EXECUTIVE SUMMARY

Recent, and more importantly, projected coal, petroleum and foodstuff commodity exports to meet Pacific Rim markets are being contracted and shipped through the Pacific Northwest. Media releases as well as energy marketing industries continue to document the Asian economic transition and its need for power, fuel, food, and other basic commodities. To meet this demand, large capital investments from US energy and finance companies are being made to improve Ports capacity in the Northwest US and Canada. By 2016, development of port capacity includes up to 44 Million Tons Per Year (MTPY) at Longview and 40 MTPY at Cherry Point.

Felsburg Holt and Ullevig (FHU) were hired by Forward Sheridan to evaluate engineering alternatives for rail traffic in the Sheridan area. This rail traffic has impacts on the economy, environment, as well as the efficiency of the local surface transportation system and general safety of the traveling public. The *Feasibility Study for Safe Efficient Rail Traffic (SERT)* through Sheridan was undertaken to better understand existing and potential rail traffic impacts and regional opportunities.

There are several track components to this project. The first component is realignment of the mainline track. Many alignments were initially evaluated from an engineering feasibility perspective in this Study. Based on the results of this analysis, the four alignment alternatives evaluated in the final phase of the engineering feasibility analysis were determined to be feasible. These alignments are depicted in **Figure ES-1**. This finding is based in part on our understanding of BNSF design criteria for mainline track design and our understanding of what the BNSF would consider to be a reasonable range of operating conditions along the realigned line segment. In association with realignment of the mainline, the project would also require other track components, including replacement of the Wakely setout and curve reduction for the east leg of the Dutch Wye. Together, the items described above were collectively considered in the cost for mainline track realignment for the four corridor alternatives.

With a continued focus BNSF operational efficiencies, project implementation would also involve relocation of the existing BNSF yard located in downtown Sheridan. For the purposes of this Study, the project team assumed that all existing operations at the existing BNSF yard would remain the makeup of operations for a relocated yard in the Sheridan region. This would include the existing operations, maintenance-of-way and mechanical departments, crew-change, and helper train operations currently conducted at the Sheridan yard. The project team identified two potential yard sites (see **Figure ES-1**) and concluded that both sites are feasible from an engineering perspective. The total estimated cost is $65.7 M , and is approximately the same for both sites based on concept level engineering design.

Project Cost

The total cost for project implementation includes the cost of mainline track realignment, the other track reconstruction requirements noted above, and the yard relocation. The following table summarizes the total project cost for each realignment corridor alternative.

Table ES-1 Total Project Cost (Including 30% Contingency)

Alignment Alternative	Rail Realignment- E. Dutch Wye- Wakely Setout- LS 314 Wye Cost	Yard Relocation Cost	Total Project Cost
Alternnative A - North Corridor	103.2 M	65.7 M	168.9 M
Alternative B - North Central Corridor	98.0 M	65.7 M	163.7 M
Alternative C - South Central Corridor	74.5 M	65.7 M	140.2 M
Alternative D - South Corridor	90.8 M	65.7 M	156.5 M

M = Million Dollars

A significant component of the total project cost is associated with a contingency allotment. BNSF typically factors in a 30% project contingency at this (concept) level phase for the project. The estimates provided above include a 30% contingency, which represents approximately $30 M to $37 M of the total project costs noted above. As the project proceeds through subsequent phases of the design process, this contingency would be reduced as more design details for the project become known. There is the possibility that not all of the contingency cost would be realized, but by the same token there is a chance that all (or potentially more) of the contingency cost would be realized.

All of the costs presented in this Study and summarized above are in 2012 dollars for construction. The actual year for construction is yet to be determined. The actual project cost must also include consideration for annual inflation from 2012 to the actual year of construction.

No Action

In an environmental clearance process, a build project is always evaluated along with what is called the "No-Action" alternative. The no-action alternative impacts were not completely evaluated herein because this is primarily an engineering feasibility study. However, probable impacts due to the increased rail traffic that are associated with the no-action alternative in this case may include detrimental air quality impacts, noise impacts, as well as impacts to vehicular traffic in terms of delay and safety. Also, other build alternatives, such as grade separations, present significant potential impacts to historic properties in the vicinity of the existing at-grade road crossings. There is one other implication associated with the no-action alternative that should be noted. The existing yard facility is limited in terms of addressing future BNSF operational needs with regard to increased unit train lengths. As such, future train operations may involve extended blockages of at least one of the existing at-grade crossings in order to continue such operations with increased train lengths. Such extended blockages would drastically increase the vehicular delays beyond the projections noted below.

The most evident potential impact from increased train traffic through Sheridan is impacts to vehicular traffic. The following section summarizes the potential vehicular impacts, in terms of delay and safety, for the no-action alternative due to increased train traffic, without consideration for a future increase in unit train lengths.

Vehicular Traffic Impacts – No Action Alternative

With regard to crossing safety, the crossing Hazard Indices at both 5th Street and 1st Street are expected to more than double between the Existing and 10-Year Scenarios and are close to doubling when compared to the Historic Peak. This means that the relative hazard potential at both crossings is expected to approximately double due to the projected increase in train traffic at both crossings. This does not necessarily mean these crossings will be less safe in the future but does mean that there is an increased exposure due to the higher number of trains that could result in additional train-vehicle collisions. With regard to the number of vehicles delayed on a daily basis due to train traffic, the following **Tables ES-2 and ES-3** show the number of vehicles per day at each crossing that are expected to experience at least some delay.

Table ES-2 Vehicles Delayed On A Daily Basis – 5th Street

Description	Average Number of Trains per Day	Daily Vehicles Delayed at 5th Street	
		Uniform Train Traffic (Distribution over 24 hrs)	Peak Train Traffic (Assumes 75% of Train Traffic from 8AM to 5PM)
Existing	27	1,540	2,185
Historic Peak	32	1,790	2,595
5-Year Projection	45	2,525	3,640
10-Year Projection	60	3,365	4,945

Table ES-3 Vehicles Delayed On A Daily Basis – 1st Street

Description	Average Number of Trains per Day	Daily Vehicles Delayed at 1st Street	
		Uniform Train Traffic (Distribution over 24 hrs)	Peak Train Traffic (Assumes 75% of Train Traffic from 8AM to 5PM)
Existing	27	330	470
Historic Peak	32	385	560
5-Year Projection	45	545	785
10-Year Projection	60	725	1,065

As can be seen, currently it is estimated that anywhere from 17 to 25 percent of the daily vehicle traffic at both 5th Street and 1st Street experience at least some delay due to train traffic. The number of daily vehicles delayed is expected to increase to between 30 and 40 percent if the 5-Year Projection is realized and anywhere from 40 to over 50 percent if the 10-Year Projection is realized.

As this analysis has shown, the projected increases in train traffic through each of the at grade crossings at 5th Street and 1st Street are expected to result in a fairly substantial increase in both the number of vehicles delayed daily at each crossing as well as the vehicle minutes of delay experienced by the vehicles at these at grade crossings. If rail realignment is not implemented, these traffic projections may warrant a grade separation at the 5th Street crossing. This is not an entirely unexpected finding as the number of trains projected for the 10-Year Scenario could result in a minimum of 2 to 3 train crossings per hour but could be as many as 4 to 6 trains crossing per hour. As shown, this level of train traffic would be disruptive to vehicle traffic in Sheridan.

Environmental Scan – Alignment Alternatives

This feasibility study includes an "environmental scan", which identifies some potential environmental resources in the proximity of the alignment alternatives. The environmental scan is based on a compilation of readily-available environmental resource information from public sources, primarily GIS layers obtained from public agency websites. It is intended to provide an early indication of possible environmental issues and concerns associated with the alignment alternatives, but this is not intended to provide a complete inventory of environmental resources or assessment of environmental impacts.

Additional environmental resource analysis, impact assessment, and coordination will be required if one or more of the alignment alternatives presented in this feasibility study is advanced for further consideration. This will likely include agency coordination/scoping, field investigation/verification, and identification of necessary mitigation measures, permits, and approvals for the alignment alternatives under consideration. These activities are outside the scope of this engineering feasibility study.

It should be noted that the environmental scan has focused only on possible environmental resources in the immediate proximity of the alignment alternatives, and has not considered possible operational concerns or impacts, if any, that may be associated with the movement of trains outside of the area of this study.

Results of the scan:

- There are no parks or recreation sites that would be impacted by any of the alignments
- No Native American resources or sacred sites are anticipated to be present in the area of any of the alignments. There are no Native American Lands identified in the area of the alignments
- The South Alignment (Alternative D) impacts the most irrigated property, in total
- No mapping is available to show if threatened and endangered species habitats exist within the rights-of way of the possible track alignments. Future project studies will provide guidance on the possibility of habitat or species within the alignments based on land use and climatic or soils conditions that may be supportive of one or more of the species
- No defined and mapped public trail alignments were found within the area of the rail alignment alternatives
- The North Alignment (Alternative A) impacts the most acreage of wetlands
- The North Alignment (Alternative A) skirts the eastern edge of the Tongue River Zone A floodplain. There are no base flood elevations associated with this zone of floodplain
- All of the alignments will cross Prairie Dog Creek on the east end of the alignments. This is also a Zone A floodplain, with no base flood elevations determined
- The South alignments (Alternatives C and D) have the most oil and gas producing wells found to be within the alignment right-of-way
- Additionally, the North Alignment, North Central Alignment, and South Central Alignment (Alternatives A, B and C) each cross the Bitter Creek natural gas pipeline one (1) time. The South Alignment (Alternatives D) crosses the Bitter Creek natural gas pipeline three (3) times, and crosses the Western Gas Resources natural gas pipeline one (1) time, along with impacts to a gas facility
- The North and North Central alignments (Alternatives A and B) have the largest construction impact footprint and thus require the most property in terms of acreage

Economic Impacts – Rail Realignment and Yard Relocation

Total labor earnings for the direct, indirect and induced workforce associated with construction are projected at over $66 million.

Table ES-4 depicts estimates of the output (gross receipts), number of jobs and labor earnings in Sheridan County that would be supported by rail realignment construction activity and land purchases.

Table ES-4 Projected Economic Impacts of Rail Realignment Construction Activity

Impact Type	Output	Employment	Labor Income
Direct Effect	$ 146,360,800	1,049.5	$ 45,942,616
Indirect Effect	28,565,546	263.3	10,900,029
Induced Effect	29,427,708	297.5	9,494,469
Total Effect	**$204,354,048**	**1,610.3**	**$ 66,337,112**

Source: BBC Research & Consulting.

BBC modeled the ongoing economic effects of a 500-job light manufacturing operation at the vacated rail yard to demonstrate the potential economic opportunity. Incorporating these direct employment estimates into the county IMPLAN model indicates that an ongoing manufacturing operation will support a total of nearly 75 jobs in Sheridan County when indirect and induced effects are included.

Direct annual output (gross receipts) from manufacturing activities is projected at about $7.4 million per year. Including indirect and induced effects, the manufacturing operation is projected to produce over $10 million in output in Sheridan County. Annual total labor income (including indirect and induced effects) is projected at about $3.5 million. The average annual earnings per employee directly and indirectly supported by manufacturing activities are

projected to be about $47,000. **Table ES-5** summarizes the projected ongoing economic impacts from potential manufacturing operations at the redeveloped rail yard.

Table ES-5 Projected Annual Economic Impacts - Hypothetical Manufacturing Operation at Rail Yard

Impact Type	Output	Employment	Labor Income
Direct Effect	$ 7,445,604	50.0	$ 2,621,922
Indirect Effect	1,126,234	8.9	378,283
Induced Effect	1,562,129	15.7	503,802
Total Effect	**$ 10,133,967**	**74.6**	**$ 3,504,007**

Source: BBC Research & Consulting.

Finally, it is valuable for reference to break down the cost of this project in terms of the commodity rail traffic (coal). **Table ES-6** identifies the per ton project cost over a hypothetical 30-year payoff period for a low end projected rail traffic increase (20 loaded trains per day).

Table ES-6 Per Ton Shipped Project Cost – 30 Year Payoff Period – Low End Rail Traffic Projection

Category	Value
Construction Cost	$ 140,200,000
Payoff Period (yrs)	30
Interest Rate	4.0%
Annual Payment	$8,107,780
Trains per Year (@ 20/day)	7,300
Tons of Coal per train	14,750
Tons of Coal per year	107,675,000
Estimated Required Pmt. per Ton Shipped	**$ 0.08**

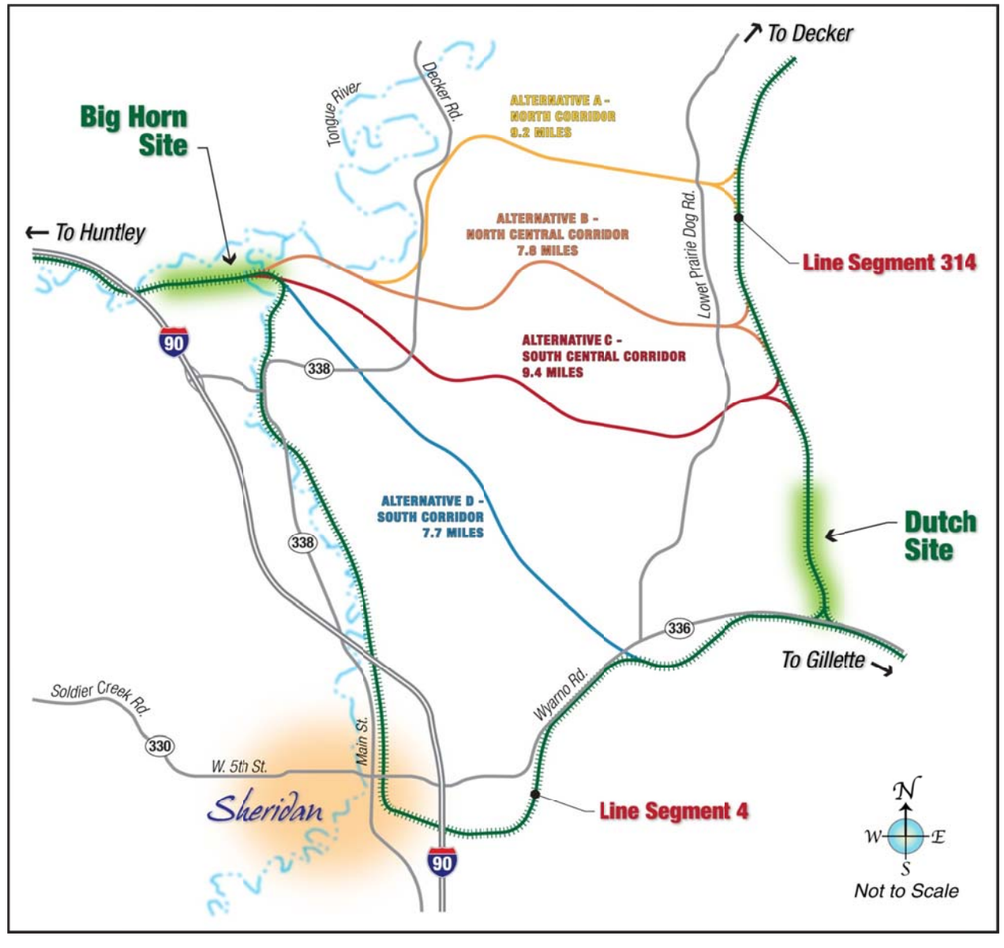
While the project does have a substantial implementation cost, the potential benefits to the Sheridan region are also substantial. The project team recommends the following "next steps" toward potential project implementation:

- Submit the Study to BNSF for review
- Submit the Study findings to BNSF to complete appropriate in-house operational analyses at their discretion to validate the findings of the project team that the engineering parameters for the four corridor alternatives presented herein are in fact feasible from a BNSF operations perspective
- Request a response from the BNSF with regards to potential operational benefits for the route alternatives presented herein in order to gain a broader understanding to total project benefits
- Evaluate the broader under understanding of total project benefits against the impacts to determine if it is appropriate to proceed with pursuing project implementation
- Investigate the potential revenue recipient implications of a yard relocation from within the City of Sheridan to a location within Sheridan County
- In conjunction with the item above, investigate potential project funding partners and sources to gain a better understanding of project feasibility from a financial perspective

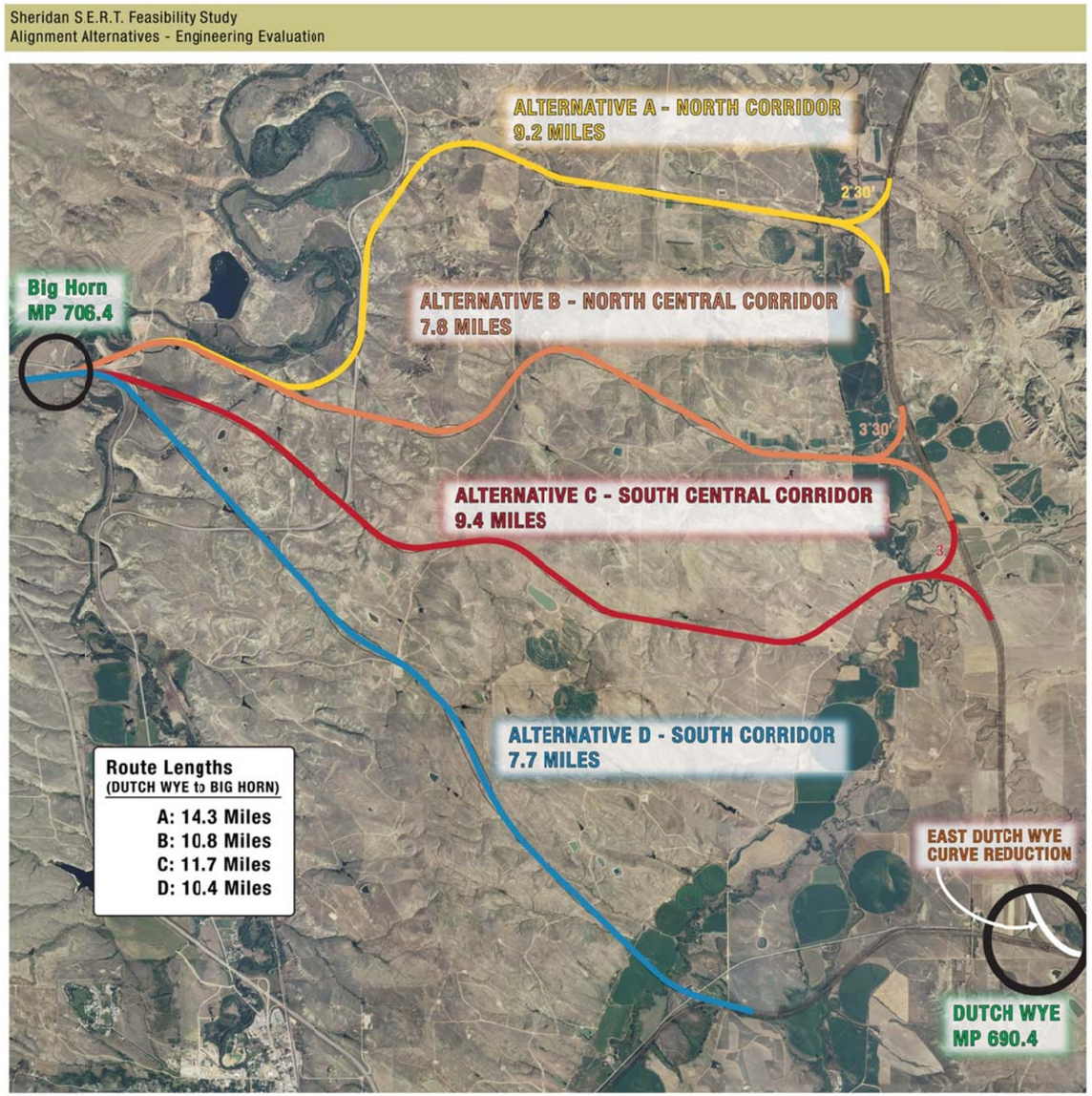
Potential Project Implementation Timeline:

Environmental – Permitting – Design:	27 Months
Right-of-Way Acquisition:	12 Months
Construction:	21 Months
Total:	**60 Months (5 Years)**

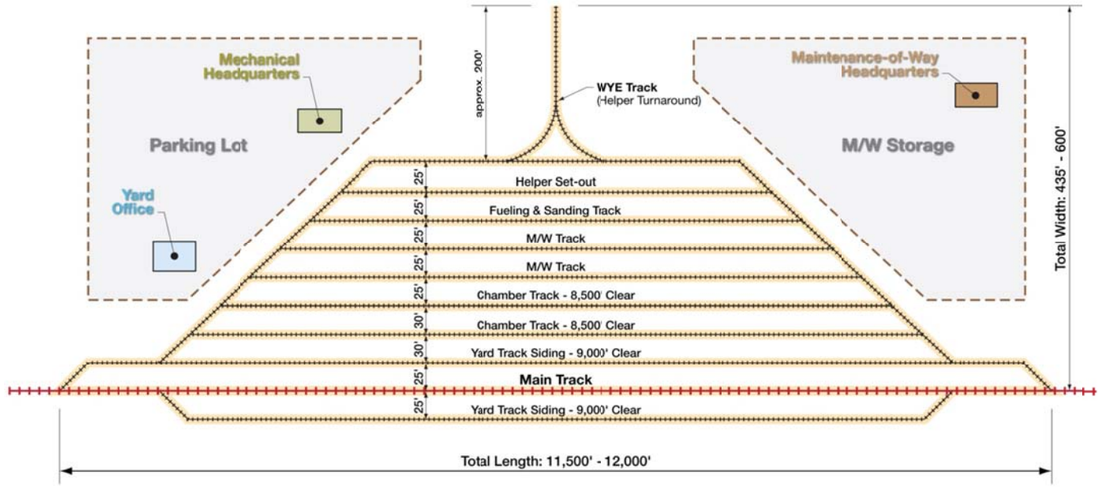
Figure ES-1 Track Realignment Alternatives and Yard Relocation Options



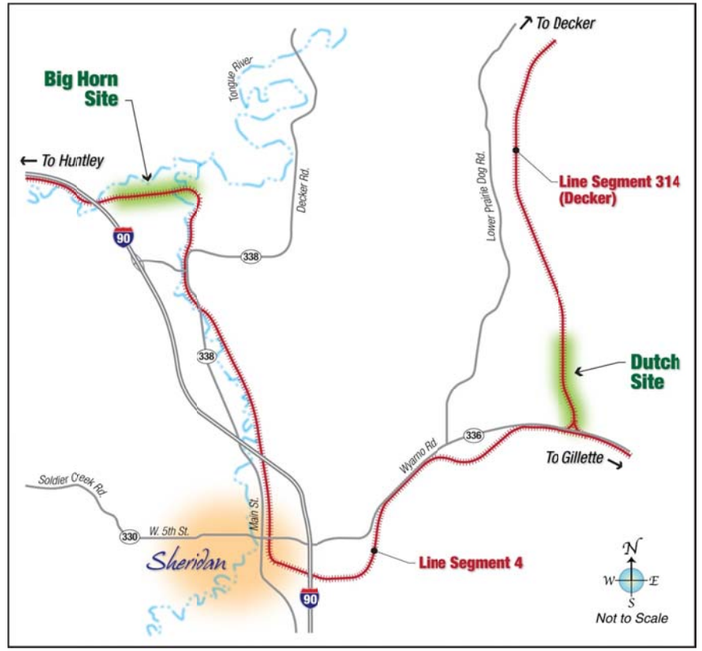
Alignment Alternatives



Relocated Yard Concept Plan



Relocated Site Alternatives



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