail would be increased almost 100%. Movements by barge rather than rail would also cause over a 30% increase in energy utilization and would require a much longer haul by truck, the most energy intensive of the modes. The energy increase would also cause a proportional increase in emissions of nitrous oxide, hydrocarbons, carbon dioxide, particulate matter and sulfur oxide, all elements affecting the environment. Thus energy and emissions savings occur with the continuance of the CW line.

- The shippers interviewed for this study indicated there would be savings in **shipper investments**, if the lines are maintained, since they would not have to retrofit their houses to be more truck friendly and efficient. No quantitative estimates were available at the time of the study but all but several firms indicated some investment would be necessary.

- One benefit of maintaining the line, reflecting the **loss of competition** between the modes, is the extent that truck-barge rates to the river, at different locations, increase when lines might no longer be in use. The extent of increase in barge rates would be conditioned by the level of rates offered by the Ritzville facility and the BNSF and Up mainlines, The amount of increase in truck rates, in reaction to the increased demand for truck services, is difficult to determine but is a reality, based on the rate increases we have seen and the experience in other areas. Truck costs in eastern Washington increased from $1.40 per mile in 2002 to $1.80 a mile in late 2005, almost 30% in just truck rates in three years, with fuel prices being much of the cause, along with labor availability and increase in

overall demand. Recent increases in fuel costs portend even more increased truck rates.

- A benefit that is even more difficult to quantify but few would disagree exists is the entire concept of "option demand" in **economic development** where, if the rail of some sort isn't available, the possibility or option of locating and developing firms and new industries in the region is hindered or doesn't even exist. An often repeated statement with economic development interests such as city planners and economic development districts is that the best job created in an area is the saved jobs that are already there, such as the Geiger area, the potential in Idaho and the jobs on the PCC.. Availability of a competitive and complementary transportation system affords those public benefits.

SUMMARY, CONCLUSIONS AND CONSIDERATIONS

This market assessment has revealed a dynamic and uncertain market with a multitude of competing forces and decision makers/stakeholders in the market having different options. For example, BNSF's approach to rates and railcar availability may be the overriding ultimate market force. For that reason, the State is encouraged to use its negotiating leverage for all partnerships with BNSF in all parts of the state, not just this particular shortline. The outcome of those deliberations affects the dynamics of this market. Among other issues that are certainly not known for sure, but may be critical, are the level of maintenance chosen for the lines, the timing and magnitude of the track rehabilitation, the level of grain traffic committed and achieved on the lines, the amount of new "economic development" traffic reached (Geiger spur, Rabanco, bio-diesel, feed mills, forest products, etc.), the continued progressive marketing by the Ritzville facility management, energy impacts on operating costs of all modes, etc. These forces make this marketing assessment and accompanying viability evaluation and any investment recommendations also uncertain and susceptible to the business decisions by firms and institutions in the market. The lack of certainty makes consultant evaluations and state policy recommendations necessary but vulnerable.

The authors find the **Most Probable Scenario** in the future to be the following.

- The CW line is marginally profitable or unprofitable depending on shifting market conditions and shipper commitment. If high maintenance investments per mile are necessary to operate at the cost efficient 25 mph, and shipper commitment to the line is low or remains at recent levels, and existing carrier costs (irrespective of who the carrier is) are incurred, a shortfall loss will occur and continued ownership (State, port, or whomever) will require an annual operating

cost investment. This investment would probably be around $200,000-$400,000 if high maintenance is required and zero to $100,000 if only medium levels of maintenance are necessary.

- Similarly, the P&L Line will have to experience significant increases in movements to over 2,200 carloads to independently attain marginally viable status and this is dependent on track rehabilitation. If such movements are not achieved, and no rehabilitation is undertaken, the most probable scenario of the P&L Line is continuous State investments of $500,000 to $1,000,000 on an annual basis.

- The final segment, the PV Hooper, can be expected under a most probable scenario, to be viable, especially after the rehabilitation allocated currently to this line. This viability is directly caused by the use of the shuttle system with movement of grain to the river for transportation by barge. Without this movement viability might also be in question for this line. Some marginal investment by the State for maintenance expenses might be called upon.

The **Best Possible Scenario** would be the following.

- For the CW Line the best expectations occur when grain volumes increase over 3,000 cars as a result of renewed shipper commitment to the CW line (due to Scoot train efficiencies, desire to maintain competitive transportation market, search for marketing flexibility, new firms and traffic), while maintenance is only required at the medium level (still twice the current levels) and operating costs are decreased (due to new ownership/operating management, increased volume, earlier rehabilitation investment, state Grain Train cars, etc.) Under this scenario,

revenues will cover both fixed and operating costs, including any return on investment desired by the operators or owners. No additional annual investment would be required by the state.

- For the PV Hooper line the best possible scenario would be when volumes increase back towards the 1999 level, maintenance is only required at the existing level of expenditure and costs decrease due to the increased rehabilitation expenditures. Under this scenario, this segment of the PCC would be able to contribute to the overall operation of the other two lines, with no State investment needed.

- The best possible scenario for the P&L Line is a significant decrease in costs due to the substantial investment planned for this line segment, accompanied by increased traffic from the agricultural, forest products and minerals industries in its trade area. Under this scenario, an annual investment of up to $100,000-200,000 might still be needed.

The **Worst Possible Scenario** is also possible.

- This would arise for all three lines when increasing traffic volumes fail to materialize (for whatever reason), no new "economic development" traffic is realized, a high maintenance level is required (for whatever reason), increase in carrier costs per car caused by low traffic levels occur, a new 110 car load facility is built in competition with CW line movements, and BNSF rate differentials make the Ritzville facility even more attractive.
- In this case annual investments, if the CW Line is to be kept operational, might be as high as $1,000,000 per year. Similar levels of investment for the P&L Line

might be necessary. The PV Hooper Line, even in the worst possible scenario, is expected to be marginally profitable, unless rail-barge traffic is lost with drawdown of the dams on the lower Snake River.

Public and Private Benefits, both quantifiable and potential, to consider in this decision are substantial. No benefit/cost analysis was requested for this study but Table E.1 briefly summarizes the subsidies and road damages expected for each of the branches. Road damage and usage costs avoided by maintaining the CW line are estimated to be from $3.4 million to $11.5 million for state highways every 15-20 years. For the same period of time county roads, because of their lower level of construction, and the routes chosen by the trucks, are estimated to incur road expenditures of $21.7 million to over $50 million, in traffic related to the CW line. The range of total highway impacts from CW line abandonment is between $25.7 million and over $51.4 million, (or more, if extra reconstruction on certain county roads is necessary) identifying a significant benefit to the state and counties from maintaining the CW line.

The total road impacts by elimination of the P&L line are estimated by Tolliver to be $3,530,000 in total ($2,980,000 for state highways and $550,000 on county roads). The road damage caused by the loss of the PV Hooper line is less, $2,742,000 ($992,000 for state highways and $1,750,000 on county roads). Spreading the total costs out over the life of the road shows the annual road damage costs of about $1.7 to 4.1 million per year, compared to annual subsidies of up to $1 million per year for the CW Line. Similarly, the PV Hooper line, with no expected subsidies, had road damages of about $180,000 per year. It is the P&L Line where this very preliminary and partial benefit-cost analysis, using just these costs, has annual road damage of about $235,000 but requires annual subsidies ranging up to $1,000,000.

Table E.1 Subsidies vs. Road Damage, by PCC Rail Line

	C&W	P&L	PV Hooper
Subsidy (Annual)			
Most Probable	$2,000 - $400,000	$500,000 - $1,000,000	0
Best Possible	0	$100,000 - $200,000	0
Worst Possible	$1,000,000	$1,000,000	0
Road Damage (Total)			
State	$3,400,000 - $11,500,000	$2,980,000	$992,000
County	$21,700,000 - $50,000,000	$550,000	$1,750,000
Total	$25,100,000 - $61,500,000	$3,530,000	$2,742,000
Road Damage (Annual Average)			
State	$227,000 - $767,000	$198,667	$66,133
County	$1,447,000 - $3,333,000	$36,667	$116,667
Total	$1,673,000 - $4,100,000	$235,333	$182,800

Other Benefits Exist and are associated with having the competitive and complementary functions of the PCC, benefits such as the lower costs available to shippers as competition drives prices charged down to long term variable costs, improving efficiency in the overall system. Certainly, efficiencies are available to those firms that can adapt to the new business model of the BNSF and the PCC. These lines also offer shippers flexibility in marketing their products, increasing the modes, routes and marketing/storage alternatives, including using the secondary freight market to guarantee car availability or revenue enhancement in an up market. Since the BNSF's business model is to focus on long movements of large volumes, the collection service provided by the PCC has increased value. The current shippers believe that rate

increases by truck-barge or truck-Ritzville are being constrained by the continued availability of the PCC lines.

Energy consumption and emissions production would be increased if these lines are no longer available. The energy efficiency of rail is 30% higher than barge and about 100% better than truck. Emissions production follows proportionately the level of energy (fuel) used in transporting the products out of and into the region.

Actual Operating Costs for the existing or future railroad operations must be determined. Tyee's analysis and comments reveals the uncertainty felt by the analyst, and agreed with by these authors, on the completeness and accuracy of the original and revised costs and traffic levels offered by Watco. Negotiations with the current or new operator require increased transparency of financial information above that currently available. Alternative and potential rail managers/firms can aid in that operational information discovery.

Actual Maintenance and Marketing Efforts are critical to the long term viability of the three lines. Any purchase or operating agreement should include specific detail on responsibilities, auditing and enforcement of the maintenance commitments as well as traffic and cost experiences, otherwise the value of the State's investment deteriorates and the viability of the lines are threatened. The marketing effort should also be specified in detail in any contract, marketing effort that indicates a reaching out for both past traffic and new potential traffic, both agricultural and that brought on by economic development in the region. Grain shippers should be aided in seeing the potential tradeoff between short term "cents" versus long term "dollars" if any of the lines are eliminated.

APPENDIX A:

EVENTS CREATING CURRENT SITUATION

History

The PCC shortline railroad is comprised of three lines, the first of which, the CW line, is the focus of this Phase I report. The decision currently faced by the State and the shippers on this line reflects the condition of the three lines as evaluated prior to the State deciding to purchase the lines in 2004. The total PCC shortline railroad provides the majority of the local rail service in Eastern Washington. It is the state's largest shortline and is the second longest rail line in the state at 375 miles. The line carried about 20 percent of the grain grown in Washington, serves industries employing more than 1,200 people, and moves cargoes worth about $160 million, in 2003.

The PCC, owned by Watco, was formed in the 1990s from UP and BNSF branch lines that were slated for abandonment. The Class 1 carriers had not been maintaining these lines, relying on deferred maintenance to generate some net revenue from the lines. Thus, a considerable amount of catch-up maintenance existed to bring the lines up to operational and economic viability.

Analysis by the WSDOT indicated that the operating expenses were covered by existing revenue but that revenue could not cover the required maintenance, past and current, resulting in some lines requiring rehabilitation, rather than just maintenance. The operating company, Watco, did not want to make those investments, given their existing profit and loss situation, and notified the WSDOT that they would be initiating formal abandonment unless some form of public assistance or public/private partnering was achieved.

WSDOT was directed by RCW 47.46 to assist rail lines that provided benefits to the state and local jurisdictions, such as avoided highway cost and economic development potential. Formal reviews and benefit-cost determinations must be completed before freight rail assistance funds can be expended. WSDOT did consult with shippers and other interested parties and preformed an extensive benefit/cost analysis.

Based on that due diligence work, the legislature in 2003 provided a Transportation Funding Package to purchase the lines, dividing it between the 2003-05 and the 2005-07 bienniums. The purchase price for all the lines of the PCC was $7.998 million. The P & L and the PV Hooper lines were purchased in November of 2004 for $6.486 million.

Additionally, WSDOT has prepared and received funding for an overall Track Rehabilitation Plan to address track condition and maintenance issues on the PCC to some degree. The State has approved $21,089,000 for PCC Track Rehabilitation, with $8,544,450 approved specifically for the CW line. The expected allocation of the funds over time for the CW line was $322,000 in 2005-07, $5,663,000 in 2007-09 and $2,559,450 for 2009-2010. It is expected that the funding in the first two biennia would be adequate to achieve Class 2 level of service, at 25 mph speeds.

Due Diligence Studies

Various studies and information sources were required and conducted to support the benefit/cost analysis supporting any state decision. These studies detail the situation at that time, explain the past decision and inform the debate that is currently ongoing.

Watco Companies, Inc.

Presentations to shippers, state government and other interested stakeholders by Watco included the most recent data available, based on the railroad's presentation of their experience in 2002. The information provided emphasized Watco's perspective on the individual line segments, the traffic hauled, the costs incurred and the revenue generated. Specific line segments were presented by Watco as the Coulee City to Cheney, the Marshall to Moscow, the Pullman to Hooper and the Thornton to Winona segments.

Data from the PCC showed a positive cash flow of revenue over operating costs for all of the line segments except for the Pullman to Hooper branch. Operating costs were mainly in the categories of track repair, weed control, locomotive leases, repair and fuel, labor, car hire and other railroad expenses. Total net profit for the system was an annual $642,963, including a $147,047 loss on the Pullman to Hooper line. Total system operating costs were presented as $2,562,235 and revenues were $3,205,198. A total of 7,308 carloads were handled on these lines for the various shippers in 2002. What is noticeable is that other revenue of $550,440, or an additional 21 percent, from leases, etc. was added to the carload revenue of $2,654,758 to generate the total annual revenue.

Forty two shippers were served on the entire line, ranging from 3 on the Pullman to Hooper line to 25 on the Marshall to Moscow line. All lines have 90 lb. rail except for the Thornton to Winona line, comprised of 75 lb. rail. The Thornton to Winona line is also notable because it carried, on average for the past three years at that time, 547 shuttle loads of grain to the river.

The above figures, however, do not include the track preservation costs that should have been invested to keep the lines from deteriorating. Watco suggested another $1,188,000 of track repair and maintenance was necessary to keep the line at its then current level of service. These funds had not been expended because, from Watco's perspective, revenue was not high enough to warrant the investment. Further it was estimated that when earnings before interest and taxes and depreciation allowance (EBITDA) at 30 percent were considered, another $1,607,244 would be required. When these ownership and depreciation costs are added to the other costs, Watco estimated an annual loss of $2,152,281 for 2002.

Watco argued there are legitimate concerns of continued deterioration of the track due to the insufficient revenue. Further, the continued economic instability of the line might cause current customers to look for alternative ways to move their product to market. Watco also cited increased costs from derailments and insurance rates, again due to the lack of funding to maintain the railroad at a safe Class II level of operation (25 mph).

Tolliver Study

WSDOT funded several substantial and comprehensive studies dealing with different parts of the overall concern of the loss of short-line/branch lines in the Washington. One of these, by Dr. Denver Tolliver, dealt directly with the viability of short-line railroads in the Palouse and Blue Mountain regions of Washington. The purpose of that report was to provide an independent analysis of the viability of the rail-lines. The rail-lines were analyzed as if they were operated under contract by a hypothetical carrier as a private entity. This operator could have been the PCC or another short-line railroad. Tolliver derived independent estimates of operating costs, track net liquidation values and

normalized maintenance costs from detailed field data, track charts and engineering models.

In contrast to the presentations from Watco, the set of lines or subsystems in the PCC networks that were analyzed included four lines: Cheney to Coulee City, Marshall to Pullman, the Blue Mountain Railroad North, and the Blue Mountain Railroad South. The first three lines cover the four lines presented by Watco; the Blue Mountain Railroad South extends form the UP mainline at Wallula Junction to Walla Walla, where it connects with another line running from Dayton, Washington to Weston, Oregon.

This technical study used the Uniform Railroad Costing System (URCS), applied on a regional basis, to estimate operating costs. Normalized track maintenance costs were estimated using detailed data from extensive field studies conducted in 1998 and 1999 by Wilbur Smith Associates and track factors published by the American Railway Engineering and Maintenance of Way Association (AREMA). Track ownership costs were estimated by applying the railroad cost of capital to the net liquidation value (NLV) of each line (the amount invested by mile times the opportunity return in the market).

The overall conclusion of this study was that, based on current revenue divisions (split of the tariff between the shortline railroad and the BNSF and/or UP) the lines are projected to incur losses, if operated as private entities, when normalized track maintenance and track ownership costs are considered. Relief of the ownership costs of over $100,000 per year and lower costs from rehabilitated lines could, however, make the lines viable for an operator. Tolliver further stated that the PCC rail lines are an important part of the Washington state transportation system, serving important grain producing regions and providing service to food and forest products industries.

The lines were examined on a per car basis, using the 2000 level of traffic. For the CW Line, the on-branch train, car and clerical costs were $244 per car. Track maintenance cost was $231 and track ownership cost was $53 per cars, which summed to $528 per carload. If the on-branch car-day cost was absorbed by the BNSF, as was done at that time, then the cost dropped to $453 per car. In comparison, the current revenue division between the Class I railroad and the shortline railroad was slightly above $400 per car for the shortline, thus making each car, at full costs of $528, unprofitable/nonviable.

In summary for the total railroad, Tolliver's analysis of a "hypothetical model of a railroad" suggested that, similar to the Watco presentations, revenues cover the private operating costs, but not the normalized maintenance and private ownership costs. He further stated "If these lines cannot be operated profitably as a private entity the state may be faced with a difficult choice-acquire the lines or let them be abandoned." Several in-between options dealing with rehabilitation of portions of the network for the private operator, with the attendant decrease in normalized maintenance costs, were offered.

Railroad Industries Incorporated Marketing Study

In their continuing effort to learn as much as possible about the real financial and economic parameters surrounding the short line railroad situation in eastern Washington, the Washington State Department of Transportation commissioned a marketing, economic and operational analysis of this short-line railroad system in eastern Washington. In 2004, the consultant, Railroad Industries Incorporated, found that three of the four lines provide a significant economic benefit to the local communities, shippers and the State. It further found that there was significant volume

of traffic that could utilize rail if the “appropriate marketing plans, rates and rail services” were in place.

In 2003, the four lines had close to 58 million bushels of grain storage, or about 38 percent of the total capacity in the state, located on the lines. The study found that, although traffic on the lines has been declining, the decline did not need to continue. Railroad Industries Incorporated’s study found that, with the appropriate efforts, the traffic on three of the four lines could increase to the level that it would cover all costs and produce a profit in the long run.

The four lines evaluated by Railroad Industries Incorporated were the Coulee City Line, the Palouse River Line, the Blue Mountain North line and the Blue Mountain South Line, similar to the Tolliver study. Using the concept of Going Concern Value, Railroad Industries Incorporated evaluated the line segment on an existing base case, the potential base case (including volume projections from shipper interviews and new opportunities) and a break-even case. For the Coulee City line a current Going Concern Value of between $1.6 and $1.8 million was determined, meaning the net value of the return of revenue over costs. Assuming new traffic levels were achieved from an aggressive marketing plan, the value increases to $2.2 to $2.6 million. Results of the break-even case indicated that this railroad segment could remain viable with either a 25 percent rate reduction or a 22 percent carload reduction, but not both.

This study gave detailed analysis on the existing revenue/cost ratio, potential traffic, and suggestions for operational improvements for whichever railroad operated these lines. It also provided some useful detail on the competitive structure among transportation

modes and production facilities, based on interviews with all of the major shippers on the lines.

In summary, all of these major studies and information sets suggested that the viability of the PCC was in question, but that some revenue over operating costs could be realized. The data relied upon by several of the studies were several years old and the analysis doesn't directly correspond, due to differing line segments. Questions of the revenue, costs, apportionment of costs, net liquidation value and future traffic, track ownership and loan status were not fully considered in these analyses.

Net Liquidation Value (NLV)

Estimating the Net Liquidation Value (NLV) was critical in this circumstance since Watco was suggesting that they were willing to sell the lines for that value. NLV is a measure of the current value of a line based on the market prices of individual assets such as rails, ties and other track material. NLV accounts for the removal, restoration and transportation costs to the location where the asset will be used or scrapped. It does not include land costs.

Initially, based on conversations between Watco and WSDOT, an estimate of $12 million was used, both in early negotiations and as a basis for the funding request in the 2002 Washington State Referendum 51. This value dropped substantially as the discussion in the region became broader and with more specific analyses.

The Tolliver Study used the values from an analysis done by Wilbur Smith Associates, based on detailed field surveys undertaken in 1998 and 1999. Excluding the Walla Walla to Dayton branch (Blue Mountain South), the NLV of track operated by the PCC in

Washington was $9.86 million. However, when the Zangar Jct. To Walla Walla was excluded from the analysis, since it is owned by the UP, the NLV estimate dropped to about $8.418 in the Tolliver estimation.

The presentations by Watco to a meeting of then Commissioner Maher's Transportation and Economic Development Meeting also included estimates of the NLV. Estimates of NLV were: Coulee City to Cheney ($1,794,110), Marshall to Moscow ($3,644,512), Pullman to Hooper ($2,274,316), and Thornton to Winona ($705,266), for a total of $8.418 million.

Again, the NLV value is a moving target. It was known that the market value for used rail and ties had softened in recent years (subsequently, the market for steel has given rise to estimates that may be triple the earlier conditions). Further, a discussion with a consultant, Michael Sussman, hired by the WSDOT to do due diligence on determining the actual revenues, costs and net liquation value, suggested, very preliminarily, that the current value could be less than previous estimates. However, even more recent reviews at that time suggested the market for used ties and rail had been very erratic, with recent short-line repair needs in the nation raising the value of some kinds of relays and rail.

Recognizing the importance of this NLV estimate, the Rail Office of WSDOT conducted several activities to determine the relevant range of estimates. R. L. Banks produced an initial overall estimate and another consultant, Dave Cahill, provided a specific estimate for the lines under consideration. Current estimates at that time seemed to fall at or near the $8.4 million commonly discussed, though R. L. Banks estimate is higher.

That value served as another data point as negotiations among the State and Watco proceeded. The resultant purchase price, and legislative authorization of funding, of $7.998 million reflects those studies.

Ownership of Right of Way

Initial discussions with Watco and WSDOT assumed that Watco owned the right of way and that any purchase by the state would include this component, including the value as a telecommunications corridor. However, work by the Washington State Attorney General, WSDOT, and subsequent concurrence by Watco revealed that the corridor rights for telecommunications and other utilities were retained by the BNSF and the UPRR.

Achieving Viability

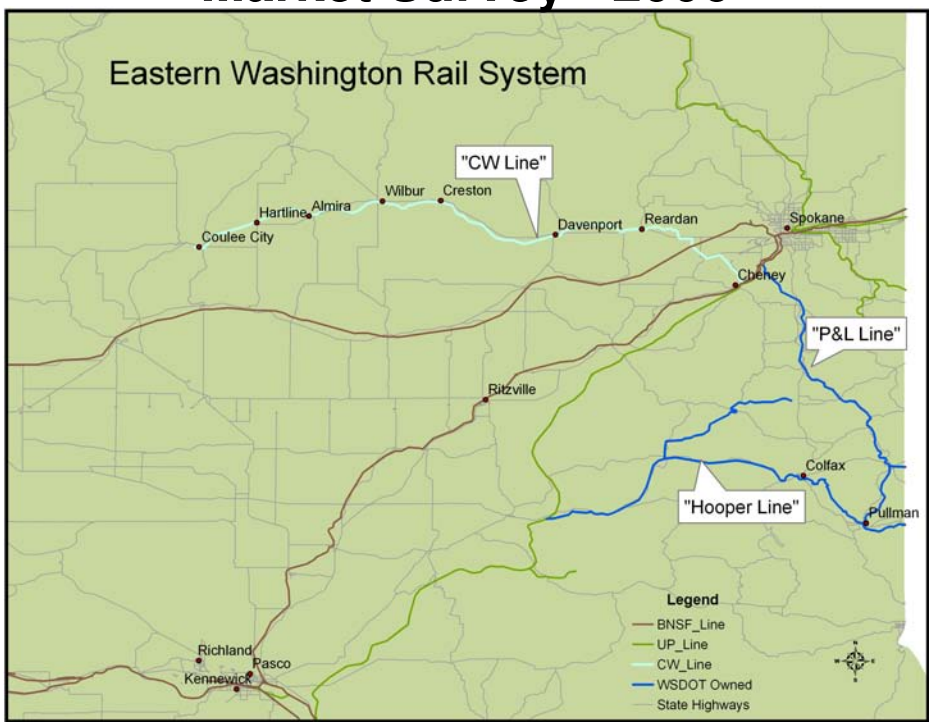
The above analyses did indicate that the lines were, in most cases, capable or potentially capable of covering the current operating costs. All of the studies suggested that most lines did not cover ownership, maintenance and rehabilitation costs under then current traffic levels and funding agreements.

Railroad Industries Incorporated believed, though other consultants were silent on the issue, an aggressive marketing plan combined with some rehabilitation investment may be successful in achieving viability in the long run. Tolliver suggested that the state may be faced with a difficult choice, acquire the lines or let them be abandoned. Current expenditures at that time on the lines appeared to be only half of what normalized maintenance should have been $4,000 per mile of $7,900 per mile on average for the different lines. Public rehabilitation would lower private ownership costs while lowering normalized maintenance costs.

Watco, in its presentations to the Maher Transportation and Economic Development Group, was more direct. Initially, it estimated that sale of the lines to a public entity ($8.418 million) resizing the locomotive fleet, improving the track infrastructure, and growing the revenue on the line were solutions that would bring continued viability. In a second meeting of the Maher Group, Watco added $2 million for crossing improvements (closing 60 crossing and replacing 140 crossings with concrete), seeking a change in the rate division between the Class I Railroads and the PCC, and what they referred to as "public Interest" as means to viability. The latter referred to a request for an additional $250,000 per year for maintenance from the state, and $80,000 per year in property tax reduction. Watco stated, "These adjustments allow the PCC Railroad to achieve long-term operational success." It should be noted that no specific information on many of these issues was offered on a segment by segment basis, only very general estimates.

APPENDIX B: PCC Shipper Survey

Palouse River and Coulee City Railroad Market Survey - 2006



Please return your completed questionnaire to:

Eric Jessup/Ken Casavant
School of Economic Sciences
301 Hulbert Hall
Washington State University
Pullman, WA 99164

The average time required to complete this information is estimated to average 10 minutes per response. Your participation is voluntary and all responses will be kept strictly confidential.

- CONFIDENTIAL -

SHIPPING ATTRIBUTES

Please Complete this Questionnaire For Each Facility Receiving or Shipping Volume in the Eastern Washington PRCC Region.

Q1. What is the location of this facility (Warehouse, Grain Elevator, Mill, etc.)?

Address: _____

_____

Q2. What is the primary inbound and outbound commodity shipped/received at this Facility and the Average Annual Volume Shipped?

Commodity	Inbound		Outbound	
	%	Annual Volume (indicate units)	%	Annual Volume (indicate units)
a. Grain (Wheat, Barley, Peas, Lentils, etc.)				
b. Fertilizer / Chemicals				
c. Lumber (Forest Products)				
d. Fuel				
e. Other (Please Specify)_____				
Total	**100%**		**100%**	

Q3. Please complete the table below with Annual Volume Percentage and Transportation Rates for Inbound/Outbound Shipments at this facility.

		Year				
		2001	2002	2003	2004	2005
% Percentage by Shipping Alternative	Rail PCC Line					
	Truck-Ritzville					
	Truck-Barge					
	Other (_____)					
Total		100%	100%	100%	100%	100%
		Transportation Rate to Destination / Unit				
Approximate Average Transportation Rate over the Year ($/unit)	Rail PCC Line					
	Truck-Ritzville					
	Truck-Barge					
	Other (_____)					

Q4. In the table below, please provide the average truck and rail miles from/to each destination from/to this facility, the average transit time and the average variation on transit time (e.g. Plus or minus one or two days).

	Average Miles		Average Transit Time	
	Truck	Rail	# of Days	Variation +/-
Rail PCC Line				
Truck-Ritzville				
Truck-Barge				
Other (_____)				

Q5. Would you be willing to commit additional shipping volume to the PCC Line from this facility in order to help insure rail viability? ☐ 1 Yes ☐ 2 No

Q6. If "Yes", how much additional volume could be committed from this facility?

☐ + 2 to 5% ☐ + 5 to 10% ☐ + 10 to 15% ☐ > 15%

APPENDIX C:

SHIPPERS ON THE PALOUSE RIVER AND COULEE CITY RAILROAD

CW Line
Almira Farmers
Anderson Hay
Central Washington Grain
Davenport Union
Issac Brothers
McKay Seed
Odessa Union
Reardan Grain Growers
Western Farms

P&L Line
Auvil Warner Co.
BNP Lentils
Cenex Harvest
Co-Ag
Columbia Tractor
Crites of Moscow
Ferrell Gas
Jones Truck & Implement
Latah Co Grain
McGregor
Moscow Idaho Seed
Motley & Motley
Northwest Pea & Grain
Oaksdale Farm Supply
Palouse Grain Growers
Purline Seed
RMK Farms
Spokane Seed
Stubbs Seed Service
Wallace Grain & Pea
Wayne Hodges
Western Farms Services
Wilbur-Ellis
Whitman Co Grain
Washington State University

PV Hooper
McGregor
Wheat Growers of Endicott
Whitman Co Grain Growers
Inland Empire Milling
McGregor
St. John Grain Growers
Whitman Co Grain Growers

APPENDIX D:

Potential Highway Impacts of Traffic Diversions from the P&L and PV-Hooper Rail Lines

Prepared for:

The Washington State Department of Transportation

by:

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March 27, 2006

Summary

The highway impacts of potential traffic diversions from the P&L and PV-Hooper lines are described in this report. In 2000, 5,917 carloads were handled on the PV-Hooper line. Another 1,946 carloads were handled on the P&L line. In 2005, only 2,028 and 1,280 carloads were handled on the two lines, respectively. Apparently, much of the traffic originated during 2000 has shifted to trucks. The remaining traffic is concentrated at a few stations. In 2005, approximately 77 percent of the carloads handled on the PV-Hooper line were originated from Willada and Endicott. Roughly 94 percent of the carloads handled on the P&L were originated or terminated south of Rosalia.

In a diversion scenario, lumber traffic originated from Princeton, Idaho and fertilizers and farm chemicals originated from Willson would move to Lewiston. However, grain traffic diverted from the P&L would be trucked to Almota. Similarly, shipments now originated from Colfax, Mockonema, St. John, and Thornton would be trucked to Almota. Traffic originated from Endicott, La Crosse, and Willada would move to Central Ferry. These potential new highway shipments are expected to move in Rock Mountain Double trucks.

In this scenario, two highways would be heavily impacted: SR-194 and Almota Road. Core samples provided by WSDOT's Eastern Region office suggest that the aggregate base layers of SR-194 have become intermixed with clay and silt over time and no longer provide effective support. In addition, a substantial grade exists on much of this route, especially near Almota. Thus, SR-194 would probably need reconstruction. Given the rugged terrain of the region, pavement reconstruction is expected to cost $800,000 per mile. At this cost, $16.8 million would be needed to reconstruct approximately 21 miles of SR-194. An additional 11 miles of Almota Road—from Colfax to the junction of SR-194—may need reconstruction at a cost of $800,000 per mile. Approximately $16.8 million would be needed to reconstruct this segment.

With the exception of SR-194, state highways are analyzed using an incremental thickness model, in which the effects of diverted traffic are quantified by estimating the additional overlay thickness needed when the pavements are resurfaced. These estimates reflect an average paving cost of $220,000 per roadway mile. Most of the impacted county roads are thin bituminous surface treatments with old stone or gravel bases. A majority of these roads would need additional structure to handle the traffic now moving by rail. With the exception of Almota Road, it is assumed that this structure would be added through resurfacing.

Three state highways—SR-127, SR-194, and SR-272—would be significantly-impacted by traffic diversions. Approximately $4 million of the projected cost for

these highways can be traced to the 2005 rail traffic. Most of this estimate is attributable to the projected reconstruction cost of SR-194—which is allocated between existing and new traffic in proportion to the equivalent single-axle loads (ESALs) traced to each group.

In addition to Almota Road, several county roads would be significantly impacted including Endicott South, Endicott SW, Endicott West, Hume, Lancaster, Morasch, and Zaring Cutoff Roads. It is assumed that the additional structure needed for these highways would be added through resurfacing, at a cost of $220,000 per mile. However, all of this cost cannot be attributed to new traffic (i.e., the 2005 rail traffic that may be diverted from the lines). Therefore, the resurfacing costs are allocated to new traffic on the basis of annual ESALs. Using this method, approximately $140,000 of annual county road costs are attributed to new traffic. The cumulative cost responsibility of the new traffic is projected over the maximum assumed lives of the pavements—15 years for resurfaced pavements and 20 years for reconstructed pavements. In this approach, only $2.3 million (or 2.1 percent of the total projected resurfacing and reconstruction costs of county roads) are allocated to existing traffic.

In conclusion, approximately $6.3 million of state and county road impacts are projected if the remaining grain traffic on the P&L and PV-Hooper lines is diverted to truck-barge. These estimates are subject to several assumptions and data limitations:

- The carloads used in the study reflect projections for the 4th quarter of 2005.
- Inbound truck shipments to elevators are assumed to remain the same.
- The exact structural numbers and baseline traffic of county roads are unknown.
- Some of the projected highway costs may be unavoidable, regardless of what happens to the remaining carloads on the lines.
- Traffic previously diverted from the rail lines is not reflected in the $6.3 million estimate. This estimate relates only to the projected 2005 rail traffic on the lines.
- Highways in Idaho will be impacted by traffic moving from Princeton and Willson siding to Lewiston. These impacts are not included in the study.
- The analysis does not consider all factors that influence highway cost. At some level, additional truck traffic may trigger the upgrading of a segment of roadway; or, the classification of the roadway may require an improvement to current design standards. When this occurs, roadway widening is necessary to achieve design lane and shoulder widths. Moreover, side slopes may be flattened for safety reasons, utilities may be adjusted, and guardrails installed or improved—all of which increase cost.

Introduction

The purpose of this study is to estimate the highway impacts of potential traffic diversions from the P&L (Palouse and Lewiston) and Blue Mountain North lines. The P&L runs from Marshall, Washington to Arrow, Idaho via Palouse, Pullman, and Moscow. The Blue Mountain North (also known as the PV-Hooper line) runs from Hooper Junction to Pullman via Winona and Colfax. A branch of this line extends from Winona to Thornton.

In 2000, 5,917 carloads were handled on the PV-Hooper line. Another 1,946 carloads were handled on the P&L line. In 2005, only 2,028 and 1,280 carloads were handled on the two lines, respectively. Apparently, much of the traffic originated during 2000 has shifted to trucks and is already moving over highways in the region.

The 2005 rail traffic was concentrated at a few stations. Approximately 77 percent of the carloads handled on the PV-Hooper line were originated from Willada and Endicott (Table 1). Roughly 94 percent of the carloads handled on the P&L were originated or terminated south of Rosalia (Table 2). Oakesdale is the greatest source of traffic on this line.

Table 1. Rail Traffic Originated or Terminated on the PV-Hooper Line in 2005[3]

Station	Carloads	Closest River Port	Highway Distance (mi.)
Colfax	76	Almota	18
Mockonema	167	Almota	21
Thornton	149	Almota	43
St. John	35	Almota	43
Willada	705	Central Ferry	40
Endicott	850	Central Ferry	30
La Crosse	46	Central Ferry	23

The traffic on the PV-Hooper and P&L lines is a mixture of grains, chemicals, and lumber products. Lumber is originated from Princeton, Idaho—which is the home of Bennett Lumber. Fertilizer and farm chemical shipments are originated from Willson. Although Almota is the closest port to Willson and Princeton, it lacks transfer facilities for lumber and fertilizer. Almota is exclusively a grain port. Moreover, there is no room for expansion at the port site. The next closest port to Willson and Princeton is Lewiston, Idaho. Since this traffic would move to the Port of

[3] These carload values reflect projections of traffic through the end of 2005.

Lewiston over Idaho roads, the 517 carloads originated from these stations are excluded from the analysis. Grain is the only other commodity regularly handled on these lines.

Table 2. Rail Traffic Originated or Terminated on the P&L Line in 2005[4]

Station	Carloads	Highway Miles to Almota
Spangle, WA	31	60
Plaza, WA	25	52
Rosalia, WA	17	45
Oakesdale, WA	359	39
Farmington, WA	35	50
Palouse, WA	68	35
Fallon, WA	91	32
Princeton, ID (spur)	230	48
Willson Siding, WA	287	30
Moscow, ID	137	32

Most Likely Destinations and Impacted Routes

Traffic diverted from the P&L line will be trucked to Almota. Moreover, rail traffic originated from Colfax, Mockonema, St. John, and Thornton will be trucked to Almota if these shipments are diverted to barge (Table 1). However, traffic originated from Endicott, La Crosse, and Willada will be trucked to Central Ferry (Table 1).

The shortest path has been identified from each station to the nearest river port. Many of these routes include county roads. Thus, the estimated costs are a mixture of state and county road impacts. Impacted county roads include Almota, Hume, Farmington, Lancaster, Endicott East, Endicott West, Endicott South, Endicott Southwest, Morasch, and Zaring Cutoff. Impacted state highways include SR-194, US-195, SR-26, SR-27, SR-127, SR-270, and SR-272.

After identifying the impacted routes, the incremental truck trips that would result from the diverted rail traffic are assigned to highways. Afterwards, the incremental equivalent single-axle loads (ESALs) associated with this traffic are computed. [5]

[4] These carload values are projections of traffic through the end of 2005.

[5] The impacts of a truck depend primarily upon the structural characteristics of the pavement and the truck's axle configuration and weights. In pavement impact analysis, the effects of different axle types are

Truck Configuration and Weights

Grain is typically transported in a Rocky Mountain Double—which consists of a tractor pulling a semitrailer, followed by a smaller "pup" trailer. When fully loaded, a Rocky Mountain Double weighs 105,500 pounds. It is the most economical grain truck used in Washington State. Approximately 36 net tons can be transported in a single trip.

For purposes of analysis, the carloads shown in Tables 1 and 2 are converted to equivalent trucks. A 286,000-lb railcar holds 111 tons of wheat. A 268,000-lb railcar holds 102 tons. Most of the cars used in the Grain Train Program are of the smaller variety. Therefore, each railcar is assumed to hold 102 net tons. In this case, each car is equivalent to roughly 2.83 Rocky Mountain Double trucks.

Impacted Highways

Table 3 summarizes the maximum projected change in equivalent single-axle loads on impacted state highways as a result of potential traffic diversions from the P&L and PV-Hooper lines. Table 3 also shows the weighted-average pavement structural number (SN) of each highway. [6] The SN of SR-194 cannot be accurately determined due to uncertainties about the base layers. However, the structural number of the surface layers is approximately 1.0.

Table 3. Maximum Projected Change in Traffic on State Highways

Route Number	Mean Annual ESALs: Baseline	Mean Annual ESALs: Incremental	Percent Increase	Mean SN
23	15,894	308	2%	2.1
26	83,039	922	1%	2.9
27	29,611	1,026	3%	2.7
127	79,311	15,162	19%	4.1

accounted for by converting the axle weights to equivalent single-axle loads. An ESAL represents the impact of a certain axle type and load in comparison to the impact of an 18,000-pound single axle. An axle with an ESAL factor of 1.2 has 1.2 times the impact of a single 18,000-pound axle. In general, tandem axles cause less damage per ton than single axles. The ESAL factors used in this study are computed from equations developed by the American Association of State Highway and Transportation Officials (AASHTO). A truck ESAL factor is computed for each impacted highway segment which the truck traverses. These calculations use the AASHTO axle-load equivalency formulas for single and tandem axles.

[6] The structural number of a flexible pavement is a composite value that reflects the material composition, thickness, and location of each layer. A heavy pavement is one with a structural number of 4.6 or greater. A medium pavement has a structural number of 3.1 to 4.5. In comparison, a light pavement is one with a structural number of less than 3.0.

194	14,010	4,350	31%	XX
195	135,315	1,804	1%	6.7
270	103,939	1,183	1%	5.7
272	9,682	585	6%	1.8

As Table 3 shows, Routes 127, 194, and 272 are the only highways that would experience traffic increases of more than 5 percent. The incremental thickness projections for the remaining highways are nearly zero. Therefore, these highways are dropped from the analysis.

The existing ESALs on county roads are unknown. However, Table 4 shows the maximum projected ESALs that would result from traffic diversions. As the table shows, Scott and Farmington Roads would be minimally impacted. Endicott East and Sommers Roads would be impacted only by traffic from Mockonema. However, the remaining county roads would be significantly affected by potential traffic diversions from the P&L and PV-Hooper lines.

Table 4. Maximum Projected Incremental Traffic on County Highways

Road	Annual Additional Trucks	Annual Additional ESALs
Almota Rd	2,723	8,188
Endicott East Rd	473	1,472
Endicott SW Rd	4,401	13,271
Endicott South Rd	4,401	13,120
Endicott West Rd	1,995	5,947
Farmington Rd	99	298
Hume Rd	1,115	3,343
Lancaster Rd	1,995	5,947
Long John Morasch Rd	4,401	13,195
Scott Rd	130	390
Sommers Rd	473	1,539
Zaring Cutoff Rd	4,531	13,585

Highway Cost Analysis

Potential Highway Reconstruction

Two highways would be heavily impacted by traffic diversion: SR-194 and Almota Road. SR-194 was acquired from Whitman County in 1992. No information is available regarding the original construction or base

layers. However, core samples provided by WSDOT's Eastern Region suggest that the aggregate base layers of SR-194 have become intermixed with clay and silt over time and no longer provide effective support. Apparently, SR-194 will need to be reconstructed if the P&L and PV-Hooper lines are abandoned.

A substantial grade exists on parts of SR-194, especially near Almota. Given the rugged terrain of the region, pavement reconstruction is projected to cost between $750,000 and $850,000 per mile.[7] A mid-range estimate of $800,000 per mile is used in this study. Approximately 21 miles of SR-194 would need reconstruction at a total cost of $16.8 million. An additional 11 miles of Almota Road—from Colfax to the junction of SR-194—may need reconstruction. The projected cost of this reconstruction is $8.8 million.

The same conclusions regarding SR-194 and Almota Road were reached in the 2005 Palouse Regional Transportation Plan, which states that "these two roadways need to be reconstructed to better handle the loaded trucks that regularly haul agricultural products to the Port."[8] The regional plan further suggests that "reconstruction should include some alignment improvements as well as shoulders, guardrails and other safety improvements."[9] Given the alignment and safety improvements needed for these highways, the cost estimates used in this study are conservative. However, as the Palouse Regional Plan suggests, SR-194 and Almota may need reconstruction regardless of what happens to the current rail traffic on the P&L and PV-Hooper lines.

Highway Resurfacing Costs

With the exception of SR-194, state highways are analyzed using an incremental thickness model, which is described in *Potential Highway Impacts of Traffic Diversions from the Central Washington Rail Line*.[10] In this approach, the effects of additional traffic are quantified by estimating the additional overlay thickness needed when a pavement is resurfaced. These cost estimates reflect an average paving cost of $220,000 per roadway mile for two-lane rural highways.

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[7] Source: WSDOT Eastern Region

[8] J-U-B Engineers, Inc. and Palouse Regional Transportation Planning Organization. *Palouse Regional Transportation Plan, 2005 Addendum*. Page 9.

[9] Ibid.

[10] The incremental thickness method is an abstract representation of the pavement rehabilitation process using overlays. It is based on the AASHTO rehabilitation/overlay method. The objective is to determine the additional overlay thickness needed to accommodate the new truck traffic. The method uses a set of cost elasticities derived from the AASHTO pavement design equation. An elasticity represents the percentage change in structural number corresponding to a one percent change in ESALs for a given class of pavement. For example, the elasticity of light-duty flexible pavements is 0.178. This means that when a one percent increase in ESALs occurs on a light-duty flexible pavement the structural number must be increased by 0.178.

During the time frame of this study, only limited county road data could be obtained. This information was used in conjunction with data collected during the 1998 Grain Train Study. These data indicate that: (1) the surfaces of most impacted highways are thin bituminous surface treatments (i.e., BST pavements), and (2) the base and subbase layers are probably old stone or gravel sections about 10 inches thick. Although the exact compositions and depths of the base layers are unknown, it appears that most of the impacted segments have structural numbers between 1.4 and 1.6.[11]

Most of the impacted county roads will need to be resurfaced to handle current and additional traffic at an estimated cost of $220,000 per mile. The cost-responsibility of the incremental traffic is estimated by: (1) computing the average cost per equivalent single-axle load based on the expected ESAL life of the resurfaced pavements, (2) multiplying the average cost per ESAL (approximately 34 cents) times the ESALs per truck-mile, and (3) multiplying this product by the incremental truck-miles of travel.[12]

State Highway Impacts

Table 5 shows the projected impacts for SR-127, SR-194, and SR-272. The reconstruction costs of SR-194 are allocated between incremental traffic (i.e., carloads handled on the lines during 2005) and existing traffic in proportion to the equivalent single-axle loads attributable to each group. Approximately $4 million of costs are projected for the three most heavily-impacted highways (Table 5). Most of this cost is attributable to the reconstruction of SR-194.

Table 5. Projected Cost of State Highway Improvements Attributable to Potential Traffic Diversion from the P&L and PV-Hooper Lines

Route Number	Projected Incremental Cost
127	$264,370

[11] The exceptions are Sommers Road and Endicott East Road, which have structural numbers greater than 2.0. Moreover, these roads would be affected by incremental traffic from a single station—Mockonema. Therefore, any impacts would be negligible.

[12] Because of sketchy data, the incremental thickness method could not be applied to county roads. The cost responsibility method is an approximation that does not require detailed knowledge of baseline ESALs. Instead, highway costs are allocated based on the traffic's share of the projected ESAL life of a pavement. The assumed $220,000 per roadway mile will provide at least a 3-inch overlay, thereby increasing the structural numbers of impacted county roads to about 2.7. The ESAL lives of the resurfaced pavements are affected by the soil resilient modulus (MR). As evidence by SR-194 core samples and recent geo-technical work on SR-270, the soils in the region are combinations of clays and silts with some basalt. MR values for clays and silts range from 3,000 to 6,000 psi. If the MR is 6,000 psi, the typical life expectancy of a resurfaced pavement is 651,000 ESALs. Under these assumptions, the average cost per ESAL is about 34 cents.

194	$3,648,475
272	$59,065
Total	**$3,971,910**

As noted earlier, the projected impacts on US-195 and SR-270 are negligible. Although SR-127 is built with medium-strength pavement, this highway would experience the highest incremental traffic load—500,000 additional ESALs per year. Thus, the normal overlay thickness would have to be increased by ¼ to ½ inches to accommodate the additional traffic.

County Road Impacts

Endicott East, Farmington, Scott, and Sommers Roads would be minimally affected by traffic diversions from the P&L and PV-Hooper lines (Table 2). Therefore, these roads are dropped from the analysis. However, the remaining roads would need additional structure. With the exception of Almota Road, it is assumed that structural capacity is added through resurfacing.

The annual cost responsibility of the resurfacing and reconstruction outlays is approximately $140,000 (Table 6).[13] After reconstruction, it is assumed that the design life of Almota Road is 20 years. The assumed design lives of the resurfaced pavements are 15 years or less. Over these assumed lives, the cumulative cost responsibility of the potential new traffic amounts to roughly $2.3 million. In effect, most of the cost responsibility for highway improvements is allocated to existing traffic.

Table 6. Annual Cost Responsibility of Rail Traffic for Projected Improvements to County Roads Under a Maximum Traffic Diversion Scenario

Road	Annual Pavement Cost Responsibility
Almota Rd	$31,525
Endicott SW Rd	$13,850
Endicott South Rd	$8,075
Endicott West Rd	$10,920
Hume Rd	$14,150
Lancaster Rd	$23,660

[13] The projected life of SR-194 after reconstruction is approximately 2,133,000 ESALs. With a reconstruction cost of $800,000 per mile, the average cost responsibility of traffic is $0.38 per ESAL-mile. As noted earlier, the projected cost responsibility of the resurfacing improvements is 34 cents per ESAL-mile.

Long John Morasch Rd	$22,925
Zaring Cutoff Rd	$15,010
Total	**$140,115**

Conclusions

Approximately $6.3 million of state and county road impacts are projected if the remaining grain traffic on the P&L and PV-Hooper lines is diverted to truck-barge. However, these are not pure incremental cost estimates. Rather, they are cost allocations. Moreover, the estimates are subject to several assumptions and data limitations:

- The mix of commodities shipped from the lines is unknown. It is assumed that all cars are loaded with grain. Moreover, the carload values used in this study are based on projections for the 4th quarter of 2005.
- Inbound truck shipments to elevators are assumed to remain the same. The analysis focuses only on outbound movements from elevators.
- The exact structural numbers of county roads and baseline truck traffic are unknown. Therefore, approximate SN values are inferred from surveys and historical data. County road costs are allocated on the basis of the projected shares of pavement lives consumed by new traffic.
- Some of the highway improvement costs may be unavoidable, regardless of what happens to the remaining carloads on the lines.
- Highways in Idaho will be impacted by traffic moving from Princeton and Willson siding to Lewiston. These impacts are not included in the study.
- The analysis does not consider all factors that influence highway cost. At some level, additional truck traffic may trigger the upgrading of a segment of roadway; or, the classification of the roadway may require an improvement to current design standards. When this occurs, roadway widening is necessary to achieve design lane and shoulder widths. Moreover, side slopes may be flattened for safety reasons, utilities may be adjusted, and guardrails installed or improved—all of which increase cost.